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Annual Report of the University, 1983-1984, Volumes 1-4

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1983-84

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UNIVERSITY OF NEW MEXICO

WOMEN'S ATHLETICS

YEAR END REPORT

1983-84

Dr. Pat Trainor
Sports Information Director

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SUMMARY OF THE PROGRAM

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The 1983-84 athletic year could best be characterized as the second vintage year for the women. This was UNM's second complete season under the auspices of the NCAA, and the High Country Athletic Conference, although it was the first year that the Conference had a full time commissioner at the helm.

For a second year, the HCAC awarded the High Point Trophy to the school whose team's finished the highest in the eight recognized Conference sports. Again New Mexico was edged out by Brigham Young University for the honors by $4\frac{1}{2}$ points. The women's golf team captured the Conference title, and no other team finished lower than fourth place. Altogether UNM had thirty - eight women athletes selected to be members of their respective All-Conference Teams. Two others were named to their All-Conference Second Team, and three athletes received Honorable Mention.

This year not only did UNM's women athletes receive many honors from the Conference, but so did the staff. Five New Mexico coaches were voted by their peers to be "Coach-of-the-Year", in the sports of cross country, basketball, tennis, golf and track. This certainly speaks highly of the caliber of personnel on the women's athletic staff.

For the first time the HCAC recognized a "Player-of-the-Week" throughout the year. New Mexico had 7 athletes so honored in the sports of volleyball (2), basketball (2), and softball (3).

Five teams were nationally ranked throughout their competitive season. Four of these either qualified teams or individuals to participate in their NCAA National Championships, and of the four two teams finished in the Top 10.

The UNM ski team was the first to compete nationally and they went beyond everyone's fondest dream by placing 3rd in the nation and they brought home the bronze trophy to prove the fact. This was the highest national finish for any UNM men's or women's team and it seems appropriate that it took a coed effort to accomplish the task. The team had 6 individuals honored as All-Americans,

four of which were women, and one national champion, who was also a woman.

The next sport that was off to nationals was gymnastics. Antoinette Gonzales represented UNM and she finished forty-third in the all-around competition. This was a good finish considering that Antoinette had been bothered with injuries throughout the year.

In the spring, the women's golf team qualified for nationals by being ranked 9th in the nation. They competed against sixteen other teams and finished 8th in the nation, which tied the all time national finish for any UNM women's golf team.

In June the women's track team had 5 individuals qualified for nationals, which surpassed last year's record of 2. One individual made it to the finals of her event and in the end was ranked eleventh nationally.

New Mexico strives to develop a whole person and not just an athlete. This year twenty-seven athletes were honored by the HCAC for their academic achievement, as well as, being named to the UNM Academic Honor Roll. Three athletes were named to the College Sports Information Directors of America (Co SIDA), District 6 Academic All-America Team. The New Mexico athletes competed academically with other athletes from Arkansas, Texas, and New Mexico. The three athletes receiving this honor were the only ones on the District 6 team that were not from Texas.

UNM's athletic administration and staff continue to provide leadership on the national level, as well as, on the state and local scene. Many goals were reached this year, and in some cases team's went beyond their goal. Obviously New Mexico has a quality women's athletic program that continues to strive for excellence in its achievements.

Coach's Records
Summary

Sport	Coach Asst. Coach	Years at UNM	Season Record	UNM Record	Career Record	Conference Finish	National Finish
Basketball	Doug Hoselton Frankie Walsh	4 2	16-11	52-60	52-60	2nd (t)	-
Golf	Barbara Berry	2	No way to compute win-loss record			1st	8th
Gymnastics	Pete Longdon	2	8-13	22-26	22-26	(Regional) 2 qualified	1 qualified finished 43rd
Skiing	George Brooks Klaus Weber	14 9	No way to compute win-loss record			(Regional) 3rd	3rd (6 All-Americans)
Softball	Susan Craig Ken Johnson	7 5	26-14	194-151-1	194-151-1	3rd	-
Swimming	Bill Spahn	3 1	No way to compute win-loss record			4th	-
Tennis	Helen Horn	3	21-14	49-41	49-41	2nd	-
Track	Michael MacEachen	2	No way to compute win-loss record			2nd	5 qualified (finished 11th)
Cross Country	Cindy Schmandt	1	No way to compute win-loss record			2nd	-
Volleyball	Laurel Kessel	1	28-11	28-11	28-11	4th	-

ADMINISTRATIVE PERSONNEL-WOMEN' ATHLETICS

Athletic Director - Linda Estes 14 years
Assistant Director - Dr. Judy Kay 4 years
Sports Information Director - Dr. Pat Trainor 2½ years

HIGH COUNTRY ATHLETIC CONFERENCE
Team Finishes 1983-84

	UNM	NMSU	BYU	CSU	UTAH	WYO.	UTAH ST.	UNC
Basketball	16-11 (7-3) 2nd(t)	10-18 (2-8) 5th	18-7 (9-1) 1st	12-15 (4-6) 4th	19-9 (7-3) 2nd(t)	8-20 (1-9) 6th	---	---
Cross Country	2nd	---	1st	4th	5th	3rd	---	---
Golf	1st	3rd	2nd	4th	---	---	---	---
Gymnastics	3rd	---	2nd	---	1st	---	---	---
Softball	26-14 (9-1) 3rd	16-25 (1-9) 6th	---	7-14 (2-8) 5th	31-19-1 (6-4) 1st	---	27-21 (7-3) 2nd	14-22 (5-5) 4th
Skiing	2nd	---	---	---	1st	3rd	---	---
Swimming	4th	5th	2nd	1st	6th	3rd	---	---
Tennis	2nd	4th	1st	5th	3rd	---	---	---
Track and Field	2nd	---	1st	4th(t)	6th	3rd	4th(t)	---
Volleyball	28-11 (5-5) 4th	23-10 (6-4) 2nd(t)	28-5 (9-1) 1st	27-11 (6-4) 2nd(t)	18-27 (1-9) 6th	27-18 (3-7) 5th	---	---

Fourth year coach Doug Hoselton and assistant coach Frances Walsh had their most successful season this year. The team finished with an overall record of 16-11, and a 7-3 HCAC record, which placed them in a tie with Utah for second place. The icing on the cake was Hoselton's being named Coach-of-the-Year by the other HCAC basketball coaches. In the preseason poll UNM was picked to finish only fourth in the Conference.

This year's Lobo team has been characterized as the "little train which finally proclaimed, 'I know I can' and then did." Hoselton is quick to point out that the success belongs to the players. They are players who filled the roles for which they were recruited and then they took on larger roles when warranted.

Members of this year's team set a number of season and school records. A 6 of 6 free throw performance against Wyoming was the first 100 percent game, and 42 free throws attempted against CSU is a new high. Yvonne McKinnon's 52.3 field goal percentage was just short of the school record & Alison Foote's 425 field goals attempted broke the old record of 408.

The season included back-to-back wins over Utah and Brigham Young and UNM was in first place through five conference games. The Lobos took the season series from NMSU and Wyoming, the latter the first time UNM had won in Wyoming.

McKinnon was named to the All-HCAC first team, while Foote was named to the second team, and Cathy Lowther received honorable mention. McKinnon and Lowther were also honored as Players of the Week. This year's Most Valuable Player was Yvonne McKinnon. The Defensive Award was received by Cathy Lowther and the Rebounding Award went to Alison Foote.

The team retains all players as there were no seniors on this year's team . . . how nice!!

BASKETBALL RESULTS

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11/23	UNM	66	COLORADO	79	L
11/26	UNM	72	NORTHERN ARIZONA	70	W (OT)
11/29	UNM	75	TEXAS EL PASO	73	W
12/2	UNM	70	ORAL ROBERTS	84	L
12/3	UNM	95	COLORADO STATE	64	W
12/10	UNM	75	TEXAS EL PASO	42	W
12/16	UNM	71	HARDIN SIMMONS	59	W
12/18	UNM	90	MONTANA STATE	62	W
12/19	UNM	76	BOISE STATE	86	L
1/5	UNM	39	UNLV	79	L
1/6	UNM	54	CAL POLY	76	L
1/7	UNM	59	ARIZONA STATE	67	L
1/13	UNM	87	ADAMS STATE	61	W
1/16	UNM	59	WAYLAND BAPTIST	62	L
1/18	UNM	74	WEST TEXAS	77	L
1/21	UNM	80	NORTHERN ARIZONA	74	W
1/26	UNM	60	UTAH	55	W *
1/28	UNM	83	BRIGHAM YOUNG	79	W *
1/31	UNM	77	NM HIGHLANDS	61	W
2/9	UNM	54	COLORADO STATE	64	L *
2/11	UNM	62	WYOMING	41	W *
2/18	UNM	57	NMSU	41	W *
2/23	UNM	71	BRIGHAM YOUNG	93	L *
2/25	UNM	58	UTAH	66	L *
3/3	UNM	51	NMSU	46	W *
3/7	UNM	68	WYOMING	62	W *
3/10	UNM	68	COLORADO STATE	54	W *

* HCAC GAMES

LOBO WOMEN'S BASKETBALL
1983-84 ROSTER

NAME	HEIGHT	CLASS	POSITION	HOMETOWN	HIGH SCHOOL	COACH
Sally Anderson	5'11"	Junior	Forward	Pittsburgh, PA	Thomas Jefferson	Rich Rosensteel
Alison Foote	5'11"	Junior	Forward	Farmington, NM	Farmington	Norma Flynn
Erica Farmer	5'10"	*Junior	Forward	Albuquerque, NM	Valley	Charles Gibbs
Winnie Foster	5'10"	Sophomore	Forward	Aurora, CO	Aurora Central	Stan Rabbe
Debbie Hayes	5'8"	Junior	Guard	Tucson, AZ	Catalina	Juanita Kingston
Suzanne Hum	6'1"	Freshman	Forward	Poway, CA	Poway	Dave Boulware
Cathy Lowther	5'2"	Junior	Guard	Albuquerque, NM	Eldorado	Don Flanagan
Yvonne McKinnon	6'1"	Junior	Forward	Aurora, CO	Aurora Central	Stan Rabbe
Brenda Perry	5'8"	*Soph.	Guard	Albuquerque, NM	Highland	John Pye
Tahlia Rainbolt	5'11"	*Soph.	Forward	Hamilton, MT	Hamilton	Tom Tucker
Tracy Satran	6'1"	Freshman	Forward	Phoenix, AZ	Camelback	Nadine Sass
Danene Sherwood	5'5"	Sophomore	Guard	Kirtland, NM	Kirtland Central	Jim Karlin
Trish Shoemaker	5'7"	Sophomore	Guard	Albuquerque, NM	Academy	Robert Verado
Susie Sparks	5'2"	Sophomore	Guard	Columbus, GA	Brookstone	Windel McKenzie
Kathy Trujillo	5'4"	Junior	Guard	Albuquerque, NM	West Mesa	Sheryl Clemmer

TEAM MANAGER - Melissa Strickland

3 years eligibility remaining

4 years eligibility remaining

The Lobo women's golf team has proven to be the most consistent team over the years, and again this year was ranked in the Top 10 throughout the season. Under the direction of second year coach Barbara Berry, the team performed well.

In the fall, the Lobo's burned up the courses, taking three third place honors, and finishing out the fall season with a big win at the U.S. International University Invite. The spring schedule mirrored the weather . . . unpredictable. The team had fourth, tenth, fifth and sixth place finishes before going into the Conference Championship. The HCAC contest had been scheduled for Ft. Collins, but was moved to Albuquerque because of snow. The first round was played in 50 mph winds, and with BYU taking the led at the end of the day. The second round of play had to be delayed because of 3" of snow . . . which had not been predicted. On the third day play was resumed and UNM stormed ahead, despite the cold temperatures and captured the Conference title once again.

When the national rankings came out, shortly after the Conference title, UNM was tied for ninth and would be making the trip to Florida for the Championship. The team pulled together during the four rounds of competition and finished up 8th in the nation, which tied them for the all time UNM national finish.

Theresa Schreck, who took medalist honors at the HCAC Championship was named to the All-Conference Team, along with Kristi Arrington and Debbie Wright. Coach Barbara Berry was named "Coach-of-the-Year". This year's MVP award went to Theresa Schreck and Debbie Wright received the team Leadership Award.

Assistaing with the team this year was past Lobo Dana Howe who was selected to be a member of the U.S. Curtis Cup team this year.

The team losses seniors Debbie Wright, Sara Hindi, Joselyn Frankow and Christine Smith. Theresa Schreck was selected to be a 2nd Team All-American because of her outstanding play throughout the year.

Golf Results

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<u>Tournament</u>	<u>Team Finish</u>	<u>Individual Players</u>
Brigham Young Invite Provo, Utah	3rd/11 teams	Theresa Schreck, 3rd Kristi Arrington, 4th Debbie Wright, 10th Carolyn Barnett Sharon Hadley
McGuire Invite Albuq., N.M.	(t) 3rd/15 team	Debbie Wright, 2nd Theresa Schreck, 4th (t) Kristi Arrington Carolyn Barnett Sharon Hadley
Nancy Lopez Invite Tulsa, OK	rained out	
Stanford Invite Palo Alto, CA	3rd/11 teams	Debbie Wright, 4th Theresa Schreck, 9th (t) Kristi Arrington Carolyn Barnett Sharon Hadley
U.S.I.U. Invite San Diego, CA	1st/15 teams	Theresa Schreck, 2nd (t) Debbie Wright, 6th Kristi Arrington, 9th Sharon Hadley, 13th Carolyn Barnett
Lady Wildcat (Arizona State) Tempe, AZ	4th/12 teams	Kristi Arrington, 4th (t) Theresa Schreck, 7th Debbie Wright Sharon Hadley Carolyn Barnett
Betsy Rawls Invite Austin, TX	10th/18 teams	Theresa Schreck, 2nd Kristi Arrington Sharon Hadley Debbie Wright Carolyn Barnett
Lady Mustang Round up (SMU) Dallas, TX	5th/12 teams	Theresa Schreck Debbie Wright Kristi Arrington Sharon Hadley Sara Hindi
Lady Sun Devil Invite (Arizona University) Phoenix, AZ	6th/18 teams	Theresa Schreck, 2nd Debbie Wright Kristi Arrington Sara Hindi Carolyn Barnett (hurt during practice - did not play)

<u>Tournament</u>	<u>Team Finish</u>	<u>Individual Players</u>
HCAC Championship Albuq., N.M.	1st/5 teams	Theresa Schreck, 1st Debbie Wright, 2nd (t) Sharon Hadley, 4th Carolyn Barnett, 8th Kristi Arrington, 9th (t)
NCAA Championships Innisbrook Resort Tarpin Springs, FL	8th/16 teams	Debbie Wright, 27th Kristi Arrington, 42 (t) Theresa Schreck, 42 (t) Carolyn Barnett, 45 (t) Sharon Hadley, 57 (t)

out of 102 players

Roster for Golf

<u>NAME</u>	<u>CLASS</u>	<u>HOMETOWN</u>	<u>NATIONAL RANK OUT OF 600 PLAYERS</u>	<u>SCORING AVERAGE</u>
Kristi Arrington	Junior	El Paso, TX	9th	76.15
Carolyn Barnett	Junior	Appleton, WI	275th	82.31
Joselyn Frankow	Senior	Swift Current Sac, Canada	-	-
Sharon Hadley	Junior	Eugene, OR	195th	79.85
Sarah Hindi	Senior	Albuquerque, NM	397th	85.83
Theresa Schreck	Junior	Spokane, WA	9th	74.3
Christine Smith	Senior	Casper, WY	-	-
Debbie Wright	Senior	Albuquerque, NM	16th	74.85

The future looked bright for the Lobo's and second year coach Pete Longdon, although their schedule was one of the toughest in a long time. The team opened by competing in the Rocky Mountain Open at the Air Force Academy where they got off to a good start with six wins and only two losses. From there on the road got tougher as UNM would be competing against Top 10 teams for the remainder of the season. UNM went up against such power houses as Louisiana St. (13th), Oregon St. (7th), Berkeley (15th), Arizona (10th), ASU (2nd), Utah (1st) and UCLA (4th). The Lobos found that they could be competitive with the top ranked schools, although the team was hampered by injuries almost the entire year.

One of the best meets all year for the Lobos was a home meet with Oklahoma St. (18th) where Antoinette Gonzales set a school record in the vault with a 9.55. The team also set a school record, with a 178.85, but this was later broken when UNM defeated BYU 179.25 to 178.75.

Tracy Kwiatkowski and Antoinette Gonzales both qualified for the NCAA Regional competition where Antoinette finished high in the competition. She was then ranked 8th in the region which qualified her for the NCAA Nationals. Gonzales did very well considering that she went into the competition with injuries. She ultimately finished 43rd out of 87 competitors in the all-around events.

This year's MVP award went to Antoinette as a result of her strong performance throughout the year. Tracy Kwiatkowski received the Coach's Award. The senior award went to Lisa Fuller.

Overall Record 8-13

<u>Opponent</u>	<u>W/L</u>	<u>UNM Score</u>	<u>Opp Score</u>
Rocky Mt. Open		167.6	
Denver	L 0-1		174.65
Nebraska	L 0-2		169.65
Air Force	W 1-2		166.65
Northern CO	W 2-2		159.3
Ft. Hayes (KS)	W 3-2		156.75
Adams St.	W 4-2		153.
Western St.	W 5-2		126.5
Louisiana St. U	L 5-3	172.30	175.80
Stanford U.	L 5-4	170.0	178.60
Oregon St.	L 5-5		176.90
U of Calif.-Berkeley	L 5-6	174.7	175.65
Arizona U.	L 5-7		178.9
Oregon St.	L 5-8		178.70
Oklahoma St.	W 6-8	(School Record) 178.85	174.85
San Diego St.	L 6-9	176.50	176.70
Southwest Cup			
Arizona St.	L 6-10	175.15	184.20
Oklahoma	L 6-11		180.4
Brigham Young U.	W 7-11	(School Record) 280.90	274.10
Denver U.	L 7-12	130.15	178.35
Brigham Young U.	L 7-13		132.95
Utah St.	W 8-13	178.55	174.8
NCAA Regionals			

Tracy Kwiatkowski
Antoinette Gonzales ranked 8th

NCAA Championships

Antoinette Gonzales finished 43rd/87

Gymnastics Roster

<u>NAME</u>	<u>CLASS</u>	<u>HOMETOWN</u>
Lisa Fuller	Sr.	Lakewood, CO
Tracy Kwiatkowski	Jr.	Annapolis, MD
Chris Riser	Jr.	Wheaton, MD
Antoinette Gonzales	So.	Houston, TX
Martha Dummer	So.	Los Alamos, NM
Peggy Carrillo	So.	Albuquerque, NM
Deneen Black	Fr.	Houston, TX
Nikki Vrla	Fr.	Dallas, TX

Last year the UNM Ski team had their best ever national finish (6th), but this year they went beyond anyone's fondest dream to be 3rd in the nation. Not bad for a desert state! Coaches Brooks and Weber knew that they had an outstanding group of skiers this year, but they were almost afraid to talk about it, as if the dream would disappear. As each collegiate race came and went, and with the team always finishing in the top three, it became apparent that UNM could break last year's national finish. New Mexico's regional finish was 3rd and just behind the Utes, who were the defending NCAA Champions. Throughout the five collegiate events UNM piled up three second place and three third place finishes. The Lobo's were closing the point gap on the defending national champs. UNM qualified eight people in cross country (4 men & 4 women) & seven athletes in alpine (3 men & 4 women) for a total of 15 that would make the trip back east to North Conway, New Hampshire for the Championships.

The first days competition was the men's and women's giant slalom, which was UNM's weakest event. A 5th place finish by the men and a fourth place finish by the women, captured an overall 5th place spot for New Mexico.

On the second day came the grueling cross country 7.5k race for the women and the 15k for the men. Lobo Heidi Sorensen captured the national title with teammates Kjersti Stenberg coming in 6th and Sissel Trondseth finishing 15th to take 1st place. Unfortunately Wenche Hokholt did not finish the race due to a fall on the course, which injured her neck. The men skied their hearts out to finish fourth. Now after two events the UNM skiers found themselves in third place with Colorado, Dartmouth, and Wyoming close on their heels.

The third day's events were the men's and women's slalom. Mia Wahlqvist lead the way for the women with a 3rd place finish and the team coming in 9th. The men had only three skiing, so each had to finish the course. They faced the challenge and charged the slope, with Anders Peinert coming in 6th, followed

immediately by Max Wahlqvist in 7th and Bjurman Anders placing 13th. The men finished second overall and the Lobos were still in third place by 1½ points.

The fourth and final event was the men's and women's cross country relay race. The UNM women were the defending champions. The men skied first and again they went beyond their hopes and took a fourth place, narrowly missing third by ½ a ski length. The women skied next and took a solid third place (one skier fell during the race), to secure a third place overall for UNM, and twenty-four points ahead of Colorado.

With all the Lobo wolf calls going around at the finish line, one might of thought that UNM, had won the championship, and as far as the Lobos were concerned they had!! In the end Heidi Sorensen was a national champion and 1st team All-American; Mia Wahlqvist and Anders Peinert were alpine 1st team All-Americans; Kjersti Stenbureg and Sissel Trondseth were cross country second team All-Americans; Max Wahlqvist was alpine second team All-American; and the team brought home the bronze trophy for 3rd place . . . not bad for four days of playing in the snow!!! And best of all, all of these skiers will be back next year.

Heidi Sorensen received this year's cross country MVP award and Mia Wahlqvist received the alpine MVP honors. Most Improved Skier Award went to Karen Currie, and teammate Kjersti Stenberg received the Lobo Award.

All-Conference honors were bestowed upon Kjersti Stenberg, Heidi Sorensen, Sissel Trondseth, Wenche Hokholt, Bret Bodnar, Pekki Kempa and Kristian Naess in cross country. In alpine Mia Wahlqvist, Louise Knight, Aneders Peinert, and Max Wahlqvist received All-Conference recognition. Richard Abruzzo was also selected to be a member of the College Sports Information Directors of America (CoSIDA), District 6 Academic All-America Team. Richard competed against other athletes from the states of Arkansas, Texas, and New Mexico. He is a business major with a 3.55 GPA.

Ski Results

<u>Event</u>	<u>Location</u>	<u>Finish</u>
Montana State University	Bozeman, MT	2nd/7 teams
University of Utah	Salt Lake City, UT	2nd/8 teams
Western State College	Gunnison, CO	2nd/7 teams
University of Wyoming	Steamboat Springs, CO	3rd/9 teams
University of Colorado	Silver Creek, CO	3rd/ 9 teams
NCAA Championship	North Conway, NH	3rd/17 teams

Roster

<u>Women's Alpine</u>		<u>Men's Alpine</u>	
Tea Uggerud	Oslo Norway	Richard Abruzzo	Albuquerque, NM
Kerstin Lundgren	Gallivare, Sweden	Jim Raudenbush	Ruidoso, NM
Saila Miettinen	Tampere, Finland	Max Wahlqvist	Karlstad, Sweden
Lisa Kimura	Syracuse, NY	Anders Peinert	Sundsvall, Sweden
Mia Wahlqvist	Karlstad, Sweden	Guy Jackson	Albuquerque, NM
Karen Currie	Redlands, CA		
<u>Nordic</u>		<u>Nordic</u>	
Goril Skyttersetter	Slemmestad, Norway	Espen Jansen	Baerum, Norway
Karen Wilson	Albany, NY	Stefan W. Farr	Missoula, MT
Kjersti Stenberg	Oslo, Norway	Kip M. Drobish	Bangor, CA
Wenche Hokholt	Oslo, Norway	Kristian Naess	Oslo, Norway
Heidi Sorensen	Serreisa, Norway	Bret Bodnar	Anchorage, Alaska
Christina Sandal	Akersberga, Sweden	Pekka Kempfi	Otalampi, Finland
Sissel Trondseth	Trondheim, Norway	Bernie Sander	Ottawa, Canada
		Jay Grant	Albuquerque, NM

SOFTBALL

The women's softball team showed a great deal of promise and Coaches Craig and Johnson felt it was one of the best teams they had put together in a long time. They were a good defensive team, but more importantly they were able to hit the ball. They quickly went up 8-0 in the season, then 16-6, and by the end of the season they were 27-13 overall and 9-1 in Conference play. This team was the first to be consistently ranked in the Top 10 and they posted the best Conference record after regular season. They entered HCAC Championship play as the number one seed, but the title was not their's to have, and the Lobos fell to third in the Conference Championship.

Although the end was sudden and disappointing, the team had some accomplishments to be proud of, like a team batting average of .242. There were three players batting over .300 for the year and Shelia Blonigan tied the school record for stolen bases with 19. The team had 57 stolen bases in 43 games.

Michelle Madrid, Meg Conoors, and Shelia Blonigan were all named HCAC Players of the Week. An unprecedented six players were named to the All-Conference team and included Sue Kragseth, Meg Connors, Diane Settle, Michele Madrid, Shelia Blonigan, and Kathy Dyer. Pitcher Alison Maney received honorable mention.

The Lobos MVP Award went to Michele Madrid, while Sue Kragseth captured the Offensive Award and Shelia Blonigan took the Defensive Award. Meg Connors received the Coaches Lobo Award.

The softball teams will lose four players off of this year's team: Seniors Sue Kragseth and Meg Connors; Kim Noyes who lost an appeal on the five year rule; and Erin Putnam who underwent knee surgery. Meg Connors received a Letterman's Club scholarship for next year.

1984 Softball Results

<u>Opponent</u>	<u>Score</u>	<u>UNM Score</u>	<u>Record</u>
Texas Tech	1	4	1-0 W
Texas Tech	0	2	2-0 W
New Mexico State	0	3	3-0 W
New Mexico State	0	1	4-0 W
Northern Arizona	0	5	5-0 W
Northern Arizona	0	1	6-0 W
Highlands University	0	3	7-0 W
Highlands University	1	8	8-0 W
Minnesota	0	2	9-0 W
Oklahoma	0	1	10-0 W
Oklahoma State	3	1	10-1 L
Nebraska	2	1	10-2 L
Northern Arizona	2	4	11-2 W
Nebraska	0	1	12-2 W
Mesa College	2	3	13-2 W
Kansas	2	7	14-2 W
Kansas	6	0	14-3 L
Texas A & M	2	0	14-4 L
Iowa State	1	4	15-4 W
Southern Illinois	0	9	16-4 W
Louisiana Tech	4	2	16-5 L
Northwestern	5	0	16-6 L
South Carolina	2	0	16-7 L
Oklahoma	3	2	16-8 L
Northwestern	3	1	16-9 L
* Utah	0	3	17-9 W
* Utah	1	2	18-9 W
* Utah State	1	2	19-9 W
* Utah State	1	0	19-10 L
Northern Colorado	1	6	20-10 W
Northern Colorado	1	12	21-10 W
UCLA	3	1	21-11 L
UCLA	3	0	21-12 L
* New Mexico State	1	10	22-12 W
* New Mexico State	0	5	23-12 W
* Colorado State	0	3	24-12 W
* Colorado State	3	5	25-12 W
* Northern Colorado	3	6	26-12 W
* Northern Colorado	0	1	27-12 W

1984 Softball Results

00221

<u>Opponent</u>	<u>Score</u>	<u>UNM Score</u>	<u>Record</u>
HCAC Championships			
Northern Colorado	0	1	28-12 W
Utah State	6	2	28-13 L
Utah	4	1	28-14 L

* HCAC Games

1983-84 SOFTBALL TEAM ROSTER

<u>NUMBER</u>	<u>NAME</u>	<u>CLASS</u>	<u>POSITION</u>	<u>HOMETOWN</u>
9	Diane Settle	Jr.	Catcher	Edwardsville, IL
10	Kim Noyes	Fr.*	Utility	Farmington, NM
12	Sue Kragseth	Sr.	1st	St. Louis Park, MN
13	Terri Nielson	Jr.	Utility	San Bernadino, CA
14	Kathy Dyer	So.	2nd/1st	Ann Arbor, MI
18	Erin Putnam	Jr.	3rd/P	Scottsdale, AZ
19	Dee Sanchez	Jr.	3rd	Albuquerque, NM
22	Venisa Dinius	Fr.	P/Util.	Golden Valley, MN
24	Meg Connors	Sr.	OF	Scottsdale, AZ
25	Michele Madrid	Jr.	CF	Espanola, NM
26	Amy Lucero	So.	Utility	Los Alamos, NM
27	Sue Inman	So.	Utility	Midland, MI
28	Sheila Blonigan	So.	SS/2nd	Golden Valley, MI
30	Allison Maney	Jr.	Pitcher	Long Beach, CA

Head Coach: Susan Craig

Assistant: Ken Johnson

* (no eligibility left after this year, however)

SWIMMING

The UNM women's swim team and third year coach Bill Spahn encountered rough waters this year. The women Lobos experienced many injuries and people leaving the team throughout the season, but they faced the challenge despite their setbacks.

The team competed in ten meets this year, finishing fourth in the High Country Athletic Conference. There were several highlights that lead up to the Conference Championship. Kathy Dixon took a first place in the U.S.A.F.A. meet in the 100 free with a time of 56.03. Janie Owens captured two first places in the NMSU meet (50 free & 100 fly), while teammate Tracy Weyant took the one meter diving event. The 400 free relay team also took a first place (Leffingwell, Mathias, Owens, Cullpepper). At the Red Raider Invite UNM swam against some very tough competition, but had a good showing by the 200 yd relay team which placed 2nd (Leffingwell, Owens, Mathias, Dixon). Janie Owens also captured 3rd place honors in the 100 fly. And the Lobos captured 1st place against the University of Utah in Salt Lake City.

At the HCAC Championship, the 400 free relay team of Kathy Dixon, Tara Looney, Becky Cullpepper, and Michelle Leffingwell captured 2nd place which earned them All-Conference honors. Some good individual efforts were turned in by Kathy Dixon (3rd in the 100 y free and the 400y IM) and Tracy Weyant (3rd in the 3 meter diving). This year's MVP award went to Michelle Leffingwell and the Lobo Award was received by Cathy Raynis. The team losses seniors Becky Cullpepper, Michelle Leffingwell, Terri Porter, and Cathy Raynis. Raynis also received a Letterman's Club scholarship for the coming year which will enable her to complete her undergraduate degree requirements.

Swimming Results

00223

<u>DATE</u>	<u>OPPONENT</u>	<u>LOCATION</u>	<u>FINISH/TEAMS</u>
Oct. 29, 1983	Air Force Academy	Albuquerque, NM	2/2
Nov. 5, 1983	NMSU	Las Cruces, NM	2/2
Nov. 18, 1983	Wyoming	Laramie, WY	2/2
Dec. 2-3, 1983	Red Raider Invite	Lubbock, TX	4/5
Jan. 7, 1984	TCU	Albuquerque, NM	2/2
Jan. 20, 1984	Utah	Salt Lake City, UT	1/2
Jan. 21, 1984	BYU	Provo, UT	2/2
Feb. 10, 1984	CSU	Albuquerque, NM	2/2
Feb. 11, 1984	Texas Tech	Lubbock, TX	2/2
Feb. 23-25, 1984	HCAC Championship	Salt Lake City, UT	4/6

Women's Swim Team Roster

<u>NAME</u>	<u>CLASS</u>	<u>HOMETOWN</u>
Amy Burgeson	Fr.	Albuquerque, NM
Kathy Culpepper	So.	Farmington, NM
Becky Culpepper	Sr.	Farmington, NM
Kathy Dixon	Jr.	Santa Fe, NM
Michelle Leffingwell	Sr.	Albuquerque, NM
Tara Looney	Fr.	Barstow, CA
Melanie Marshall	Fr.	Albuquerque, NM
Lee Anne Mathias	Fr. (exchange student)	New York, NY
Janine Owens	So.	Grand Forks, ND
Lori Pachelli	Jr.	Albuquerque, NM
Terri Porter	Sr.	San Jose, CA
Cathy Raynis	Sr.	Rockaway, ND
Tracey Weyant	So.	Honolulu, Hawaii

The women's tennis team continues to make good progress towards becoming a very strong program. Under the direction of third year coach Helen Horn, the level of play has become much more competitive, as has the schedule of play.

The fall season ended with the Lobos posting a 7-4 dual record. The biggest win for New Mexico was their defeat of the University of Arkansas, and this started the team on a roll. They defeated the next five opponents which included Texas A&M.

The team had a good home schedule during the spring which allowed the community to see some of the better collegiate women's teams in action. New Mexico came out on top with a final dual record of 21-14 for the year. This is one of the best season records posted by the women's team. Standouts were Mari Forbes with a dual record of 24-13, and Leanne Palmisano with a record of 22-11. Kelly Fackel and Palmisano ended the season with a 20-12 doubles showing. Freshman Nancy Rath certainly showed promise as a tough competitor with a 16-12 record.

This year's MVP was Mari Forbes. The Most Improved Player Award went to two people, Nancy Rath and Leanne Palmisano. This year Leanne Palmisano, Mari Forbes and Kelly Fackel were named to the HCAC All-Conference Team and "Coach-of-the-Year" honors were brought home by Coach Helen Horn.

Senior Susanne Kloster and Junior Mari Forbes were also selected to be members of the CoSIDA District 6 Academic All-America Team. Their names will be placed on the national ballot which will be announced at the end of June. Susanne is an accounting-business major with a 3.78 GPA. Mari is an exercise physiology-biochemistry major and has a 3.85 GPA.

TEAM'S COMPOSITE DUAL-MEET RECORD
UNIVERSITY OF NEW MEXICO
TENNIS

00225

DATE	RECORD RESULT	OPPONENT	SCORE	HOME/AWAY NUETRAL
9-22-83	L 0-1	University of Houston	6-3	N
9-22-83	L 0-2	NE Louisiana	7-2	N
9-23-83	W 1-2	University of Arkansas	5-4	N
9-28-83	W 2-2	Colorado State	9-0	A
9-29-83	W 3-2	U. Colorado - Boulder	8-1	A
9-30-83	W 4-2	U. Northern Colorado	8-1	A
10-1-83	W 5-2	Denver University	8-1	A
10-5-83	W 6-2	Texas A&M	6-3	H
10-6-83	L 6-3	Southern Methodist U	9-0	H
10-7-83	L 6-4	Lamar University	6-3	H
10-8-83	W 7-4	New Mexico State	8-1	H
<hr/>				
2-16-84	L 7-5	Arizona State	8-1	A
2-17-84	L 7-6	U. Texas at Permian Basin	5-4	N
3-1-84	W 8-6	NMMI	6-0	H
3-2-84	L 8-7	Texas Tech	5-4	H
3-3-84	W 9-7	Northern Arizona	9-0	H
3-3-84	W 10-7	Air Force Academy	9-0	H
3-10-84	W 11-7	Oral Roberts	6-3	A
3-13-84	L 11-8	Oklahoma State	9-0	A
3-15-84	W 12-8	University of Nebraska	6-3	N
3-16-84	L 12-9	Clemson	8-1	N
3-17-84	L 12-10	Florida State	5-1	N
3-30-84	L 12-11	Houston	8-1	H
3-31-84	W 13-11	New Mexico State	8-1	H
3-31-84	W 14-11	Odessa	5-1	H
4-6-84	W 15-11	Northern Colorado	8-1	H
4-6-84	W 16-11	UTEP	9-0	H
4-7-84	W 17-11	Oral Roberts	8-1	H
4-12-84	W 18-11	Pima College	9-0	H
4-13-84	L 18-12	Lamar	5-4	N
4-14-84	W 19-12	Utah	5-4	N
4-24-84	W 20-12	Utah	5-4	A
4-25-84	L 20-13	BYU	9-0	A
<u>HCAC Championships</u>				
4-27-84	W 21-13	Utah	5-4	N
4-28-84	L 21-14	BYU	5½-3½	A

TENNIS ROSTER

<u>NAME</u>	<u>CLASS</u>	<u>HOMETOWN</u>	<u>DUAL RECORD</u>
Kelly Fackel	So.	Rock Island, IL	15-16
Mari Forbes	Jr.	Carlsbad, NM	24-13
Susanne Kloster	Sr.	Albuquerque, NM	17-12
Kuulei McCalla	Jr.	Los Altos, CA	12-13
Leanne Palmisano	Jr.	Albuquerque, NM	22-11
Nancy Rath	Fr.	Omaha, NB	16-12

CROSS COUNTRY

00027

Under the direction of first year assistant coach Cindy Schmandt, the cross country team rose to new heights. Accepting the challenge were six juniors and two freshman. The team came from virtual obscurity to a national ranking of 10th in mid-season. Their big first time win at the BYU Invitational and Arizona Invite built their confidence and they began to think they were invincible. They then went on to defeat such nationally ranked teams as BYU, UCLA, Cal-Berkeley, Arizona, and Arizona State. The Lobos eventually took 2nd place at the Conference Championship.

Because of their outstanding achievements, six Lobos were named to the HCAC All-Conference team and included Carole Roybal, Cynthia Valdez, Kathy Pfiefer, Kelly Champagne, Joan Sterrett, and Kristi Rapp. Coach Schmandt was also named "Coach-of-the-Year".

The year's MVP was Kathy Pfiefer. The Most Improved Award went to freshman Kelly Champagne, and the Coach's Award was received by Carole Roybal. The cross country team carried a 3.3 GPA during the fall semester.

TRACK & FIELD

The indoor season for the Lobo's was a good one as the team defeated Northern Arizona, which was a sweet victory after last year's trouncing by NAU over UNM. The team also set five school records and in the process Barbara Bell qualified for the NCAA Nationals in the 55 meter event, and teammate Shannon Vessup qualified for the 500 meter event.

The indoor season was a primer for the longer outdoor season which saw the team set 8 new school records. When Conference time rolled around the Lobos were ready to show their stuff. The team had 6 Conference Champions, set 4 new conference records and a record 8 athletes were named to the HCAC

All-Conference team. Making the All-Conference team was Barbara Bell, Shannon Vessup, Patty Mack, Pam Posey, Joan Sterrett, Michelle Richardson, Kim Werner, and Tara Spurlock. To top it off Coach Mike MacEachen was named "Coach-of-the-Year".

Barbara Bell was named MVP this year, Shannon Vessup was honored as the 1984 Track Athlete, and Tara Spurlock as the Field Athlete. The Most Improved Athlete was Kathy Pfiefer.

The track & field squad boasted of a 2.9 GPA for the fall semester and had twenty-one people with a GPA of 3.0 or better.

CROSS COUNTRY RESULTS

00329

-1983-

<u>DATE</u>	<u>RACE</u>	<u>LOCATION</u>	<u>FINISH/TEAMS</u>
Sept. 10	Arizona St.	Tempe, AZ	1/2
Sept. 17	Adams St	Alimoso, CO	2/5
Sept. 23	BYU Autumn Classic	Provo, UT	1/8
Sept. 24	Texas Tech	Lubbock, TX	2/3
Oct. 8	Arizona Invitational	Tucson, AZ	1/10
Oct. 15	Cal-Nike Invitational	Berkeley, CA	3/8
Oct. 29	New Mexico	Albuq., NM	1/5
Nov. 12	High Country Championship NCAA, District 7	Eden, UT	2/5 5/13

OUTDOOR
TRACK & FIELD RESULTS

-1984-

<u>DATE</u>	<u>RACE</u>	<u>LOCATION</u>	<u>FINISH/TEAMS</u>
March 17	Arizona U	Tucson, AZ	3/4
March 24	Texas	Austin, TX	3/4
March 31	Texas Tech	Lubbock, TX	3/8
April 7	Sun Angel Classic	Tempe, AZ	open meet
April 28-29	Mt. S.A.C. Relays	Walnut, CA	open meet
April 30	New Mexico	Albuq., NM	non-scoring
May 5	New Mexico	Albuq., NM	non-scoring
May 9	High Country Championship	Provo, UT	2/6

1983-84 LOBO WOMEN'S ROSTER

DISTANCE RUNNERS

<u>Name</u>	<u>Event</u>	<u>Ht.</u>	<u>Wt.</u>	<u>Cl.</u>	<u>Hometown</u>
Debbie Barber	3K/5K	5'8"	140	Sr.	Los Alamos, NM
Kelly Champagne	3K/5K	5'6"	111	Fr.	Canton, MI
Linda Mitchell	1500/3000	5'4½"	101	Jr.	Bellevue, WA
Lisa Mitchell	1500/3000	5'5"	106	Jr.	Bellevue, WA
Kathy Pfliefer	5K/10K	5'3"	105	Sr.	Sacramento, CA
Kristi Rapp	1500/3K	5'6"	120	Jr.	Albuquerque, NM
Carole Roybal	800/1500	5'5"	110	Fr.	Albuquerque, NM
Joan Sterrett	800/1500	5'8½"	123	Jr.	Jamaica, NY
Alizabeth Thurston	5K/10K	5'2"	100	Fr.	Los Alamos, NM

SPRINT AND FIELD EVENTS

<u>Name</u>	<u>Event</u>	<u>Ht.</u>	<u>Wt.</u>	<u>Cl.</u>	<u>Hometown</u>
Barbara Bell	100/200	5'4½"	124	Jr.	Ft. Worth, TX
Mary Lynn Griffin	Heptathlon	5'7"	130	So.	Albuquerque, NM
Lynn Hargrove	100 Hurdles/ 400 Hurdles	5'11"	130	Fr.	Albine, TX
Jacquelyn Hubert	Shot Put/ Discus	5'6"	155	Fr.	Albuquerque, NM
Patty Mack	100/200	5'5"	120	Fr.	Albuquerque, NM
Pam Posey	100/200	5'3"	118	Fr.	Albuquerque, NM
Sue Qualls	Discus Javelin	5'4½"	169	Jr.	Albuquerque, NM
Michelle Richardson	400/800	5'9"	124	Fr.	Albuquerque, NM
Lynn Schreyer	Heptathlon	5'10"	139	Jr.	Albuquerque, NM
Yolanda Sommers	200/400	5'7½"	125	Fr.	Albuquerque, NM
Tara Spurlock	100/Long Jump	5'8"	136	Fr.	Albuquerque, NM
Natasha Strelkoff	400/800	5'4½"	110	Sr.	Beverly Hills, CA
Shannon Vessup	400/ 400 Hurdles	5'11"	140	Jr.	San Bernardino, CA
Kim Werner	High Jump	5'5"	115	Fr.	Garden City, KS

VOLLEYBALL

The Lobo volleyball squad and first year coach Laurel Kessel finished the season with a 28-11 record, the best record in the history of New Mexico volleyball. Their Conference record, however, was 5-5 which placed them fourth in Conference standings. This year's Conference record matched that of last year's which was good enough a year ago for a second place. This certainly shows the increased strength of squads within the Conference over last year's teams.

Highlights of the season were early wins over Top 10 teams such as Arizona and Texas. The Lobos won two tournaments in September, the Roadrunner in Las Cruces, and the Texas Centennial in Austin. Conference play was much more competitive this year, and New Mexico went 5 games with BYU, CSU, and NMSU. A win in just one of those matches would have given the Lobos an NCAA play-off berth. The Lobos were ranked in the Top 20 poll throughout the season.

Terri Nielson, Kim Hicks, and Shannon Vessup made All-Tournament teams during the season. The volleyball team had two "Player-of-the-Week" in Terri Nielson and Shannon Vessup. Terri was also named to the HCAC All-Conference first team, followed by Shannon on the second team, and Kim Hicks received honorable mention. In the post-season, Sandra Gayton was selected to be a member of the Athletes-In-Action volleyball team which will tour South America this summer.

The teams MVP award went to Kim Hicks and Sandra Gayton received the Sportsmanship Award. The team will lose seniors Kim Hicks, Terri Nielson and Sandra Gayton. Terri Nielson received a Letterman's Club scholarship which will enable her to complete her degree.

UNM VOLLEYBALL
Results - 1983

00032

				Record	
SEPT.	2	L	Arizona St.	14-16;3-15;8-15	0-1
	3	W	Arizona	15-12;14-16;15-10;15-4	1-1
9-10			<u>Roadrunner Invitational:</u> Terril Neilson, All-Tourney Kim Hicks, MVP		
		W	New Mexico St.	7-15;15-11;16-14;15-10	2-1
		W	UTEP	15-11;15-2;9-15;15-5	3-1
		W	Angelo St.	15-4;15-3;15-10	4-1
		W	Texas Tech	15-6;13-15;15-11;15-8	5-1
15		W	New Mexico St.		6-1
16-17			<u>Lobo Invitational:</u> Kim Hicks; Shannon Vessup - All-Tourney		
		W	Kansas	15-4;16-14;15-11	7-1
		W	Montana	15-9;15-5;19-17	8-1
		W	UTEP	15-7;7-15;9-15;15-6;15-13	9-1
		L	New Mexico St.	4-15;15-9;7-15;15-5;9-15	9-2
22-24			<u>BYU Invitational :</u> Shannon Vessup, Kim Hicks - Honorable Mention		
		W	Texas-Arlington	15-5;15-9	10-2
		W	U.S. International	15-5;8-15;15-8	11-2
		W	Lamar	15-12;10-15;15-9	12-2
		W	Oregon	15-11;15-10	13-2
		W	Weber St.	12-15;15-10;15-9	14-2
		W	Missouri	11-15;15-4;15-1	15-2
		L	Portland St.	15-17;11-15;15-12;15-7	15-3
		W	Weber St.	15-3;15-3	16-3
SEPT.	30-		<u>Texas Centennial Tourney</u>		
OCT.	1	W	North Carolina	15-13;11-15;15-11;17-15	17-3
		W	UTEP	15-10;15-8;15-4	18-3
		W	Rice	15-8;15-2;15-9	19-3
		W	Texas	14-16;10-15;15-7;15-2;15-10	20-3
	7	W	Utah (1-0)	17-15;15-7;15-9	21-3
	8	L	Byu (1-1)	9-15;5-15;15-1;15-8;10-15	21-4
	14	W	Wyoming (2-1)	15-9;15-12;13-15;15-9	22-4
	15	L	CSU (2-2)	6-15;16-14;9-15;15-12;11-15	22-5
	19	W	NAU	15-4;13-15;16-14;15-6	23-5
	21	L	NMSU (2-3)	16-14;16-14;12-15;8-15;11-15	23-6

OCT.	28	L	Byu	(2-4)	15-8;8-15;11-15;9-15	23-7
	29	W	Utah	(3-4)	15-7;15-5;13-15;15-13	24-7
NOV.	3	W	Loyola-Marymount		17-15;15-2;3-15;15-13	25-7
	4-5		<u>UCLA National Invitational</u>			
		L	Cal-Berkeley		15-12;9-15;13-15	25-8
		L	San Diego St.		9-15;15-2;9-15	25-9
		W	Louisiana St.		15-5;15-7	26-9
		L	Cal Poly-SLO		11-15;13-15	26-10
NOV.	11	W	CSU	(4-4)	15-9;15-7;16-14	27-10
	12	W	Wyoming	(5-4)	8-15;15-9;15-10;15-10	28-10
	18	L	NMSU	(5-5)	11-15;10-15;4-15	28-11

Volleyball Roster

<u>NO</u>	<u>NAME</u>	<u>CLASS</u>	<u>POSITION</u>	<u>HEIGHT</u>	<u>HOMETOWN</u>
5	Jocelyn Funk	Fr.	S	5'7"	Manitoba, Canada
4	Sandra Gayton	Sr.	Def. S.	5'6"	Albuquerque, NM
10	Sue Guinn	Fr.	CB	6'1"	Colorado Springs, CO
15	Kim Hicks	Sr.	LH	6'0"	Big Bear Lake, CA
11	Becky Lucht	Jr.	CB	5'10"	Tijeras, NM
13	Terri Nielson	Sr.	LH	5'10"	San Bernardino, CA
12	Jo Ann O'Connell	So.	RH	5'9"	Albuquerque, NM
14	Katy Timmers	Fr.	RH/S	6'0"	Middletown, OH
9	Shannon Vessup	Sr.	OH	5'11½"	San Bernardino, CA
3	Sandy Wilder	Fr.	LH	5'9"	Colorado Springs, CO

UNIVERSITY OF NEW MEXICO

MEN'S ATHLETICS

YEAR END REPORT

1983-84



SPORTS INFORMATION

THE UNIVERSITY OF NEW MEXICO



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1983-84 Annual Report

The 1983-84 year was the athletic department's most progressive one in history. UNM climbed all the way to second place in the men's overall composite ranking in championship sports in the Western Athletic Conference, the highest the Lobos have ever finished. Brigham Young was No. 1.

It marked a milestone under the athletic directorship of John Bridgers who assumed command of the program in Dec. of 1979 when New Mexico was dead last in composite WAC standings and mired in the middle of that basketball scandal that almost crippled the athletic program for life.

The ski team, a combination of both men and women, finished third in the nation, the highest national finish for any Lobo team ever, and the men's gymnastic team finished ninth in the NCAA final rankings.

Only two of UNM's 10 men's teams finished out of the upper division in the final league standings. The Lobos' basketball team finished 24-11, tying the school record for victories, and in third place in the regular season WAC standings and second place in the conference post-season tournament played at The University of Texas-El Paso. The Lobos were invited to play in the NIT and lost to Lamar, 64-61, in the first round. Coach Gary Colson was voted WAC Coach of the Year.

UNM's wrestling team, coach by Bill Dotson, finished second in the WAC tournament, only one point behind BYU, the champion. The Lobos' swimming team also finished second in the WAC meet and Coach Bill Spahn was voted Coach of the Year by the other conference coaches after UNM was picked to finish fourth or fifth.

The tennis team finished second after making it to the finals with Utah, the Lobos cross country and indoor track teams both finished third, the football and outdoor track teams finished fourth, the football team winning its last three games of the season for a 6-6 overall record.

Bridgers personally raised approximately \$500,000 that the school matched for the construction of a new, all-weather, eight-lane track that should be ready in the fall of 1984.

And he was the motivation behind the state legislature allocating UNM \$250,000 for the study and planning of the expansion and renovation of University Stadium that would begin after the 1985 football season and be finished in time for the 1986 home opener against Tennessee. Seating capacity would climb from the present 30,000 to 45,700, aluminum sleeves would be installed over the existing wooden seats, prolonging their life span another 25 years, and more modern rest rooms and concession areas would be constructed.

FOOTBALL

Coach Joe Lee Dunn's team survived what is probably the worst schedule in the school's history, finishing 6-6, winning its last three games of the season against Wyoming, Texas-El Paso, and San Diego State, and coming home fourth place in the final WAC standings.

Moreover, Dunn's Lobo defense, led by linebacker Johnny Jackson and safety Ray Hornfeck, both two-time all-WAC selections, finished first in the conference in three of four categories.

The Lobos opened with a 17-7 victory over Utah in Albuquerque and then proceeded to try and overcome a schedule that featured seven of the next eight games on the road, including visitations to Tennessee and Arkansas, back-to-back, "It's a wonder we did as well as we did," Dunn concluded. "I'm sure we won't ever see such a schedule again. Imagine playing seven of eight away from home and two of those being at Tennessee and Arkansas."

New Mexico's victories, following that opening triumph over Utah, were achieved at New Mexico State (31-10), at Texas Tech (30-10), against Wyoming (17-10), UTEP (35-0) and San Diego State (34-14).

Quarterback Buddy Funck broke a 53-yard touchdown run with 7:43 left in the game and Joe Bibbo kicked a 21-yard field goal with 1:57 left to ice the opening win over the Utes before 29,161 fans at University Stadium. Fred Mady, middle guard playing in his first varsity game, was named WAC Defensive Player of the Week for his efforts that included eight tackles and the fact he performed as the Lobos' deep snapper at center on punts, extra points and field goals.

The Lobos, outmatched physically by Tennessee and by the hot, humid weather, fell to the Volunteers, 31-6 in Knoxville. Both Mady and tight end Joe Sells were injured, Mady missing the rest of the season after knee surgery. Sells, who hurt his shoulder, returned to the lineup periodically later in the year.

UNM lost to Arkansas in Little Rock the following week, 17-0. Next came New Mexico State in Las Cruces. The Lobos rang up 24 points in the first quarter and were never heard by the Aggies afterward. Funck rushed for three touchdowns and Bibbo banged a 47-yard field goal through the uprights for that early advantage the Aggies could not overcome. Funck hit Derwin Williams on a 58-yard TD pass for the Lobos' final TD late in the fourth quarter.

Probably the most disappointing loss of the year was that 18-8 failure against North Texas State the following week, UNM's only defeat at home. Two fumbled punt returns led to North Texas State touchdowns. The Mean Green had to travel only 31 yard total for TDs and UNM's offense failed to ignite until late in the game when Todd Williamson, the No.2 quarterback, passed 17 yard to Glenn Rogers for the TD and then passed to Rodney Coles for the two-point conversion.

The Lobos' defense provided the breaks the offense needed the following week at Lubbock, Tex., and UNM thrashed the Red Raiders for the second year in a row. Hard, tackling and timely defensive blitzes forced seven Texas Tech fumbles, the Lobos recovering five of them. Linebacker Gary Butler, who made four timely tackles and recovered one fumble, was named WAC Defensive Player of the Week for his performance at Lubbock.

After losses to Brigham Young (66-21), Hawaii (25-16) and Colorado State (25-24), the road-weary Lobos returned home and looked impressive in those three closing victories that left them with an 8-2 record over the past two years in Albuquerque.

Dunn, in his first year as head coach, tutored UNM's defense so well that the Lobos were No. 1 in the WAC in the total defense, allowing the opponents 298.1 yards a game (that's 4.3 yards per play), in rushing defense (116.4 yards, 2.6 yard average) and in scoring defense, holding the enemy to 19.4 points.

Not satisfied with the success of himself and his staff, he relinquished his role as defensive co-ordinator after the season for a better chance at evaluating the entire UNM attack both offensively and defensively and switched the responsibilities of three assistants. He moved Joe Sparks from running backs to the defensive secondary, Jim Norrell from defensive ends to defensive coordinator and John Neal from secondary

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to coaching the linebackers. Dunn hired Roy Gregory, former assistant coach at Memphis State, to be the offensive coordinator.

After all the statistics were in, Jackson and Hornfeck were named all-Western Athletic Conference players for the second year in a row, Butler was named WAC Defensive Player of the Week twice, Mady once, Bibbo, only a freshman, finished in a three-way tie for third place in the WAC for field goal per game average at 1.00.

Punter, Ron Keller, who averaged 42.6 yards, owned the best average for a freshman. He was third best in the WAC but the two ahead of him, Wyoming's Jack Weil and San Diego State's Mike Saxon finished No.1 and No. 2 nationally.

BASKETBALL

The 1983-84 basketball season at the University of New Mexico was indeed one that will long be remembered by the players, coaches, fans and members of the Western Athletic Conference.

Starting practice back in mid-October, the Lobos, under the guidance of fourth-year head coach, Gary Colson, looked like a team that could finish 17-12 or 18-11 based on the caliber of the talent assembled. Seven seniors, a junior and five freshmen donned the Cherry and Silver in the fall. But by the time UNM boarded the plane en route for the season-opening game at the Great Alaska Shootout, just four seniors remained, due to injuries to George Scott and Niles Dockery and the absence of three-year letterman Michael Johnson.

Colson and his staff had to do a lot of soul-searching in Alaska, especially after dropping the first two games of the season after leading both contests at halftime. UNM managed to salvage a 74-60 win over USC for seventh place in the eight-team tourney.

The Lobo Express moved into second gear with wins at home over Long Beach State (74-54) and Washington (54-53). The win over the Huskies eventually proved to be a big notch in the Lobos' belt. Washington finished the regular season with a 22-6 mark and advanced to the NCAA Tournament. But what happened the following Saturday afternoon, Dec. 10, 1983, in Los Angeles may have been the single most important event in New Mexico basketball history.

The Lobos traveled to UCLA to play in hallowed Pauley Pavilion. The Bruins had a 270-16 record there since it opened in 1965 and just seven losses to non-conference

opponents. Make that eight when the Lobos canned eight consecutive free throws in the final 37 seconds to preserve a 65-60 upset win. UNM's record improved to 4-2.

The modest four-game win streak ended a week later at the Pan American Center in Las Cruces. The Aggies nipped the Lobos, 67-60.

UNM got back on track beating Eastern New Mexico, 74-63, and New Mexico State, 57-51, at home before 18,039 fans. Little did the Lobos know at the time they were beginning a win streak.

The 19th Lobo Invitational opened Dec. 29 with Idaho State the Lobos' first victim. Bowling Green defeated California for the right to play UNM the following night. The Lobos played one of their poorest halves against BGU and trailed the visitors 45-33 at halftime. However, UNM pulled a classic Jekyll and Hyde act. The Lobos came out like gangbusters in the second half outscoring Bowling Green, 53-29, to take an 86-74 win for the championship. Phil Smith and Alan Dolensky scored 21 points each to lead the way. Smith was chosen the MVP of the tournament as UNM improved to 8-3.

Four more wins followed against U.S. International (82-74), Pan American (75-63), Loyola Marymount (66-58) and Western New Mexico (77-58) as UNM soared to a 12-3 mark. Smith received another big feather for his cap being chosen the Sports Illustrated Player of the Week from Jan. 1-8.

The WAC season opened Jan. 12 with an 80-65 win over Hawaii. Tim Garrett had 25 points for the second straight game to lead the way. The inevitable happened two days later when a very talented San Diego State team invaded the Pit and soundly defeated UNM, 74-68, snapping the nine-game win streak.

The Lobos hit the highway for the first time in a month making the trip up the North Range. Road games had not been too kind to UNM. The Lobos were 4-40 on the road the past four years and were 2-3 so far this season.

UNM opened at Air Force and posted a 57-47 win, its biggest win ever at the Academy. A 55-47 victory at Colorado State on regional television was next. The record was a surprising 15-4, 3-1 in the conference and UNM had won 11 of its past dozen games.

A Monday night in Laramie, Wyo., turned into complete jubilation as freshman Mike Winters canned a driving layup with four seconds remaining handing the Lobos a 40-38 win-their first in Laramie in five years. Three road wins in five days. No other conference school had ever won all three games on that Rocky Mountain swing. The Lobos were rolling with a 16-4 record, 4-1 in the WAC. And the big showdown

was upcoming.

The Lobos and Texas-El Paso were about to have a classic confrontation Jan. 28 in the Pit. The Miners were 17-1, 5-1 in the conference and ranked fifth in the country. The fifth largest crowd (18,372) ever to watch a game in University Arena was present. Despite a last second shot by UTEP's Luster Goodwin that gave the Miners a 60-59 win, the Lobos and their fans were not disappointed with the performance. Tim Garrett had 26 for the Lobos.

Maybe a little down after the loss to UTEP, Brigham Young came to town and dealt UNM its worst defeat of the season, 86-73. The Lobos bounced back to defeat Utah, 77-69, behind Winters' 21 points and six rebounds. UNM found itself with a 17-6 overall record and a 5-3 WAC mark halfway through the conference race.

A trip to the Islands kicked off the second half of the Western Athletic Conference season. And, as usual, the Lobos were forced into overtime with the Rainbows. UNM prevailed, 46-44, as Nelson Franse knocked in a 20-footer with seconds left. In 1983, the Lobos won in four overtimes.

Coming back through San Diego two days later, UNM fought tooth-and-nail with the Aztecs on regional television falling short, 61-60. Phil Smith had two chances for a game-winning shot in the final seconds but SDSU all-America, Michael Cage blocked both attempts. Franse led UNM with 22 points.

The record zoomed to 21-7 as UNM defeated Wyoming (62-54), Colorado State (61-50) and Air Force (49-48) in the Pit. The Colorado State game was a two-fold memory. For Gary Colson, it was his 400th career win, and it also marked UNM's 20th win of the season. Once again, Franse was the hero in the win over Air Force making an off balance 20-footer at the buzzer.

Revenge did not come to UNM at El Paso. The Miners, using a balanced attack, won 75-66 before a sellout crowd of 12,222.

The last road trip of the regular season to Utah turned into a split and the Lobos were thankful for just that. Another overtime squeaker at Salt Lake City as Phil Smith made one of two free throws with two seconds remaining for a 45-44 win. It was UNM's third win at Utah in 33 tries. The Lobos gave a valiant effort at BYU, but came up on the short end, 80-73. Tim Garrett scored a career high 29 points. The Lobos finished the regular season with a 22-9 mark, and in third place in the WAC at 10-6.

The first-ever WAC Tournament followed the next week with UNM beating Utah, for

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the third time of the season, 56-45. That win earned the Lobos a trip to El Paso and into the semifinals of the tournament against Brigham Young, a team they had not beaten all year.

It was another typical Jekyll and Hyde performance. Due to a mixup with uniforms, the Lobos were forced to wear UTEP's orange road jerseys in the first half. UNM made just seven of 16 shots and six of 13 free throws in the first stanza and trailed the Cougars, 27-20 at intermission. Back into the familiar Lobo home jerseys in the second half, UNM totally dominated BYU, outscoring them, 44-28, and won going away, 64-55. The victory, which was witness by an overwhelming New Mexico contingent (including Miner fans), vaulted the Lobos into Saturday afternoon's game against UTEP. The Miners had defeated Wyoming earlier in the evening.

UNM jumped out to a 18-17 halftime lead in a slow-paced game. The Lobos extended that margin to 25-19 with 17:06 left and a possible NCAA automatic bid was waiting in the wings. But the Miners, who entered the game with a 26-3 record, bounced back. Behind the play of All-WAC forward Fred Reynolds, UTEP outscored UNM, 25-13 the remainder of the game to take a 44-38 win.

The next day, the Lobos, with a 24-10 overall record, waited anxiously for a possible NCAA at-large bid. Dreams were shattered when UNM was not one of the 53 teams mentioned, but an NIT bid came later in the day.

The Lobos hosted Lamar from the Southland Conference in the opening round of the National Invitation Tournament, UNM's first postseason action in five years. The Cardinals proved to be too tough for UNM taking a 64-61 win and advancing to the second round. The Lobos finished the season with a 24-11 record, which tied the school record for most wins in a season.

During the 1983-84 season, there were many more highlights than low. The feeling of "winning every time out" soon became a reality for Coach Gary Colson and his troops. For Gary's efforts, he was named WAC Coach of the Year. Phil Smith was named to the All-WAC first team while Alan Dolensky earned a spot on the second unit.

The Lobos set other school marks during the historic season. UNM made 73.6% of its free throws and played 35 games. While it was not a record, the Lobos posted a 6-6 road ledger compared to the 4-40 mark the past four years. During his career at UNM, Phil Smith set 11 records, including the all-time assist leader (630) and most free throws made (547). Phil finished as the Lobos' third all-time scorer with 1,477 points. Alan Dolensky finished with 927 points, 13th best all-time and played in

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more games (115) than any Lobo ever. Alan finished as only one of five New Mexico players ever to have more than 900 points and 500 rebounds. Although Tim Garrett played just two years at UNM, he finished with 903 career points, 15th on the all-time list and 540 tallies his senior season, ninth best all-time.

GOLF

Just like most coaches, Coach Dwaine Knight, was optimistic towards the 1983-84 Lobo golf schedule. He had a group of golfers that had experience and talent to lead the way, plus a group of knowledgeable, but inexperienced incoming freshmen.

But the cards just didn't fall right for the Lobos. The team had some good performances by individuals but the right combination for the team did not come together during the tournaments.

The top performer for the Lobos was senior, Don Hurter, who took top honors in three tournaments. During the fall season, he won both the Falcon Invitational (70-74-71-215) and the West Texas State Invitational (71-78-76-218), while in the spring, he took top honors in the John Burns Invitational (72-73-71-216). Hurter, was also selected to play in the NCAA Golf Championships in Houston, Texas.

Other Lobo golfers that helped the team during the season and will help once again are junior, Jim Brazen, and freshmen, Mark Wurtz, J.B. Sneve and John Kienle. Two other seniors, Ronnie Castillo and Dave Waszak, will be missed for the 1984-85 season.

As a team, the highest place finish for the Lobos came in the fall season in the Falcon Invitational held in Colorado Springs. Out of the 25 teams participating the Lobos finished second behind golf stand-out Weber State.

Of the nine other tournaments the Lobos competed in, the team did not play as well as expected and ended up finishing down in the pack. Such was the case in the WAC Championships, in which the Lobos took fifth place out of nine teams. The tournament was held in Salt Lake City, Utah.

All in all, the Lobos played well in the tourneys without the major schools and not so well with the top ranked teams. The Lobos did see some of the top collegiate golfers play in some of the most competitive tournaments in the country, such as the famous All-American Championships and Conquistador Invitational.

GYMNASTICS

Consistent. A one word description of Coach Rusty Mitchell's gymnastic team during the past eighteen season. The 1983-84 season was no different.

Led by All-America, Matt Arnot, the Lobo crew finished the year with a perfect 12-0 dual meet record but missed out on going to the national championships by one placing. They were then ranked in the 11th spot. But when the final rankings came out after the championships, the Lobos finished in the ninth position.

During the year, the Lobos were at home only on three different occasions in dual competition and were on the road for the other 10 meets. "Home court advantage" played a big role for the team when performing in the University Arena. Coach Mithcell's gymnasts set a school record with a 280.90 team score against a tough Brigham Young Univeristy squad. The Lobos outscored Oklahoma and Houston Baptist in the "Pit," also.

On the road, the Lobos outdualed schools, such as Louisiana State, Stanford, Cal-Berkeley and Air Force. Their highest team score came against Louisiana State, when they scored a 274.55.

Throughout the season, the Lobos competed in five invitationals. Despite not taking the trophy in any of the five, the Lobos showed that they could compete against the best. Their first was the Rocky Mountain Open, held in Colorado Springs, in which they finished second. This was their highest placing in the Open in the past 18 years. Junior, Matt Arnot, came away with the all-around title in the meet.

What could be called the Lobos worse meet of the year, was when they performed in the UCLA Invitational. Up against the top teams in the country, the Lobos placed sixth despite scoring a 272.30. Then in the Southwest Cup, the squad took a second place finish behind Oklahoma, whom they had outscored the week before.

The Lobos finished their season off by attending the WAC and PAC-10 Invitationals. Held in Provo, Utah, the WAC Invitational had the Lobos competing once again against Brigham Young. But this time the Cougars had the advantage and took the title. UNM finished in the second spot with a team score of 278.20. Once again, Matt Arnot, took the all-around title with a 113.85 score. Concluding the season at the PAC-10 Invitational, the team came away with third place honors against number one-ranked UCLA and Brigham Young.

Although the team did not get the chance to compete at the NCAA Championships, four UNM gymnasts received the chance to participate on an individual basis. Ranked

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number one in the region in the all-around, Matt Arnot, came away placing in the ninth position at the finals. Senior, Steve Hill, competed on his specialty event, the pommel horse, and took 13th place. Other competitors for the Lobos were sophomore stand-out Neil Merrion, and sophomore, Blake Hughes.

The season came to an end for most of the Lobos which meant time to rest and get over the wounds of the 4-month long schedule, but for one Lobo it meant extra hard workouts. Matt Arnot, received the chance to try-out for the 1984 U.S. Olympic Team. First he participated in the U.S. National Championships in Chicago, Illinois. There Arnot placed twelfth with a score of 114.30. From Chicago, he went to Jacksonville, Florida to compete in the Final Olympic Trials in which the top eight gymnasts were to compose the Olympic team. Hampered by an injured shoulder, Arnot finished in the fifteenth position.

Now the gymnasts will start over again for the 1984-85 season by re-conditioning themselves and learning new routines. As for an outlook, the team looks real strong with the return of All-America, Arnot, and NCAA qualifiers, Blake Hughes and Neil Merrion. Missed will be Steve Hill, and all-around performer, Jim Griego.

TENNIS

1984 proved a spectacular year for the Lobos. UNM finished the season with a 24-9 record, a second place WAC championship finish and a doubles team competing at the NCAA championships. Of those nine losses, six came at the hands of top twenty opponents and one from the WAC champion. Not bad for a team of three freshmen, one sophomore, one junior and one senior. Not bad for a team considered decimated by graduation and redshirting.

It was solid performances by top seeds Galen Garcia and Tony Richey, both of whom played consistently well maintaining better than .500 records despite competition from the likes of Arizona State, Oklahoma University, Pepperdine and Princeton, that made the difference. Athletes like sophomore Tim Cass and freshman Steve Bickham combining talents for an 18-8 season doubles record, the No. 1 WAC doubles title and No. 31 ranking bringing this team national recognition. But possibly the most important element in this year's successful squad was the "freshman connection."

Jack Griffin racked up 23 defeats and only six losses all season; Bickham won his last six matches to post a 20-6 record. And both netters are responsible for pulling off matches which made the difference between a team loss or win.

No individual can be credited for the No. 19 and No. 20 national team rankings awarded UNM after fourth ranked Pepperdine and the East's No. 2 team, Princeton, both fell 6-3 to a great team effort. The Lobos swept a California road trip downing seven of eight opponents in eight days earning instant respect nationally and in the WAC.

From then on sights were set on cracking the Utah-Brigham Young WAC championship hold. Seeded No. 1, UNM handed San Diego State a 5-4 loss and went to the final round against Utah, losing by a close 5-4 margin. Despite not capturing the WAC team title, UNM is proud of its improvement over three seasons ago when the Lobos only managed a fourth place finish in conference championships.

WRESTLING

The Lobos enjoyed one of their most successful wrestling seasons in the school's history in 1983-84 missing the WAC championship by one point and finishing the season with an 8-3 dual record. Brigham Young squeezed UNM, 72 1/4 -71 1/4, while Air Force finished third, Wyoming fourth and Colorado State fifth at the conference tourney.

Coach Bill Dotson's UNM team crowned three individual champions at the WAC tournament, Ralph Harrison at 134 pounds, Mike Baker at 142 and Dave Vurik at 177.

Bruce Garner (118) and Brad Cast (167) finished second while Lewis Loya (126), Curtis Luttrell (158) and Dan Ilgenstein (190) came home third.

Dotson's team won its own tournament, The Lobo Invitational, and finished second at the Cowboy Open in Laramie, Wyo., at the Air Force Invitational, the Air Force Tournament and at the MIWA. They finished 12th at the rugged Caesar's Palace Invitational and at the Midwest Classic where the nation's top-ranked teams all competed.

Garner logged the best won-loss record with a 42-12 showing. Curtis Luttrell followed close behind at 41-12 and Baker, who co-captained the team with Cast, stood 40-13.

Curtis Luttrell pinned 29 of his opponents to lead his teammates in this cate-

gory. Baker logged 17 falls and Harrison 14.

UNM qualified five for the NCAA championships, held at Meadowlands, N.J., Harrison, Baker, Vurik, Curtis Luttrell and Garner. No other WAC team qualified as many for the national tournament.

Garner and Baker finished in the top 12 in their weights as UNM won seven of the 16 bouts it wrestled there.

BASEBALL

The University of New Mexico baseball team, circa 1984, made giant steps in achieving a very distinguished, and sometimes, far-reaching goal: Winning the Southern Division of the Western Athletic Conference.

Playing every spring with perennial national powerhouses Hawaii and San Diego State for the divisional crown can be frustrating. However, in 1984, Coach Vince Cappelli and his Lobos inched a little closer.

In 1983, UNM was 25-41-1 overall and managed just a 5-19 record in WAC division play. One year later, the Lobos improved that mark to 31-25-1 and 10-14 in the rugged Southern Division. Much of that success can be attributed to the maturity of freshmen and sophomores plus the addition of some key junior college players.

As usual, the Lobos took their traditional trek to Arizona State and Nevada-Las Vegas to open the season. While UNM dropped the first six encounters against their warm-weather foes, five games were decided by four runs or less. When UNM came back home, there was a type of play Cappelli witnessed that could take UNM to that first Southern Division crown.

The Lobos went on a tear, winning 21 of 27 games, including first place in the Turquoise Tournament, pushing their record to 21-12. The Lobos opened the WAC schedule April 6 against Texas-El Paso, splitting a four-game series. Hawaii came to town next in one of the wilder series' of the season. The Rainbows and Lobos scratched for 78 runs in four games, two decided in extra innings, with UH taking three of four. UNM and San Diego State split a four-game set at Lobo Field a couple of days later. UNM was 5-7 halfway through the WAC season with 12 road games to play.

Lack of hitting was the key to UNM's four defeats in Hawaii. Three of the four losses were decided by three runs or less. After two more losses at San Diego, the Lobo's said they had had enough. UNM bounced back to take the last two games from the Aztecs and a week later took three of four from UTEP in El Paso finishing the season winning five of its last six games.

As mentioned the maturity of some freshmen and sophomores, plus the addition of junior college performers, helped UNM to its sixth 30-plus win season in Vince Cappelli's eight years.

Juco transfer Greg Hall, a catcher, led UNM with a .352 average, eight home runs and 51 RBI. Hall was an All-WAC selection and will return for the 1984-85 season. Third baseman Jim Fregosi was UNM's other All-WAC pick, batting .350 with 11 stolen bases.

Sophomore righthander Rod Nichols led the pitching staff with a 6-2 record and a 3.93 ERA. Lefty Kevin Andersh led the pitchers with 79 strikeouts in 80.2 innings.

Nationally Fregosi and Andersh were two of 44 finalists selected for the trials of the U.S. Olympic team. While neither one was chosen for the team, Fregosi was just a sophomore and will have two years left at UNM and Andersh was chosen by the Pittsburgh Pirates in the first round of the Major League draft. Kevin was the 15th pick overall, UNM first, first round draft selection. Also selected in the draft was senior, Rob Hicks, chosen by Philadelphia Phillies as a pitcher.

The outlook for 1984-85 looks very bright for Cappelli and his crew. The Lobos lost just three players to graduation plus Andersh, who was a junior.

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TRACK

Coach Del Hessel's track team enjoyed its best showing since Hessel took command of the program in 1980. The Lobos finished third at the Western Athletic Conference meets in both cross-country and indoor competition.

Moreover, UNM finished 10th at the NCAA meet as All-American Dwayne Rudd came home third in the long jump and Ibrahim Hussein wound up third in the 1000 meter run.

Hessel's squad was fourth in the WAC outdoor meet and 38th at the NCAAs. Ibrahim Kivina raced to a second place finish in the 10,00 meters at the NCAA meet, setting a new school record of 28:06 in the process. Rudd set a UNM record in the triple jump, sailing 54-8.

Rudd was invited to the Olympic Trials but failed to qualify while Kivina made Tanzania's Olympic team in the 10,000 meters.

SWIMMING

Head coach Bill Spahn has turned out yet another successful swim season improving the men's WAC standing to second place, three notches better than 1983, while the women put in a strong fourth place performance at the High Country Athletic conference championships.

The WAC championships were icing on the cake after the men's team defeated three consecutive WAC opponents including Air Force, Wyoming and Utah, and finished second at the Texas Tech Red Raider invitational. Led by teammates Gordy Westerberg, Hakan Jonsson and Duncan Cruickshank, UNM earned its most dramatic victory over Wyoming in the Cowboys own pool, despite a 7200 foot elevation. Cruickshank sweetened the 73-40 victory setting a Wyoming pool record 9:46.6 time in the 100 freestyle, while other Lobos captured seven individual events and both relays.

Both men's and women's teams ganged up on Utah in their pool, giving the lady Lobos their first victory, 71-69. Terri Porter, Tara Looney, Lee Ann Mathias and Becky Culpepper swam the determining event winning the 200 freestyle relay by .09 seconds. A 64-45 men's team win capped off the dual meet as the 1983 WAC champion Utes fell to a very strong, young Lobo squad.

Boasting a 5-0 dual meet record, UNM took on perennial powerhouse Brigham Young at Salt Lake City. The men were handed their first and last loss of the season as UNM narrowly missed out on one second place finish and two relays against the predicted WAC champions.

Both teams excelled at their conference meets. The High Country Athletic conference always poses serious competition for womens' teams and 1984 was no exception as half of all posted times were conference records. The Lobos managed a

fourth place finish overcoming injuries and line up changes over the season. Two Lobo records were set, Culpepper's 1650 freestyle swim and the 400 freestyle relay team of Culpepper, Looney, Kathy Dixon and Michelle Leffingwell posting precedent setting times. Looney went on to score in the 50 freestyle, while Sophomore Tracey Weyant made a showing on the one and three meter boards and freshman point producer Amy Burgeson helped UNM in the 500 and 1650 freestyle.

Throughout the season personal accomplishments were high. Standout diver Kurt Burgeson scored a 319.65 NCAA zone qualifying dive against Air Force in three meter competition kicking off what would be a great year for Lobo swimming. Team captains Mike Volk and Gene Dafoe provided the necessary leadership to unify UNM, "inspiring team loyalty and determination," said Spahn and squad members put in consistently strong performances. Top scorers included Hakan and Stefan Jonsson, Jim Lindell, Westerberg and Chris Jenkins to name only a few of UNM exceptional talents.

Of the seventeen Lobo swimmers at this year's WAC championships, including nine freshmen, Cruickshank made his frosh debut memorable. He entered the competition with three records set in one season, twice breaking the 1000 yard freestyle times and once the 1650 freestyle, Cruickshank went on to capture the 500 and 1650 freestyle events with NCAA qualifying times and placed seventh in the 100 free.

At Cleveland State University, this year's site of the NCAA championships, Cruickshank earned All American status having placed tenth in the 1650 freestyle. It was UNM's first All American since 1974. Meanwhile Westerberg, fellow Lobo and NCAA championship participant, broke the university's 500 freestyle record clocking a 4:27.67.

WESTERN ATHLETIC CONFERENCE 1983-84

	BYU	UNM	UTEP	HAWAII	SDSU	WYOMING	USAFA	UTAH	CSU
FOOTBALL	1	4	9	5	8	3	2	T6	T6
CROSS COUNTRY	2	3	1	-	4	6	8	7	5
INDOOR TRACK	2	3*	1	-	-	5	4	7	6
SWIMMING	3	2	-	1	7	5	6	4	-
WRESTLING	1	2	-	-	-	4	3	-	5
BASKETBALL	2	3	1	T6	T6	T4	9	8	T4
OUTDOOR TRACK	2	4	1	-	3	5	6	8	7
TENNIS	3	2	-	5	4	-	6	1	7
GOLF	1	5	3	7	2	8	6	4	9
BASEBALL	1	6	9	2	3	7	5	4	8
TOTAL	18	34	25	26.5	37.5	48.5	55	49.5	57
÷ No. of Sports	10	10	7	6	8	9	10	9	9
Average	1.8	3.4	3.6	4.4	4.7	5.4	5.5	5.5	6.4

* tenth nationally

ALSO: UNM Skiing was 3rd in the nation & UNM Gymnastics was 9th.

FINAL ORDER (Sports Participated & Average)

1. Brigham Young	(10)	1.8
2. NEW MEXICO	(10)	3.4
3. Texas-El Paso	(7)	3.6
4. Hawaii	(6)	4.4
5. San Diego State	(8)	4.7
6. Wyoming	(9)	5.4
7. Air Force	(10)	5.5
7. Utah	(9)	5.5
9. Colorado State	(9)	6.4

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AFRO-AMERICAN CENTER
ACADEMIC AFFAIRS
ANNUAL REPORT
1982 - 1983
DR. SHIAME OKUNOR, DIRECTOR

A.

"The one most important need and therefore, primary objective for Afro-American Center Academic Affairs.. a year of peace and tranquility" (1981-82 Annual Report) was achieved and therefore some academic strides were made.

1. The age-old unstructured course offering of the department has been replaced by a sequential course offering thereby enabling students to plan their program of study effectively knowing which courses are to be offered each semester.

2. As a result of a series of interdepartmental meetings, solid ground for cross-listing of Afro-American courses has been established with three departments - Political Science, History and Women Studies. Final word from the Sociology department is awaited.

3. The proposal for a Minor in Afro-American Studies was completed for presentation to the Undergraduate Curricula Committee.

4. The department sponsored and co-sponsored successful

lectures by two out of state speakers - Dr. Ivan Van Sertima, author of "They Came Before Columbus", linguist, anthropologist Associate Professor and winner of Clarence L. Holte award. Mr. Shuping Coapoge, Consul General, African National Congress was co-sponsored with School of Graduate Studies, Political Science and Sociology Departments.

5. The department's program for scholarly development of Black students was very successful. Mr. Carl Kern II, President NAACP, Albuquerque, pledged almost \$1,000 which was awarded to 4 student winners at two Symposia - Fall and Spring for the best researched, presented and defended papers. The program will be reorganized for 83-84 academic year.

6. The departmental course offerings has been increased by two new ones - Afro-American Literature and Culture and Black Personality.

7. The department served on the State committee for the ACT-SO (Afro-Academic Cultural Technological Scientific Olympics) which organized statewide competition in various academic areas. The winners, supported with corporate and private donation, will compete with other winners from across the nation at St. Louis, July 10, and 11, 1983.

B.

1. The approval of the proposed Afro-American Studies Minor, of which I am very optimistic, would spotlight a lingering need which this year (1983-84) the department was capable

of meeting with very little financial help from the administration. And that is, the hiring of a permanent Assistant Professor of Afro-American Studies to teach 2-4 courses a year; help advise students pursuing Afro-American Studies Minor and also assist in the search for funds from outside agencies. Even though the idea has been a topic of conversation with the Associate Provost, the recent statewide financial inclimate with the attendant budgetary reduction prevented the formal request for such additional staff and also reduced drastically, the department's financial capability to meet the need.

2. The need however, for an additional faculty member for the very near future remains important not only in anticipation of a Minor in Afro-American Studies but for the overall development of the department.

3. 1983-84 academic year calls for a solid foundation for interdepartmental cooperation with and support of those departments from which some courses have been selected to constitute the program of study for the proposed Minor in Afro-American Studies. Stronger attempts must be made to translate this cooperation and support into the inclusion into their advisement and brochures, the availability of Afro-American Studies Minor to students in their respective disciplines.

C.

1. The department interviewed and hired, effective Fall

1983, Dr. Maisha Baton and Dr. Theresa Okwumabua.

2. On May 3, 1982, Afro-American Center reached a milestone when for the first time since its inception the director was appointed to a tenure track position of Assistant Professor, Educational Foundations. The Director now teaches for both departments.

E.

4. Unfortunately the proposed symposium on "Tax Exemption for Religious Educational Institutions" failed to attract funds from the NMHC. The council felt it's depleted funds could not accommodate the expenses for the two out of state persons the proposal intended to contract.

AFRO-AMERICAN CENTER
ACADEMIC AFFAIRS
ANNUAL REPORT
1983-84

Dr. Shiame Okunor, Director

- A. 1. The one most historical, significant milestone was reached by the Afro-American Center, Academic Affairs, April 10, 1984 when the Faculty Senate unanimously approved a minor degree program in Afro-American Studies. The program offers a 24 hour General and Specialized Minor degree with the Specialized requiring emphasis in a chosen discipline such as History, Economics, Anthropology, etc. (see attachment).
2. The department has been structured into three committees - Faculty Development, Curricula and Minor Advisory not only to reflect the new degree granting status, but to systematically discharge the responsibilities attendant to the new status.
3. The Elementary Education Department of the College of Education has agreed to include the minor degree in Afro-American Studies in its teacher certification program.
4. The list of department including Political Science, History and Women Studies which formally crosslists Afro-American Studies courses was expanded by one more -

00057

the credit granting division of the College of Continuing Education has agreed to crosslist Afro-American Studies courses every semester. Initial encouraging contacts have been laid with English and Engineering departments.

5. The departmental program for the development of the scholarship skills of Black students successfully added another financial sponsor to the present list of donors. The Sickle Cell Council of New Mexico underwrote the total cost of awards to three winners of this year's students Symposium on Black Studies with the promise to do the same next year.
6. The department still participates and serves on state and local committees and Board of Director for ACT-SO (Afro-American Cultural Technological Scientific Olympics), NAACP, NBCDI (National Black Child Development, Inc.) and others.
7. In cooperation with Institute of Research and Social Issues the in-house grant seeking, research oriented unit which promotes other scholarly projects, the Afro-American Center received a grant for approximately \$4,000 from the New Mexico Humanities Council and successfully organized a symposium on "The Afro-Americans In New Mexico: The Emerging Culture". Among the many activities were panel discussions on "Juneteenth" and presentations on the history of Blacks in New Mexico by Dr. Barbara Richardson, Author Historian, Dr. John Kessell, Professor,

History Dept. UNM, Mr. Andrew Wall, Director, Black Programs, NMSU, Mrs. Euola Cox, Asst. Professor, ENMU.

- B. The approval of a minor degree in Afro-American Studies, April 10, 1984 led to another discussion with the Associate Provost relative to the need to hire a permanent Assistant Professor. The Associate Provost left the decision to hire with the department. The departmental committee on Faculty Development is presently deliberating over the matter.
- C. The department hired Dr. Admasu Shunkuri, a political scientist from Kansas State University. Dr. Shunkuri taught African Politics for the Spring 1984 semester and was scheduled to teach two other courses—Survey of Africa and Socio-Political Africa, Fall 1984, unfortunately he was offered and accepted a full-time permanent position in Kansas.
- D. The 84-85 academic year will be devoted to the following:
1. Increase student enrollment in classes.
 2. Enroll about 8 students in minor degree program.
 3. Increase the number of departments with which courses are crosslisted.
 4. Include information on Minor in Afro-American Studies in official departmental brochures.

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- E. 1. Start a "Visiting Professor" program
2. Organize departmental mini-lecture series by both faculty and students.
3. Increase donorship for the development of research and other scholarship skill.
4. Cooperate with other departments to sponsor lectures by distinguished scholars.
5. Cooperate in organizing Black educators statewide.

00060

Afro-American History in New Mexico A Day-Long Workshop

SATURDAY, MARCH 24, 1984

10:00 A.M. - 3:00 P.M.

JOHN MARSHALL CENTER

1201 WALTER S.E.

ALBUQUERQUE, NEW MEXICO 87102

Free to the Public

Speakers

Andrew Wall

Eula Cox

Barbara Richardson

Maisha Baton

John Kessell

Mitote*

An Historical Drama performed by

Juba Productions

Written by Maisha Baton

* (Mē-tō-tā) n. feminine dialogue,
woman talk; v. talking woman talk

Special Recognition Award Will Be Presented To Barbara Richardson

Afro-Americans in New Mexico: The Emerging Culture

SPONSORED BY THE INSTITUTE OF RESEARCH AND SOCIAL ISSUES

CO-SPONSORED BY THE UNM AFRO-AMERICAN CENTER

FUNDED IN PART BY A GRANT FROM THE NEW MEXICO HUMANITIES COUNCIL, A SUBSIDIARY OF THE NATIONAL HUMANITIES COUNCIL



THE UNIVERSITY OF NEW MEXICO
ALBUQUERQUE, NEW MEXICO 87131

MINOR DEGREE: AFRO-AMERICAN STUDIES (GENERAL)

The General Minor requires twenty-four (24) hours of Afro-American Studies courses which include Afro-American 101, 103, 284, 299, or 309, and twelve (12) hours of 300 level or above courses of which not more than three (3) hours may be earned through independent study or problem courses; substitution of courses from other disciplines is possible with prior departmental approval.

MINOR DEGREE: AFRO-AMERICAN STUDIES (SPECIALIZED)

The Specialized option also requires twenty-four (24) hours and must have emphasis in Economics, Anthropology, History or other disciplines offering adequate relevant courses. Students are required to take twelve (12) hours of Afro-American courses and the remaining twelve (12) out of the department of emphasis. A minimum of six (6) of the twelve (12) hours from each of the two departments must be 300-level or above. Afro-American 284, and 285 are required for this option.

Afro-American Center Student Services Division

1983-1984 Annual Report

Johanna "Juba" Clayton, Director

Statement of Purpose

The purpose of Afro-American Student Services is to provide any assistance that will keep Black students in school for the duration of their degree programs, and to provide an environment conducive to making their experience at UNM as academically and culturally rewarding as possible.

The goals of the division are:

- 1) To make a concerted effort to act upon the needs of Black students;
- 2) To provide access to support systems and communication networks for Black students on campus;
- 3) To increase public awareness of the current and changing state of Blacks.

The goals reflect this director's view of student service's role on the campus for the next several years. To achieve these goals I have identified several specific objectives that will establish a framework for efforts to meet the goals.

Our first goal as stated is "to make concerted effort to act upon the need of Black students." The objectives include:

- 1) Meeting regularly with representatives of the UNM ethnic centers and Black student organizations

and providing administrative support and consultation on projects when requested.

- 2) Providing center services to individual students.
- 3) Participating in the network of organizations serving the Black community.

Our second goal is "to provide access to support systems and communication networks for Black students on campus."

The objectives include:

- 1) Maintaining liaison with campus offices and organizations which have an impact on Black students.
- 2) Monitoring University decisions that affect the status of achievement of Blacks on campus.
- 3) Providing a foundation for Black students to organize around specific issues and needs.

The third goal is "to increase public awareness of the current and changing state of Blacks." The objectives include:

- 1) Assist in the development of an aggressive minority recruitment program for the University.
- 2) Seek grants and write proposals for the development of research.
- 3) Cooperate in the organization of Black students and Black educators statewide.
- 4) Publicizing services, events and issues of concern to Blacks on campus.
- 5) Providing forums that encourage research and discussion of Black people issues and needs.
- 6) Sponsoring workshops and lectures addressing the issues and needs of Black people.
- 7) Maintaining a special-interest library and reference collection.

- 8) Participating in the network of organizations serving Black people.

Working from the preceded statement of purpose, the following programs were undertaken by the Afro-American Center Student Services Division during the 1983-84 academic year. Please note, however, that given the limited staff of the Afro-American Center Student Services component (1 Director and 1 full-time Secretary), this Division depends largely on work-study positions and volunteers to provide support in the following areas: 1) tutoring, 2) After School Academy aides, 3) support office staff. Therefore, the loss of these positions at the end of the academic year seriously impacted our programming as is indicated below.

The following information addresses how this Division handled the 4% cuts in funding:

1982-83 Budget Adjustments

Total Budget.....	\$39,500.00
Budget Minus 3.5%.....	1,382.50

Cuts

\$360.55.....	From Summer After School Academy which exhausted these costs leaving no funds to initiate program in June.
\$527.55.....	Eliminated work-study positions; this subsequently eliminated both our free typing and tutoring services for the remainder of the year.
\$116.00.....	Exhausted travel account. This required the Director to incur expenses for committed speaking engagements.

\$378.40.....From supplies & expenses
leaving \$50.25 balance in
supplies for operating
expenses for the remainder
of the year.

Coordinated Activities

1983 - 1984

1) Career, Academic and Personal Counseling

In 1983-84, there was a large increase in the use of counseling services offered by the Afro-American Center (see individual client report 1983-84). The following additions to the Center's counseling services continue to contribute greatly to this increase.

- a) In an effort to better accommodate non-traditional and returning students seeking personal counseling (one week to 3 months), or academic guidance counseling hours were extended two days a week. "Special Counseling Hours" were also set up at the Albuquerque Counseling Co-op for extended work with families.
- b) A directory of various counseling services available in Albuquerque was developed. The directory was used to refer students and non-students to reputable and affordable counseling services, when the services were not available on campus.
- c) The director made presentations at local counseling agencies in an effort to greater sensitize these agencies to the needs of non-traditional clients.
- d) A vocational and personal counseling component was added to the curriculum of the Summer After School Academy Program for students 10 years of age and older.

- e) A relationship was established between the Center and the State Parole Office whereby the Center now provides on a limited basis free counseling, personal and academic, for parolees attending UNM.

2) Financial Aid Information

Several meetings were held with representatives from the office of Financial Aid. The purpose of these meetings was to keep this office accurately informed of all available financial resources for students during the academic year, and of any change in policy with regard to financial aid for UNM students. The director also met regularly with the Albuquerque Black Student Union Coalition.

3) Full and Part-time Employment

Employment information received by this office is placed on the office bulletin board. Black graduating seniors were mailed employment notices in their field of interest. In addition a relationship has been formed between the Center and local small businesses needing seasonal or temporary help whereby these organizations contact the Center directly for student referrals.

4) Free Use of Typewriters and Free Emergency Typing Service

Students had free use of typewriters in the Center's Tutoring Office. Papers ten pages or less were typed for students who could not type and could not pay for

typing. Students whose papers were typed by the Center's staff were required to have their papers clearly written, in the office forty-eight hours in advance of due date, and to have a conference with the typist before and after the typing service.

5) Study Area

The Afro-American Center Conference Room houses books and resource materials donated by University departments and community persons. This room was reserved by students for group and individual study sessions and by community organizations for meetings.

6) Coordinated Volunteer Tutoring Program

The Afro-American Center Volunteer Tutoring Program utilized the talents of current UNM students in good academic standing. These students provided free tutoring for both UNM students and local high school students. The director also served on a committee to develop a university-wide free tutoring program. This committee was chaired by Susan Deese of the University Skills Center.

7) Emergency Student Loan Fund

In the event of an emergency, students may borrow up to fifty dollars (\$50.00) from the Afro-American Center Emergency Student Loan Fund.

- 8) The Center co-sponsored the New Mexico NAACP Afro-Academic, Cultural, Technological and Scientific Olympics (ACT-SO) competition, a program which encourages academic excellence in minority youth. The University was also partially responsible for sending two Black New Mexico

high school students to the national ACT-SO competition in New Orleans.

Special Services Programs

1) "The Black Experience" TV Program is produced and hosted by the Afro-American Center, Director of Student Services. It is a bi-monthly public service program aired on KOAT-TV. The show focuses on a variety of issues pertinent to local as well as national Black communities and acts as a training ground for aspiring Black producers.

2) Afro-American Center, After School Academy
Fall and Spring - The After School Academy Program is staffed primarily by volunteers and is designed to motivate excellence in the scholastic development of young people. The program focuses on students in grades 1-12 with a concentration on current classroom activities and preparation towards educational and professional objectives.

This is accomplished by working with program participants on a near personalized basis.

There is no charge for the program, the personnel and supplies are provided, and in some cases free transportation is provided. The program is sponsored by the Afro-American Center and the Albuquerque branch of the National Technical Association.

3) Summer After School Academy

The objectives of the summer phase of this program are as for the Spring and Fall. The summer program however, focuses on the basic skills i.e. reading, writing, math and science. Every effort is made to show students that learning can be a fun experience. Free transportation and lunches are provided.

After School Parents Orientation & Volunteer Program

The objective of the After School Academy Parents' Orientation and Volunteer Program was to get the parents of After School Academy participants involved in their children's learning experience and in fundraising activities for the program. One parent or a family representative was required to donate 4 hours a month to the program and all parents were asked to combine their efforts in support of a fundraising activity for the summer program.

Parents and friends of the After School Academy were responsible for the purchase of \$200 worth of recreational and academic materials for the program in addition to the purchase of awards for staff members.

- 4) The first annual Vice President's Recognition Awards were presented to parents, volunteers and friends of the Summer After School Academy for their outstanding contributions to this program.

The Director continues to participate in and serve on state and local committees and boards, serving the University community and the community at large.

- 5) The Student Services component of the Center developed a Black student's survival guide, which contains information aimed at acquaints students with Black business, churches and the Black community. Funding will be sought to further improve this concept.

Individual Client
Report

1982-1983

	High School Student	Re-entry	Under-graduate	Graduate	Non-degree	Staff	Faculty	Alumni	Total
Vocational	*38	10	13	5	7	4	3	2	82
Re-entry Academic	1	6	10	5	14	3	2	2	43
Personal	*38	10	23	6	4	4	1	5	91
Individual Total	*77	23	46	16	25	11	6	9	213

*Projects initiated this year.

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Journal Photo by Richard Pipes

George Lovelace, 7, and Marzetta Lewis, 6, Discuss the Intricacies of Addition and Subtraction.

'After School' Aids Black Youths

Continued from A-1

teachers from the Albuquerque Public Schools, and 10 teacher aides, many of them UNM work-study students. Classes meet for half a day, four days a week.

The children, who range in age from 6 to 16, receive individualized attention, and take field trips to nature centers, farms and museums.

On Thursday, the students in Ms. Ibnud-Din's class worked addition problems and counted aloud by 10s. In Jackie Parton's class, 8- and 9-year-olds cut out puppets and sang a black spiritual — in English, Spanish and in sign language.

In the four years since Ms. Clayton took charge of the program, she has watched several of the older students enter UNM. She's admittedly proud of the results. "They're able to get actively involved," she said. "They aren't afraid to ask

questions or seek help."

Ms. Clayton works to involve parents, too, organizing them into committees and recruiting them as volunteers.

Keeping the academy running is an exercise in what Ms. Clayton terms creative management.

UNM donates classroom space and supplies. The city provides free, nutritionally-balanced lunches. The teachers work for much less than their usual wage.

The National Council of Negro Women donated calculators, and other organizations have donated equipment such as record players.

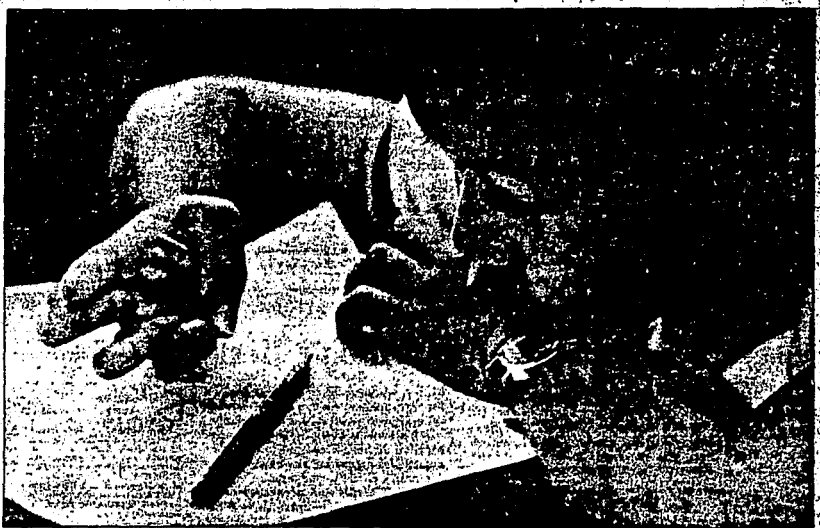
The center provides limited transportation to and from the campus in its university van — which, Ms. Clayton admits, is pieced together with prayers. A new van is perhaps tops on her wish list.

A second wish is to provide day care for the children past 1 p.m., the time the academy closes. "Most of our parents are single mothers or low-income families, and want extended day care," she said.

Ms. Clayton also hopes to establish a drama class for teen-agers. And she's looking for a way to add computers to the program.

Parent Roberta Ingram, who is also program director for the National Technical Association, is a strong supporter of the academy. Her 11-year-old daughter, Niambi, is on her third summer, while her 6-year-old son, Piankhi, is enrolled for the first time.

"I think they really feel that here is a place where they can express themselves. They really go to the max," she said. "We have their undivided attention, and that's when we slip in the math and things."



Journal Photo by Richard Pines

Michael Milton, 7, Combines a Digital Watch With Time-Tested Method of Counting on His Fingers

'After School' Program Aids Black Youths

By MARY ENGEL
Journal Staff Writer

"Teacher!"
"Guess what, teacher!"
"Teacher, I finished!"

You would never guess it was summertime, judging from Rabiah Ibnu-d-Din's classroom of busy 6- and 7-year-olds.

A hundred children, most of them from Albuquerque's black community, are on the University of New Mexico campus this month attending a four-week "After School Academy." The free program is sponsored by UNM's Afro-American Center and by the Albuquerque chapter of the National Technical Association, an organization that promotes scientific and technical awareness among minority youth.

"The idea was to re-enforce reading, writing and math skills primarily," said Juba Clayton, Afro-American Center director of student services. "Many of our students coming into the university and through the center were coming in weak in these skills."

While the program is open to the first 100 children who sign up for it, the center approaches the black community first.

"Because the black community in Albuquerque is very small, some children can be in a public school and never see a black instructor or have access to a black friend," said Ms. Clayton. "We try to give them role models."

Most of the program's instructors and volunteers are black. It employs five full-time instructors, all certified



Teacher Rabiah Ibnu-d-Din Helps 7-Year-Old Ubusuku Abukusumo

Continued on A-3

Afro-American History in New Mexico A Day-Long Workshop

00074

SATURDAY, MARCH 24, 1984

10:00 A.M. - 3:00 P.M.

JOHN MARSHALL CENTER

1201 WALTER S.E.

ALBUQUERQUE, NEW MEXICO 87102

Free to the Public

Speakers

- Andrew Wall
- Eula Cox
- Barbara Richardson
- Maisha Baton
- John Kessell

Mitote*

An Historical Drama performed by
Juba Productions

Written by Maisha Baton

* (Mē-tō-tā) n. feminine dialogue,
woman talk; v. talking woman talk

Special Recognition Award Will Be Presented To Barbara Richardson

Afro-Americans in New Mexico: The Emerging Culture
SPONSORED BY THE INSTITUTE OF RESEARCH AND SOCIAL ISSUES
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FUNDED IN PART BY A GRANT FROM THE NEW MEXICO HUMANITIES COUNCIL, A SUBSIDIARY OF THE NATIONAL HUMANITIES COUNCIL

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SOUTHWEST HISPANIC RESEARCH INSTITUTE
&
CHICANO STUDIES PROGRAM

JOINT ANNUAL REPORT
July 1, 1983 - June 30, 1984

Submitted By:
José A. Rivera, Director
Tobias Duran, Academic Coordinator

I. Academic Activities & New Developments

The Chicano Studies Program continued offering the core courses in the curriculum: American Studies 241 (Chicano Experience in the U.S.) and American Studies 341 (History of Conflict in New Mexico). In addition, the faculty developed and taught a new interdisciplinary course titled Introduction to Southwest Studies; the new course included an historical and contemporary profile of the Southwest with an examination of diversity and change in the region. As a special summer offering, Tobias Duran and Rowena Rivera jointly developed and taught a second interdisciplinary course on the History and Folklore of New Mexico.

Departmental faculty across the campus offered related courses in Spanish, Psychology, English, Sociology, History, Political Science, Art History, Music and Women's Studies. A new initiative in 1983-1984 was the participation of the Chicano Studies Program in the

establishment of an interdepartmental curriculum on Southwest Studies at UNM. Lastly, Tobias Duran taught two off-campus courses for teachers, counselors and administrators of the Bernalillo and Peñasco Public Schools.

Apart from course offerings, the faculty and staff sponsored numerous on-campus lectures, activities and special events:

Lectures by Alurista (Chicano Poetry Readings); Arnoldo Ramos (Reunification Efforts in El Salvador); Alfonso Mirabal and Emma Moreno (Hispanics and the 1990 Census); Heberto Castillo (Present Crisis in the Mexican Economy); Ballad of Gregorio Cortez (film showing and workshop); Cinco de Mayo film festival (showing of four documentary films on the Southwest and Mexico); New Mexican Folklore Artists (a series of presentations by twelve regional artists and lecturers).

II. Plans for the Future

Plans for the future are detailed in a "Long Range Development Plan" already available. The plan is build around three year blocks of time with 1983-1984 as the first year effort. Annual plans are developed every year providing specific tasks and timeframes. In the coming years, priority will be given to the establishment of a UNM-based Center for Southwest Studies with a strong interdisciplinary program of research and teaching.

III. Appointment to Staff

Ray Burrola, Tobias Duran, Sofia Martinez, Frances Rico and José Rivera continued as the permanent staff. Work Study students for 1983-1984 included: Carlos Morales and Paula Sena. Research staff and consultants were employed on an occasional basis to carry out specific tasks. Rowena Rivera was appointed jointly by the Chicano Studies Program and the Department of Modern and Classical Languages during the academic year as a Visiting Associate Professor. In addition to Rowena Rivera, two other persons received temporary appointments: Simon Romo (UNM Law School Graduate) as a Program Specialist and Roberto Chene as a Visiting Researcher (Dissertation Student from Brandeis University).

IV. Separations from Staff

Rowena Rivera's joint appointment was for 1983-1984 only. During the upcoming 1984-1985 academic year, she has received a visiting appointment with the Department of Modern and Classical Languages. Sofia Martinez is resigning from the staff (August 31, 1984) to pursue a full-time master's degree program at UNM's College of Education. Simon Romo completed his temporary position at the conclusion of the fiscal year. Roberto Chene continued as a Visiting Researcher pending approval of a

dissertation fellowship from the National Institute of Mental Health.

V. Publications

Two of the 1982-1983 Institute Working Papers were scheduled for publication in refereed journals:

"Civil Rights vs. States Rights: Administrative Perspectives from the Southwest," Social Welfare Forum, Fall 1984. (José Rivera, author)

"Chicano Studies Programs at the Crossroads: Alternative Futures for the 1980s," Aztlan: International Journal, Jan.-March, 1985. (Luis Ramon Burrola and José Rivera, co-authors)

Three additional Working Papers were released in 1983-1984:

104 "Group Credit: A Mechanism to Promote Economic Development Among New Mexico's Acequia Associations," by Audon Trujillo, Jr. (Graduate Student at UNM's School of Architecture and Planning)

105 "Official Reactions to Hispanic Defendants in the Southwest," by Gary D. LaFree (Associate Professor, UNM's Department of Sociology)

106 "WE COME AS FRIENDS: The Social and Historical Context of Nineteenth Century New Mexico," by Tobias Duran.

Gary LaFree submitted his Working Paper for publication in the Journal of Research in Crime and Delinquency. Tobias Duran submitted a separate paper for publication

in the New Mexico Historical Review: "Francisco Chavez, Thomas B. Catron, and Organized Political Violence in Santa Fe in the 1890s." The article was accepted and appeared in the July 1984 issue. Earlier in 1983, a paper authored by Duran on Hispanic involvement in the Carpenter's Union of New Mexico appeared as a chapter in Building New Mexico: The Experience of a Carpenters Union in the Southwest, Robert Kern, Editor. Rowena Rivera, along with co-author, Thomas J. Steele of Regis College in Denver, developed an 800 page manuscript on Los Penitentes: The Holy Brotherhood of Our Father Jesus the Nazarene. The manuscript is presently under review for publication by Ancient City Press and Colorado College.

Other items still pending include a forthcoming research monograph on Mutual Aid Societies in the Hispanic Southwest by Jose Rivera. A draft Working Paper on the topic was presented at a UNM Policy Symposium in June of 1984. Lastly, a special issue Working Paper consisting of three papers authored by UNM graduate students will be released in the Fall of 1984:

- "Common Lands and the Sangre de Cristo Land Grant," by Placido Gomez, UNM Law School;
- "Roofing Careers in Albuquerque: An Analysis of Legal and Undocumented Labor," by Gary Lemons, UNM Department of Sociology;

"Making Up What Is Lacking: Toward An Interpretation of The Penitentes," by Robert Sprott, UNM Department of Anthropology.

The three papers were selected as award-winning entries in a Graduate Research Paper competition. Honorariums totaling \$250 were provided to the three students. The papers were presented by the authors to a campus audience of faculty, students and staff in April of 1984.

VI. Outside Professional Activities of Faculty & Staff

Tobias Duran presented a paper on "Hispanics in the New Mexico Carpenters Union, 1935-1955" at the annual meeting of the Southwestern Labor Studies Association, University of Texas, Arlington, March 1984. He also participated in the annual meeting of the Western Social Science Association, San Diego, April 1984. Sofia Martinez, along with a delegation of UNM students, staff and faculty, attended the Twelfth Annual Conference of the National Association for Chicano Studies held at the University of Texas, Austin, March 1984. José Rivera presented a paper on "Civil Rights Research in the Human Services" at the National Conference of the American Society for Public Administration, Denver, April 1984. In March he participated in a Conference on Social Justice and Social Change at Brandeis University, Waltham, Massachusetts. In June, Rivera also attended a Northern New Mexico Rural Development Seminar hosted by the Northern New Mexico

Community College, Española.

In the area of Community Service, the staff collectively participated in various activities:

- Senior Day at UNM (Facilitator)
- Albuquerque Police Academy (Presentation)
- Youth Basketball Association (Coach)
- Senior Citizen Centers (Presentations)
- Optimist Clubs (Presentations)
- First Presbyterian Church (Presentations)
- Southwest Organizing Project (Volunteer)
- Project Vote '84 (Volunteer)
- KUNM (Announcer)
- New Mexico Community Foundation (Board Member)
- Albuquerque Job Corps Center (Council Member)
- Corrales Planning & Zoning Commission (Commissioner)
- Casa Armijo (Advisor)
- Northwest Productions (Panel Members to critique documentary film on Hispanic Weddings in New Mexico)

VII. Outside Sponsored Research

U.S. Department of Health & Human Services, \$24,492 research grant to develop policy recommendations on the service potential of Mutual Aid Societies in the Hispanic Southwest, September 30, 1983 - September 29, 1984.

New Mexico Humanities Council, \$10,970 research grant to develop an Oral History Project of the Atrisco Community, December 1983 - October 1984.

New Mexico Humanities Council, \$5,965 award to organize and sponsor the Paso por Aqui lecture series on New Mexico Hispanic Writers, 1610-1984; co-sponsored by the UNM Department of Modern and Classical Languages; August 1984 - May 1985.

Proposals still pending at:

Viller's Foundation
National Institute of Mental Health (2)
National Institute of Education
School of American Research in Anthropology
Ford Foundation
Andrus Foundation
State of New Mexico, Department of Employment
Services and Department of Human Services
Field Foundation

Lastly, assisted UNM School of Medicine with the Belen
Health Study funded by the U.S. Public Health Service.

NATIVE AMERICAN STUDIES CENTER

Academic Programs/Institute for Native American Development

1983-84 Annual Report

Employees/Staff:

- Ted Jojola (Director, Semester I, 50% administrative release time, Assistant Professor of Planning, Department of Community and Regional Planning) Semester II, Leave without pay, Post-Doctoral research, Institute of American Culture, Visiting Professor of Planning, UCLA.
- Virginia R. Lujan (Clerical Specialist V)
5/4/84 terminated, relocated to another job
5/4/84 present position vacant
- Geary Hobson (Acting Director, 25% time), Spring semester.
- Penny Bird (Assistant Director, 50% time), Spring semester.
- Sadie Hoskie (Research Aide, workstudy and contract employee), Fall and Spring semester.
- Dorothy Tiger (Research Aide, workstudy), 20 hours a week, Fall semester.
- Clarice Charging (Clerical Aide, workstudy), 20 hours a week, Fall semester.
- Diwayne Gardner (Research Aide, workstudy), 20 hours a week, Spring semester.
- Geraldine Smith (Clerical Assistant, workstudy), 20 hours a week, Spring semester.

Instructors:

- Joe Sando (Lecturer, contract), Summer semester
- Geary Hobson (Lecturer, contract), Fall (25% time), Spring semester
- Ted Jojola (Assistant Professor, 50% time), Community & Regional Planning, Fall semester
- Al Henderson (Lecturer, contract), Fall semester
- Luci Tapahonso (Lecturer, contract), Fall semester
- Steve Wall (Lecturer, contract), Spring semester
- Sue Ann Curtis (Instructor, contract), 3 days, November 1983
- Robert Johnson (Instructor, contract), 1 day, March 1984
- Kesley Edmo (Instructor, contract), 1 day, March 1984
- Andrew Thompson (Instructor, contract) 1 day, March 1984

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Visiting Lecturers (in-kind):

Luci Tapahonso's Classes:

American Indian Women:

Vicky Kay (Director, Indian Education, Title IV, APS)
 Annie Dodge Wauneka (Special Assistant to the Chairman, Navajo Tribe)
 Gloria Duus (Director, Office of Navajo Women, Window Rock, AZ)
 Agnes Dill (NALWA) North American Indian Women's Association
 Elouise Chicharello (Attorney, Navajo Tribe)
 Sharon Burch (Navajo Folk Singer)
 Juane Quick-to-see Smith (Artist)
 Dr. Shirley Hill Witt (former Secretary of Natural Resources for New Mexico)
 Dr. Jennie Joe (Instructor, UCLA)

Southwest Indian Communities:

Ed Chicharello (Native American Materials Development Center)
 Bobby George (Director, Economic Development, Acoma)
 Duane Yazzie (Assistant to Chairman, Navajo Tribe)
 Simon Ortiz (Poet and Writer)

Geary Hobson's Classes:

Carroll Arnet (Poet and Writer)
 Maurice Kenny (Poet and Writer)
 Luci Tapahonso (Poet and Writer)

Al Henderson's Class:

John Brown , Economic Development Consultant
 Ernie Stevens , Economic Development Consultant

Steve Wall's Class:

Ona Porter (Planner, Albuquerque Indian Health Board)
 Francesca Hernandez (Executive Director, Albuquerque Indian Health Board)
 Steve La Boueff (Doctoral Student, Department of Sociology)

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Summer, 1983

Elementary Education

493-108 Pueblo History/Teaching

Instructor
Sando, J. *Total Enrollment
9

Fall 1983

American Studies

221-001 SW Indian Communities

322-001 5 Civilized Tribes

Hobson, G.*

(Cancelled)
26

Anthropology

305-001 North American Indians

306-001 South American Indians

537-001 SW Ethnology

Schwerin, K.
Alvarado, A.(Cancelled)
17
5

Economics

340-001 American Indian Economic Dev.

Henderson, A.*

9

English

397-002 Native American Lit: Trad.

Hobson, G.*

7

Community & Regional Planning

474-011 Cultural Aspects of Planning

Jojola, T.*

6

Public Administration

590-001 Tribal Administration

Dorame, T.

6

*Taught by Native American Studies Staff

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Spring 1984

	Instructor	Total Enrollment
American Studies		
221-001 SW Indian Communities	Tapahonso, L. *	19
321-001 Ind in a Multicul Society	Wall, S.*	16
326-001 Ind in Amer Pop Cult	Hobson, G. *	16
Anthropology		
230-003 SW Nat Amer Art	Brody, J.	17
305-001 Amer Ind: Nor Amer	Ortiz, A.	37
333-001 Ritual, Symbols, & Beh	Ortiz, A.	33
English		
397-002 Nat Amer Lit: Mod & Cont	Hobson, G.*	13
Public Administration		
575-002 Contemp Tribal Admin	Dorame, T.	4
Women Studies		
233-001 Amer Ind Women	Tapahonso, L.*	11

*Taught by Native American Studies Staff.

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Advisory Committee Members:

Chairman: Alfonso Ortiz, Professor, Anthropology
 Anita Alvarado, Professor, Anthropology
 Peggy Blackwell, Associate Dean, College of Education
 Sam Deloria, Director, American Indian Law Center
 William Siembieda, Director, Community & Regional Planning
 Paul Vassallo, Dean, Library Services

Events Held During the 1983-84 Academic Year:

Title	Date	Attendance
Poetry Reading (Carroll Arnett)	October 4, 1983	20
Econ. Dev. Sem. - "Use of Remote Sensing for Landuse Planning and Socio-economic Develop- ment on Tribal Lands" (Sue Ann Curtis)	February 8-10, 1984	12
Poetry Reading (Maurice Kenny)	March 7, 1984	10
Econ. Dev. Sem. - "Cooperatives" (Robert Johnson) (Kesley Edmo) (Andrew Thompson)	March 14-16, 1984	6

Gifts to Center: None

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PERSONNEL

The Director took leave of absence without pay for the period from January to August, 1984. He used this period to advance his professional interests as a Post-doctoral Research Associate with the Institute of American Culture. In addition he held a joint visiting faculty appointment in the Department of Urban Planning and Architecture, and the American Indian Studies Center, U.C.L.A.. In his absence, Geary Hobson was appointed as Acting Director on a 25% release time basis from his 50% regular teaching contract. Additionally, Penny Bird was appointed as Assistant Director on a half-time basis.

The Assistant Director position was created to set the groundwork for the gathering of information on the history of the Center and to begin the development of a profile of Native American related courses at the University. As such, it was more reflective of a research position than an administrative one. Although the Director on leave was based in Los Angeles during the Spring semester, he was regularly consulted on a biweekly basis to assist in decisions relating to longer term programming of academic affairs.

Center efforts were momentarily disrupted with the resignation of Virginia Lujan, Clerk-Specialist V. She resigned to advance to an Administrative Secretary position with another University unit. This move is indicative of the overextended Center situation as she could not upgrade her position to reflect the added duties. Added responsibilities entail administrative and managerial duties. A petition to upgrade the position had been entered with Personnel, but this received a negative assessment as only content was evaluated and not the quantity of workload. In addition, the petition was denied because of the general employee freeze on positions.

The above resignation was balanced out, however, with the appointment of a new Student Services Director, Lucille Stilwell and a new Student Services secretary, Edwina Abeita. During their first semester, significant strides were made to bridge the gap in communication between the student service and academic components. Efforts to coordinate staff assignments, Center activities, and referrals were notably enhanced through their cooperation.

PROGRAM EVALUATION

The academic year was devoted to ushering in a transition in academic programming. Since the situation of the Director was known in advance, preparations were made to establish a low-key

mode of operations at the Center. This was in marked contrast to the accelerated programming of the past academic year. Staff assignments generally reflected data oriented duties with the goal of writing a Five and Ten Year Prospectus for the Center.

Efforts to collect and compile information were divided among a number of areas. A concerted effort was made to compile all past records for the task of compiling an exact history of the Center. The documentation also served to clarify past statements pertaining to its operational mandates and goals.

Another effort was made to pull all courses with Native American content from the University Bulletin. This listing was matched with the University's computer data base to construct a historical profile of student participation in Native American courses dating back to 1971, the year of the Center's establishment; 155 courses are being surveyed in this manner. In addition, the University Institutional Research Office was enlisted to provide statistical breakdowns of American Indian student participation in the University's academic departments. The information from these profiles will be used to make recommendations on a degree option for Native American Studies (N.A.S.).

A third effort was initiated to develop a means for identifying the numerous programs emplaced throughout the University which serve Native Americans. Preliminary negotiations along this line have been concluded with the Journalism Department for the planning and development of a bulletin which will serve to tie the programs together through information exchange.

Efforts to process data have brought certain shortcomings to the attention of the staff. The data collection effort has suffered from the lack of computer capacity towards information management. The staff has begun to routinely consult with the U.N.M. Computer Center so as to facilitate the access of University data files. In-house microcomputer configurations for the management of specific data pertaining to N.A.S. has also been explored. Experimentation with various computer formats such as the creation of general access files for the listing Indian student scholarship and funding sources has begun.

Such efforts have been interrupted, however, by a general disquiet throughout the University. A number of major issues have been raised which have required immediate responses by the staff at the sacrifice of Center programming. At the beginning of the Fall semester, the U.N.M. Architect's office began discussions regarding an impending move of all the ethnic and minority centers to Mesa Vista Hall. The participatory process

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has departed from being one involving Center participation in the planning to a process that will ultimately force a crisis by requiring the Center to move based on uncertain space assignments, an unspecified time frame, and the physical separation of components. Although the Directors of the programs to be impacted had been meeting regularly as part of the Ethnic and Minority Coalition, the outcome still remains uncertain.

A second detraction was created by a call from the College of Education on a proposal to establish an American Indian Resource Institute (A.I.R.I.). Proposed by Dillion Platero, its purpose conflicted with those already established by the Institute for Native American Development (I.N.A.D.). Although the initial planning meetings on the A.I.R.I. proposal did not appear to press for further follow-up, it did serve to demonstrate the lack of any University goals which would serve to help regulate and coordinate such efforts campus-wide. The discussion inadvertently did serve to bring more visibility and credibility to I.N.A.D.'s past activities however.

One other disrupting factor has been the inordinate number of committee requests calling for input into higher education long range plans. The U.N.M. President's task force on long range planning was one of these. Another was the State of New Mexico's Commission on Excellence in Higher Education. Yet another was a special House Memorial calling for a report on the status of Indian Higher Education. All of these calls reflected differing facets of a contiguous concern. The preparation of responses have impinged upon time which could have been spent on specified tasks in forging the Center's own Five and Ten Year Prospectus.

INSTITUTE FOR NATIVE AMERICAN DEVELOPMENT

Programs were minimized due to the leave of absence by the Director. Negotiations were concluded concerning the joint publishing venture with U.N.M. Press on the Imre Sutton manuscript. The reprint of the Friar book has been delayed pending consideration of options for special binding and the inclusion of new text into the old body of text. The economic development tribal seminar series was inadvertently setback due to the cancellation of one set of presentations. Discussion on the Carolyn Reyer Fund has been temporarily suspended pending further research and proposal development. It is expected that operations for I.N.A.D. will resume once the Director returns from his leave.

PROGRAM ASSESSMENT

N.A.S. has embarked on a fact finding task with the goal of

developing a Five and Ten Year Prospectus. Work was markedly progressive but was hampered by interruptions and the staff situation. Programming will continue to be low-key until the main task of drafting a Prospectus is accomplished.

The leave of absence by the Director impacted marginally upon program efforts. Office routines, however, were significantly disrupted due to the Clerical Specialist V resignation. Areas that were especially impacted included the management of accounts for Publications and the newly established Minority Copy Center. The Copy Center was approved by the Administration after a long period of negotiations and is shared by the Women's Center, Chicano Studies, Chicano Student Services, Southwest Hispanic Institute, and the Afro-American Center. The facility is housed and managed by N.A.S..

In May, a two and one-half day planning meeting was held at UCLA between N.A.S. and Student Services. Both Directors and the immediate support staff were in attendance. Summaries of recent past activities were made and programming was outlined for the upcoming year. Progress on the Five and Ten Year Prospectus was detailed and recommendations were made for the development of further research. It was also determined at this meeting that the Clerical Specialist V position would remain vacant until the return of the N.A.S. Director. This move would allow for the Director to develop a proposal to have the position upgraded so as to better account for the administrative and managerial duties.

RECOMMENDATIONS

Based on the past year's activity, the following tasks are recommended:

- 1) continue and conclude the fact finding tasks related with the Five and Ten Year Prospectus;
- 2) draft, correct, publish, and circulate the Five and Ten Year Prospectus;
- 3) employ the Prospectus to begin the actualization of specific programs in support of the expansion of services;
- 4) begin University-wide discussions on the Prospectus leading toward the development of a degree option for Native American Studies;
- & 5) initiate proposal activity which will lead to the expansion of research activities for I.N.A.D..

Office of Graduate Studies

Annual Report

July 1, 1983 - June 30, 1984

A. Charlene McDermott, Dean of Graduate Studies

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A. INTRODUCTION.

Among the more significant personnel changes in the OGS during the 1983-84 fiscal year was the assumption of the position of Associate Dean by Fritz Allen on June 1, 1984, replacing Peter Ciurczak.

During the past academic year, the OGS with the advice and support of the Provost initiated a program in which a faculty member joins the OGS staff as an administrative intern. This individual is termed Advisory Associate Dean and gains administrative experience while benefiting the OGS by performing various necessary tasks. With the possible exception of the faculty member's academic department, the program seems to be a situation where everyone wins. The selected faculty member becomes familiar with the functions and problems of OGS and upon returning to the academic unit is a natural advocate for OGS policy and concerns. In addition, OGS is able to call upon special skills and knowledge which may not be available in the office. The faculty member benefits by having a trial period when administrative experience can be acquired and refined.

Dr. Fritz Allen of the Department of Chemistry volunteered to work with OGS in an advisory capacity because he wanted to gain exposure to administration: thus the program began.

The applicants for this program for the 1984-85 academic year were numerous and excellent. From this group Professor Joanne Weiss (College of Nursing) was selected to be the Advisory Associate Dean. We are hoping to take advantage of the special knowledge of Dr. Weiss in the area of organizational theory to embark upon a study of our terminal professional masters program.

We are especially interested in providing access to administrative experience to women and minorities but also to all other interested qualified faculty who wish to enhance their understanding of administration of graduate education.

A correlative position in the Provost's Office will be filled by Oswald Baca (Biology) who plans to do research in the area of GA/TA affairs.

B. SIGNIFICANT DEVELOPMENTS IN THE OFFICE OF GRADUATE STUDIES.

1. Interactions of OGS with SGC.

a. Graduate Bulletin Revision. Both the Senate Graduate Committee and the Office of Graduate Studies became involved in the major undertaking of revising Graduate Bulletin policies for the 1984-86 edition. The Standards of Quality section has been revised to include the proviso that graduate students must maintain a cumulative GPA of at least 3.0 in all courses offered for graduate credit at UNM. Further, there has been a clarification of the disenrollment policy (i.e., a student disenrolled for poor scholarship will be considered as on probation upon return to the University, as will students who withdrew from the University while on probation). A student cannot graduate while on probationary status.

A pilot project allowing an alternative dissertation format approved for the Department of Biology, if successful, may be extended to other departments as their needs are brought to our attention. Interested departments will be asked to submit written proposals to the Senate Graduate Committee.

The financial aid policy was revised to include a maximum number of semesters of aid (5 masters, 10 doctoral, 12 maximum cumulative total) and an expanded section on Research and Project Assistants.

Extensive revisions were made in the doctoral procedures section. (Especially noted is the change in the number of dissertation committee members.)

b. Program Changes/Modifications.

The following programmatic changes and modifications were approved: a) a Plan II option for the M.S. in Nursing; b) program changes in the Ibero-American PhD as well as a provision for rotation of the directorship of the program; c) creation of a dual master's degree program in Public Administration and Architecture & Planning; and d) provision of Tracks I and II for the degree of Master of Fine Arts.

c. Graduate Program Reviews.

Program reviews of the Departments of American Studies, Chemical & Nuclear Engineering, Geography, Health, Physical Education & Recreation and Theatre Arts were concluded this year. The external reviewers' visits were carried out during early Fall 1983 for the Departments of Secondary & Adult Teacher Education and Sociology. In each case a member of the SGC served with the review teams while they were on campus. I would like to commend both the SGC team members and the university faculty members who worked with the external review team members while they were on campus. Specifically, thanks go to Professors Douglas George, Garrett Flickinger - American Studies; Cary Morrow, Marc Price - Chemical & Nuclear Engineering; Vera John-Steiner

Richard Anderson - Geography; Marion Cottrell, Leonard Stitelman - Health, Physical Education & Recreation; Barry Gaines, Garrett Flickinger - Theatre Arts. This kind of faculty service is essential to the improvement of the quality of graduate education at UNM. Some of the more interesting suggestions coming from the reviews are presently being implemented, e.g., consortial arrangements among our departments and their counterparts at neighboring schools, and departmental retreats to continue the process of self-analysis and self-improvement. The SGC also approved a fee structure for both external reviewers and the UNM internal reviewers who serve on program review teams.

d. In other areas, the SGC heard student appeals, prepared a position statement concerning continuing development of new programs during the present financial situation and approved nominees for Honorary Degree awards.

Professor Paul Pohland concluded his able service as Chair of the Senate Graduate Committee: a new chair will be elected at the first Fall meeting of the SGC.

2. UNM Graduate Center (Los Alamos) Review.

A review of the UNM Graduate Center at Los Alamos was carried out by a team made up of personnel from UNM-Los Alamos Branch Campus, the Los Alamos Graduate center, the Los Alamos National Laboratory, the Lawrence Livermore National Laboratory, and staff personnel from the UNM Graduate Office. Professor Don McLaughlin, Director of the LAGC, and Peter Ciurczak, Associate Dean of Graduate Studies, organized the review which provided valuable insights into the Center's operation.

3. UNM Graduate Center (Santa Fe) Review.

A review of the Santa Fe Graduate Center was also successfully concluded. Organized by Edward DeSantis, Assistant Dean of Graduate Studies, and Professor Vera John-Steiner, Director of the UNM Center for Graduate Study at Santa Fe, it provided information essential to long-range planning for offerings at the Center.

4. 1983-84 Graduate Lecture Series.

The 1983-84 Graduate Lecture Series was distinguished by the appearance of two luminaries of the scholarly world. Professor Herbert Simon of the Carnegie-Mellon University lectured on computers and human thinking. On October 21st he drew a capacity audience in Woodward Hall. On January 26th, John Hope Franklin, Duke Professor of History at Duke University and one of the nation's preeminent historians, presented an illuminating lecture on George Washington Williams, a fascinating and entrepreneurial black man who left his mark on late Nineteenth Century America. Also enjoyed were presentations by Professor Hugh Kenner in February (origins and mechanics of the alphabet with a look at the hardships of printing the first edition of Joyce's Ulysses); by the world-renowned Austrian composer, Ernst Krenek in March (the relationship of opera to life); and by Professor Elisa Vargas Lugo de Bosch of the National University of Mexico, Mexico City (Mexican colonial painting) in April.

5. Graduate Office Computer Systems.

Another noteworthy development in the OGS this year was the implementation of two computer systems, one for graduate admissions and records, the other for graduation. The programs for both systems were written by Associate Dean Fritz Allen and provide accelerated

access to needed information and expedited graduation list production.

6. Admissions Experiment.

An experiment in which three departments (Chemistry, Physics and Geology) are handling their own admission procedures was initiated during the past academic year. If successful, it will be extended to other interested departments in the near future. (N.B., readmission applications are presently being received by all departments.) Note also that deadlines for admission and readmission have been changed to permit more flexibility in the screening process.

7. Ten-Year Limit.

The Office of Graduate Studies, at the suggestion of the Senate Graduate Committee, undertook a survey to ascertain whether schools in the Western Association of Graduate Schools (WAGS) were dealing with the ten-year limit for doctorates in ways different than that which is policy at UNM. Questionnaires were sent to all graduate deans in WAGS; the summarized results of the survey will be brought to the SGC during the 1984-85 academic year.

8. Graduate Notes.

One issue of the Graduate Notes was published this year in the OGS' ongoing attempt to keep the university community informed about changes and improvements in the overall conduct of graduate affairs.

9. Dissertation and Thesis Manual.

A revised edition of the Dissertation and Thesis Manual has been completed and is prepared for printing. The revised manual will be effective for all graduate students who are to begin writing theses or dissertations on or after September 1, 1984.

We are pleased to report that with few exceptions there has been an improvement in the preparation, appearance and quality of thesis and dissertation manuscripts. Because of the need to give proper attention to the very large number of manuscripts submitted to the Office of Graduate Studies, the deadline dates for the Fall and Spring semesters were moved up from December 1 to November 15, and from April 15 to April 1, respectively. These changes are now in effect.

10. Graduate Footnotes.

The OGS has begun and will continue to inform Alumni of graduate matters. A news column, titled Graduate Footnotes, was initiated in the magazine UNM Alumnus, in June, 1984.

11. Assistantships, Scholarships and Fellowships.

The sole Graduate Fellowship was awarded this year to an outstanding graduate student, Susan Benforado who is pursuing a PhD degree in Art History.

The Challenge Assistantship program continued with the awarding of five additional assistantships (making a total of eleven) in fields ranging from Music to Physics & Astronomy.

Approximately 51 Graduate Tuition Fellowships were awarded for 1984-85. These are awarded only to residents of the State of New Mexico on the basis of scholarship and need.

The OGS was fortunate in being able to award ten Presidential Scholarships for Spring 1984 and ten for the 1984-85 academic year with every college represented in the awards. It is hoped to expand this program as funds are made available.

12. Graduate Student Association.

The Office of Graduate Studies continued to maintain active cooperation with the Graduate Student Association. The Assistant Dean attended the monthly meetings and participated in resolving student-oriented problems. The GSA joined with the OGS as hosts for an open house for all graduate students.

The OGS worked closely with the GSA to prepare and publish a brochure covering the policies that apply to TA's, GA's, RA's and PA's. This brochure, the first of its kind, will be distributed by the GSA which plans to publish such a brochure every year.

C. SIGNIFICANT PLANS AND RECOMMENDATIONS.

In addition to those projections and recommendations listed in last year's Annual Report (and not yet implemented), the following are proposed:

1. Establishment of a procedure by which summer-only students need not apply for readmission when they seek to enroll in school each succeeding summer semester after not attending school in the fall or spring semesters. At present, summer-only students are removed from the computer; in order to return to school, they must apply for readmission.

2. Assessment of the entire policy on non-degree status.

3. A stronger voice in the Western Association of Graduate Schools (the Dean has recently been elected to the Executive Committee), and in the Council of Graduate Schools in the U.S.

4. Establishment of a TV link and an advisory board (comprised of Los Alamos and UNM personnel) to strengthen and expand our Los Alamos graduate program.

5. Acquisition of an additional IBM personal computer to be used by the OGS financial aid coordinator.

6. Expansion of Presidential Scholarship program so as to include \$40,000 aid for qualified graduate students.

7. Enhancement of our intercambio with U.N.A.M. (Universidad Nacional Autonoma de Mexico).

8. Thorough examination of the special needs and problems of professional graduate education.

9. Augmenting the TA/GA program to make it even minimally competitive with stipends and benefits offered at comparable neighboring institutions.

D. PROMOTIONS OF STAFF.

Ruby Curtis, CSIV to Staff Assistant, 6/25/84.
Joanne Henson, CSV to Staff Assistant, 6/25/84.
Mary Kollander, Admin. Asst. to Adminis. Coordinator, 7/1/84.
Koele Robinson, CSIV to CSV, 7/1/84.
Barbara Yeary, CSIII to CSIV, 7/1/84.

E. APPOINTMENTS TO STAFF.

Koele Robinson, CSIV, 1/23/84.
Katie Montoya, CSV, 1/30/84.

F. SEPARATIONS FROM STAFF.

Kimberly Beard, CSV, 1/23/84.
Rita Tsosie, CSIV, 1/2/84.

G. DEAN A. CHARLENE McDERMOTT.

1. Travel and panel participation.

- a) COGS (Council of Graduate Schools in the U.S.) Annual meeting held in December, 1983 in St. Louis, Missouri. Elected to Advisory Board for Gustave O. Arlt Award.
- b) Gave panel presentation on UNM's innovative programs in graduate education at WAGS (Western Association of Graduate Schools) annual meeting held in Monterey, California in March, 1984. Elected to WAGS Executive Committee for two-year term.
- c) NEH (National Endowment for the Humanities) panelist in Washington, D.C., December, 1983 assessing proposals for summer stipends in philosophy.
- d) New Mexico Humanities Council panelist.
- e) Travel to U.N.A.M. (Universidad Nacional Autonoma de Mexico) to strengthen "intercambio" connections - presented colloquium to Department of Philosophy entitled "Mysticism and Logic: A comparativist's Perspective".

2. Publications.

- a) Review of G. Nuchelman's Judgement and Proposition, Historiographia Linguistica: Vol. XII 1/2.
- b) Review editor: Journal of Buddhist Philosophy.
- c) Board of Editors: Philosophy East and West.

H. TABLES AND FIGURE.

Tables and Figures 1-6 provide statistical information on enrollment, both at the masters and doctoral level, on the number of degrees awarded. Although the number of master's degrees increased during this period, the number of doctoral degrees awarded declined. Tables 7-8 show the number of teaching, graduate, research and project assistantships awarded. Needless to say, there is very meager financial aid available for graduate students.

Respectfully submitted,

A. Charlene McDermott
Dean of Graduate Studies

Table 1. Graduate Student EnrollmentFall Semester, 1969-70 to 1983-84

Academic Year	Enrollment	Change from Previous Year	Percentage Change
1969-70	2,799	+ 134	+ 5.0 %
1970-71	3,210	+ 411	+14.7 %
1971-72	2,985	- 225	- 7.0 %
1972-73	2,909	- 76	- 2.5 %
1973-74	2,951	+ 42	+ 1.4 %
1974-75	2,923	- 28	- 0.95%
1975-76	3,289	+ 366	+12.5 %
1976-77	3,405	+ 116	+ 3.5 %
1977-78	3,470	+ 65	+ 1.9 %
1978-79	3,545	+ 75	+ 2.17%
1979-80	3,563	+ 18	+ 0.5 %
1980-81	3,657	+ 94	+ 2.64%
1981-82	3,757	+ 100	+ 2.73%
1982-83	3,852	+ 95	+ 2.53%
1983-84	3,802	- 50	- 1.30%

TABLE 2. MASTER'S LEVEL ENROLLMENT

0104

Colleges, Schools Divisions	1979-80			1980-81			1981-82			1982-83			1983-84	
	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring
SCHOOL OF ARCH & PLANNING	88	75	13	-	-	25	103	105	30	93	89	21	104	104
COLLEGE OF ARTS & SCIENCES														
American Studies	-	-	-	2	7	-	11	16	4	15	14	6	14	17
Anthropology	56	52	5	51	66	14	69	62	9	62	66	11	67	59
Biology	52	50	14	52	48	23	53	53	10	48	49	13	51	50
Chemistry	49	45	16	33	33	14	42	39	16	41	31	11	43	45
Communicative Dis	41	40	27	47	53	40	54	51	40	50	48	34	40	41
Comparative Lit	2	2	2	4	3	1	3	3	1	2	3	-	5	3
Economics	34	32	13	33	35	12	38	33	12	28	29	14	23	22
English	53	42	15	46	48	24	47	44	15	54	52	19	47	48
Geography	14	12	3	14	16	2	15	18	6	18	12	6	12	17
Geology	59	57	7	58	52	12	57	61	12	62	60	4	73	63
History	49	47	19	49	42	15	40	38	13	38	33	4	31	36
Latin American Stud	8	9	3	14	13	7	17	15	6	14	14	11	25	26
Linguistics	-	-	-	11	11	1	6	5	6	7	12	12	24	22
Mathematics & Stat	38	35	13	44	41	14	41	42	12	37	36	15	40	35
Modern Languages	34	29	11	36	38	21	41	36	-	35	36	18	30	30
French	(9)	(11)	(2)	(11)	(13)	(7)	(15)	-	(7)	(7)	(8)	(6)	(7)	(8)
German	-	-	-	-	-	(2)	-	-	(2)	-	(1)	(6)	(4)	(4)
Portuguese	-	-	-	-	-	-	-	(2)	-	-	-	-	-	-
Spanish	(25)	(18)	(9)	(25)	(25)	(12)	(26)	(34)	(9)	(27)	(26)	(6)	(19)	(17)
Philosophy	22	20	2	23	24	7	23	17	3	17	14	2	17	17
Physics & Astronomy	30	28	5	33	30	7	49	35	4	44	27	6	33	34
Political Science	11	11	6	12	12	5	14	7	5	12	14	6	11	15
Psychology	36	36	13	35	33	8	39	41	11	41	37	6	42	38
Sociology	18	15	7	22	15	7	14	15	6	11	12	3	15	16
Speech Communication	36	21	13	31	34	20	27	32	17	30	28	13	28	32

TABLE 2. MASTER'S LEVEL ENROLLMENT (Cont'd)

Colleges, Schools Divisions	1979-80			1980-81			1981-82			1982-83			1983-84	
	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring
COLLEGE OF EDUCATION														
Art Education	39	35	19	33	25	20	30	37	22	39	36	19	36	35
Counselor Education	104	112	65	118	130	78	133	115	69	103	90	71	110	113
Ed'l Administration	61	70	55	81	90	106	116	108	100	76	74	80	86	86
Ed'l Foundations	40	49	27	37	41	25	51	46	24	56	54	30	49	46
Elementary Education	253	222	285	226	208	207	191	177	198	148	133	172	149	133
Hlth, Phys Ed, & Rec	106	88	84	99	98	81	99	97	71	85	95	60	106	102
Home Economics	15	24	11	20	16	12	21	15	10	16	18	6	12	15
Sec & Adult Tchr Ed	160	157	152	159	134	118	135	132	82	109	105	81	106	106
Special Education	166	185	173	180	237	212	245	229	149	173	174	119	190	221
COLLEGE OF ENGINEERING														
Chemical Engr	31	34	6	36	30	5	27	29	9	23	23	6	21	25
Civil Engr	35	40	12	41	40	10	32	44	11	43	40	11	46	37
Computer Science	40	52	10	55	60	18	69	61	14	58	57	25	97	101
Elec & Comp Engr	110	123	28	127	127	30	127	123	31	102	104	35	117	116
Mechanical Engr	44	46	9	50	44	6	34	38	13	37	33	9	36	41
Nuclear Engr	5	28	4	30	26	5	24	18	2	19	16	-	23	20
COLLEGE OF FINE ARTS														
Art	107	96	21	117	104	26	102	71	12	79	64	7	81	72
Music	42	40	11	35	37	13	32	31	13	27	26	13	21	23
Music Education	1	1	-	3	1	-	0	5	3	3	3	5	4	5
Theatre Arts	9	8	-	6	6	2	4	14	7	15	12	4	6	6
COLLEGE OF NURSING														
	23	18	2	34	33	12	44	39	14	42	39	14	47	46
DIVISION OF PUBLIC ADMINISTRATION														
	223	246	106	219	223	111	182	207	97	169	154	101	185	175
MEDICAL SCIENCES PROGRAM														
	30	29	5	26	29	7	36	34	3	26	24	3	32	29
TOTAL	2379	2361	1292	2382	2393	1404	2585	2438	1210	2278	2177	1106	2335	2323

In Summer 1982, 15 regular Masters; in Fall 1982, 20 regular Masters; and in Spring 1983, 11 regular Masters students listed incorrect majors; therefore, these figures are not reflected in the totals above.

TABLE 3. DOCTORAL LEVEL ENROLLMENT

00106

Colleges, Schools Divisions	1979-80			1980-81			1981-82			1982-83			1983-84	
	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring
COLLEGES OF ARTS & SCIENCES														
American Studies	45	44	14	46	40	10	34	38	12	28	30	8	31	29
Anthropology	40	38	3	38	35	5	31	40	3	39	32	4	41	39
Biology	38	33	14	40	37	14	31	40	11	35	36	10	40	38
Chemistry	18	21	5	26	20	7	19	16	7	14	22	9	25	18
Economics	15	18	4	19	15	4	16	19	3	19	18	7	22	18
English	24	23	11	24	22	7	20	23	10	21	21	7	29	30
Geology	13	10	3	11	5	-	3	4	1	6	8	-	12	15
History	36	36	10	38	40	7	39	45	5	45	44	7	40	36
Ibero-American Stud	12	9	1	15	15	7	15	8	3	15	14	1	13	10
Mathematics & Stat	22	24	3	20	16	2	17	20	7	19	18	3	27	25
Romance Languages	43	41	11	39	33	10	25	-	9	26	28	1	27	9
Philosophy	17	16	3	14	17	1	7	15	2	13	12	1	9	10
Physics & Astronomy	25	24	6	26	26	9	24	31	7	27	37	12	41	44
Political Science	8	7	-	7	7	1	9	10	4	10	7	1	11	9
Psychology	20	19	6	15	18	7	20	20	1	22	25	6	30	27
Sociology	12	11	4	11	11	2	8	16	6	15	16	1	16	17
SCHOOL OF MGMT	2	3	-	4	3	-	-	-	-	-	-	2	3	-
COLLEGE OF EDUC														
Art Education	6	7	4	3	7	5	6	7	2	6	6	1	6	6
Counselor Education	51	41	20	43	39	16	42	48	12	48	51	18	55	52
Ed'l Administration	64	68	35	34	39	25	32	34	24	34	31	104	45	43
Ed'l Foundations	41	39	13	41	36	11	48	50	20	50	62	30	67	77
Elementary Educ	47	47	15	40	39	24	31	39	31	33	34	24	37	43
Hlth Phys Educ & Rec	42	43	29	47	49	28	52	56	33	49	53	25	57	52
Sec & Adult Tchr Ed	42	40	28	35	39	33	43	42	23	43	44	23	40	46
Special Education	40	41	24	33	37	22	44	60	41	51	52	38	60	60

TABLE 3. DOCTORAL *LEVEL ENROLLMENT (Cont'd)

Colleges, Schools Divisions	1979-80			1980-81			1981-82			1982-83			1983-84	
	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring
COLLEGE OF ENGINEERING														
Chemical Engr	7	8	1	8	8	3	12	12	2	15	12	2	10	8
Civil Engr	10	11	5	9	9	2	5	12	1	14	14	5	18	17
Computer Science	24	29	7	24	25	4	32	45	3	3	6	2	10	10
Elec & Comp Engr	24	29	7	24	25	4	32	45	8	37	48	8	51	49
Mechanical Engr	12	11	1	13	7	4	11	5	2	12	13	2	17	18
Nuclear Engr	1	12	3	12	12	-	10	11	3	16	15	5	14	13
COLLEGE OF FINE ARTS														
Art	20	3	8	29	31	7	32	55	12	27	39	7	33	29
Music	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MEDICAL SCIENCES PROGRAM														
	17	16	1	33	16	2	9	15	1	18	13	2	13	12
TOTAL	823	820	291	797	753	279	727	843	309	810	861	376	950	909

*Include Post Masters and Ed. Specialists Certificate students when appropriate.

In Summer 1983 3 Masters, in Fall 1983 1 Masters, and in Spring 1984 3 Master's students listed wrong status; therefore, these figures are not reflected in the totals above.

TABLE 4. MASTER'S DEGREES AWARDED BY UNIT AND BY YEAR

DEPARTMENTS BY COLLEGES DIV/PROGRAM	1927 thru																											
	1959	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84		
American Studies																										1	3	4
ARCH & PLANNING													6	7	13	10	23	20	21	18	19	13	16	16	18	20		
ARTS & SCIENCES																												
Anthropology	58	4	2	2	1	7		2	7	9	6	14	17	9	13	13	4	8	19	14	15	9	12	10	11	19		
Biology	119	5	8	12	7	12	6	11	14	18	21	17	18	18	15	17	19	11	23	15	16	12	7	5	4	10		
Chemistry	27		1	1	2	6	1	6	3	9	2	4	1	10	9	6	7	3	4	10	7	9	11	6	5	3		
Communicative Dis.															3	19	20	11	21	18	20	16	14	19	22	19		
Comp. Literature					1		1	1				3	1	2	2	1			2	2		1	3					
Economics	44	4	2	2		1	3	1	6	7	8	5	3	7	11	6	3	3	6	5	4	3	6	5	7	5		
English	150	4	6	5	6	6	17	21	23	17	23	12	20	14	19	10	10	12	4	14	7	5	3	7	4	13		
Geography														4	3	5	3	2	3	2	2		2	2	6	2		
Geology	72	13	11	9	6	5	4	2	6	9	8	7	5	7	8	5	11	9	6	13	12	10	14	10	10	11		
History	120	3	7	12	7	10	13	15	11	19	14	15	13	21	16	11	4	6	8	3	3	11	3	3	5	9		
Inter Amer Aff	25	1	2		2																							
Lat Amer Stu					3	3	3	1	3	4	16	7	14	9	10	8	10	8	7	9	4	6	5	5	7	4		
Linguistics																			1	2	2	1	5	1		3		

TABLE 4. MASTER'S DEGREES AWARDED BY UNIT & BY YEAR (Cont'd)

DEPARTMENTS BY COLLEGES DIV/PROGRAM	1927 thru																											
	1959	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84		
Math & Stat	47	2	6	3	4	5	8	11	3	22	13	10	17	14	19	6	3	7	7	4	7	5	7	11	6	10		
Modern and Class Languages																												
Latin	2						1	2	1	5	3	9	9	4	9	3		2	4	2								
French																						1		8	6	4		
Spanish	124	6	3	4	2	5	9	12	10	16	6	15	8	12	7	7	4	6	3	1		3	2	4	6	6		
Portuguese					2	1	3		3				3				2		1	1				1	1			
ARTS & SCIENCES																												
Philosophy	4	2	3			1	2	3	4	4	3	7	4	5	5	2	4	3	5	11	13	2		2	4	3		
Physics & Astr	44	4	12	14	13	10	6	8	10	7	12	9	11	6	9	11	2	2	3	6	6	5	6	6	7	6		
Political Science	63	2	3		2	4	2	2	3	3	8	5	6	5	2	3	4	1	5	6	1	4	1	4	1	2		
Psychology	81	2	3	5	3	1	6	4	9	8	6	4	4	9	7	4	9	8	10	14	9	8	5	5	8	5		
Sociology	20	1	1	1	1			1	3	1	1	3	2	4	4	5	4	6	1	3	2			2	1	1		
Speech Comm	18	3	4	2	3	2	4	7	11	12	11	14	21	18	11	7	5	19	12	14	14	11	14	14	7	12		
ANDERSON SCHOOL OF MANAGEMENT	19	1	3	5	4	9	9	8	28	30	20	25	29	27	28	52	52	45	47	46		91						
Industrial Admin					1	2	2		2	1	1	1	1			6		15	2									
COLLEGE OF EDUC																												
Art Education	47	4		1	1		4	4	8	3	7	8	9	18	20	23	9	14	22	19		12	8	9	7	9		

TABLE 4. MASTER'S DEGREES AWARDED BY UNIT & BY YEAR (Cont'd)

DEPARTMENTS BY COLLEGES DIV/PROGRAM	1927 thru																											
	1959	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84		
Educ'l Adm'n	370	20	21	21	21	23	23	28	35	36	21	16	11	21	18	9	10	18	33	19	17	24	38	29	27	47		
Educ'l Fdns													5	9	5	7	7	6	13	13	8	12	13	14	13	18		
Elementary Educ	82	12	6	9	9	9	13	21	23	33	39	56	31	60	59	76	77	87	76	87	72	81	76	87	67	70		
General Educ	121	1																										
Counselor Educ	26	9	12	23	19	26	26	26	43	42	61	55	65	83	71	85	59	80	59	56	46	43	28	36	52	48		
Health, Phys Ed & Recreation																												
Health Educ													2	3	2	3	7	8	7	11	5	11	9	5	9	7		
Physical Educ	44	6	4	8	11	10	8	12	17	18	19	12	18	12	14	13	13	8	11	22	11	17	18	10	11	20		
Recreation				2				4	3	2	4	4	1	5	13	8	10	6	15	11	16	10	8	10	6	4		
Home Economics																					6	5	7	5	6	3		
Secondary Educ	103	9	6	9	3	9	7	4	13	17	27	26	20	40	48	46	38	59	32	34	63	67	59	50	46	38		
M. Educ Sci		14	6	8	31	24	39	30	18	20	4																	
Tch Bus Subj									2	4	11	4	6	6	4	4	6	8	6									
Tch English												9	10	1	2		6	1										
Tch Home Ec									4	6	3	6	5	8	6	6		5	2									
Tch Indus Subj									4	3	5	5	5	7	7	4	7	6	4									
Tch Math									1	7	16	10	7	28	9	12		3										
Tch Science									1	7	3	7	6	1	4	5		1										
Tch Spanish		8	6	10	21	9	14	16	8	8	1	6	3	7	8	3	4		7	1								
Special Educ										6	16	25	39	37	33	50	56	38	61	60	67	64	64	85	82	51		

*The MAT's are no longer offered

**Commencing Fall 1978, the MA in Home Economics has been awarded under the jurisdiction of the Home Economics Department.

TABLE 4. MASTER'S DEGREES AWARDED BY UNIT & BY YEAR (Cont'd)

DEPARTMENTS BY COLLEGES DIV/PROGRAM	1927 thru	1959	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
COLLEGE OF ENGR																											
Chemical Engr			1	4		1		1	4	2		1		6	3	2	2	1		2	5	3	5	14	15	9	9
Engr Sci Mtl's								1	1	2			2	1			3	1									
Civil Engr		34	6	7	8	7	7	11	12	12	15	13	10	15	10	6	7	13	9	12	13	15	20	14	6	11	14
Computer Science																	3	3	3	4	10	8	10	10	12	4	4
Elec & Comp Engr		53	12	23	56	40	58	58	32	31	30	35	34	22	36	29	39	30	36	29	25	35	28	30	33	34	43
Mech Engr		35	11	15	27	28	23	26	5	26	15	25	18	20	19	8	3	4	9	7	8	1	18	23	10	10	7
Nuclear Engr					6	5	7	3	8	6	3	9	11	9	9	14	6	17	9	7	7	10	10	8	7	11	5
COLLEGE OF FINE ARTS																											
Art		65	4	6	5	9	7	6	6	14	13	24	15	11	15	14	18	24	20	18	29	13	31	31	36	17	15
Music		27	1	2	3	3	1	5	7	6	5	4	2	3	5	6	9	6	7	2	8	9	8	7	6	5	11
Music Educ		9	6	3	5	5	9	4	7	7	3	8	10	7	1	5		3	5		1	1	3				2
Theatre Arts																							1	2	2	2	8
DIVISION OF PUBLIC ADMINISTRATION													13	17	36	33	30	35	32	57	65	74	81	70	90	77	81
MEDICAL SCIENCE PROGRAM																	4			1	2	1	6	9	2	4	5
COLLEGE OF NURSING																							4	4		4	9
TOTAL		2025	182	196	278	282	313	347	345	434	484	527	547	568	680	682	692	665	680	724	751	634	797	697	715	992	699

TABLE 5. DOCTORAL DEGREES AWARDED BY UNIT & BY YEAR

DEPARTMENTS BY COLLEGES DIV/PROGRAM	1927 thru																									
	1959	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
ARTS & SCIENCES																										
American Studies	8		1	1			1	1	2	1	3	4	1	6	5	10	4	12	6	9	4	5	8	4	8	6
Anthropology	11	1			3					1	3	4	2	1	2	3	3	5	4	2	5	6	4	5	5	5
Biology	10			1	1	1	2	1	1	1	5	2	4	3	10	8	5	4	5	2	3	10	6	6	2	6
Chemistry	32	2	4	7	3	3	4	2	6	6	3	6	6	6	4	5	2	8	5	9	10		9	6	7	8
Economics													1	1	2	1	2	3	4	2	2	3	3	1	3	1
English	15	2	4	1	2	1	2	3	7	12	16	11	7	14	18	11	9	9	12	4	3	5	2	7	7	1
Geology				2	1	1	2	3	4	2	3	3	4	9	2	2	2	3	3	1		9	3		3	
History	18		4	4	3	3	8	6	6	3	7	18	17	17	11	12	11	15	11	6	9	4	4	3	1	4
Ibero-Amer Stu					1			1	1	2	3	3		3	5	4	1	2			2	1				
Mathematics				1	2	2	4	1	5	6	7	10	7	9	9	5	5	5	6	6	1	3	7	2	1	3
Physics	6	1	2	3	2	2	4	2	4	8	2	2	5	1	6	4	7	1	3	8	3		5		2	6
Philosophy												1	1	3	1		1	2		1	1	1		1	1	2
Political Science															2	3	2	1	1	1		2				1
Psychology				1			1		2	5	8	12	8	6	5	13	4	7	9	7	6	6	12	11	2	4

00112

TABLE 5. DOCTORAL DEGREES AWARDED BY UNIT & BY YEAR (Cont'd)

DEPARTMENTS BY COLLEGES DIV/PROGRAM	1927 thru																									
	1959	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
Romance Languages												6	7	4	4	5	7	3	8	6		3	10	3	3	7
Spanish	14	1	2			1	1		3		2			4												
Sociology																										1
COLLEGE OF EDUC																										
C & I				2	1	1	5	5	4	9	18	25	22	26	32	30	20	12	19	14		29				
Education																							34	34	20	34
Educ Admin		2	1	1			3	2	8	4	10	8	3	4	8	7	2	5	5	4	5	5			1	3
Educ Fdns										2	2	4	5	6	3	9	7	7	5	8	7	7			1	6
General Educ			3		2																					
PPS					1	2	4	5	2	4	5	14	9	22	6	17	15	8	10	5		10				
COLLEGE OF ENGR																										
Chemical Engr							1					1	1	1	1	2	1		1		1			3	3	
Civil Engr								1		2	3	3	5	4	3	1	3	1		2	2	1	1	3		2
Computer Science																										1
Elec & Comp Engr			2	4	5	4	3	10	7	10	3	5	7	7	7	6	9	3	4	1	3	3	2	2	3	3
Mech Engr							3	3	2	5	2	1	2	4	3	1	4	3	4	1					2	
Nuclear Engr								2	1	1	1	3	4	2	1	2		2	2		6	3	1	3		3

TABLE 5. DOCTORAL DEGREES AWARDED BY UNIT & BY YEAR (Cont'd)

DEPARTMENTS BY COLLEGES DIV/PROGRAM	1927 thru	1959	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	
COLLEGE OF FINE ARTS																												
Art History													2			1	2	1		2				2	1	2	2	2
MEDICAL SCIENCE PROGRAM												1	3	1			3	2	1	6	5	3	3	3	4	6	1	
SCHOOL OF MGMT																							1					
TOTAL		114	9	23	28	27	21	48	48	65	85	106	146	129	163	152	166	129	122	135	104	76	122	115	98	94	117	
=====		=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
MASTER OF FINE ARTS									1	2	1	2	1	4	3	2	4	6	4	4	1		2	7	11	9	3	

00114

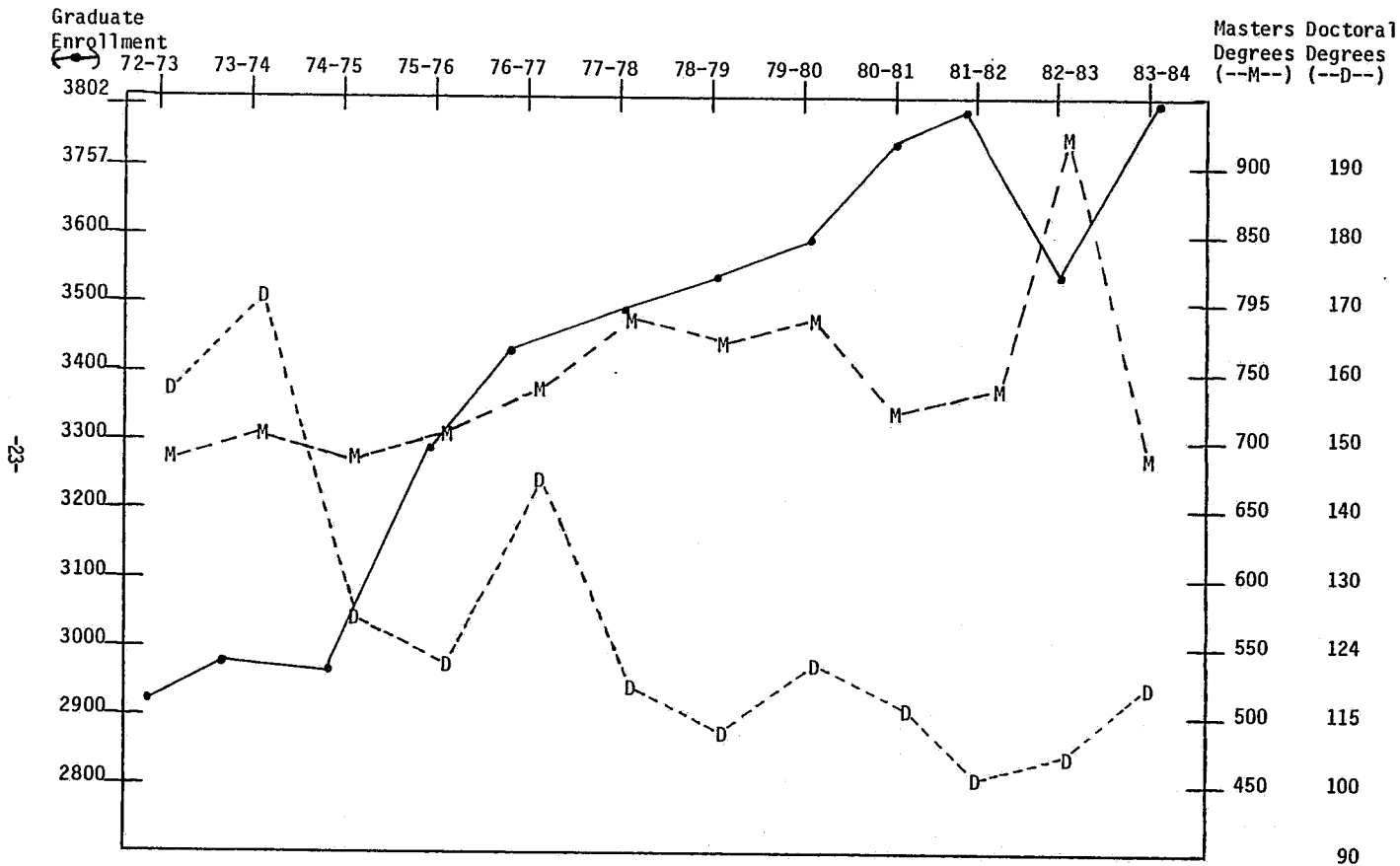


Table 6. Enrollment Table

00115

00116

Table 7. Graduate Assistants, Teaching Assistants, and Teaching Associates, 1983-84 (Number of Awards)

College, School, Division	Summer 1983	Fall 1983	Spring 1984
<u>School of Architecture and Planning</u>	11	12	13
<u>College of Arts and Sciences</u>			
American Studies	2	1	2
Anthropology	19	12	14
Biology	38	48	51
Chemistry	17	28	27
Communicative Disorders	4	4	4
Economics	13	14	14
Geography	3	3	3
Geology	11	15	21
History	14	17	17
Ibero-American Studies			
English	41	52	47
Linguistics	1	1	1
Mathematics and Statistics	27	29	30
Modern & Classical Languages	37	33	41
Philosophy	6	5	3
Physics and Astronomy	16	20	22
Political Science	4	10	10
Psychology	21	21	21
Sociology	4	6	8
Speech Communication	9	7	7
<u>TOTAL</u>	<u>287</u>	<u>326</u>	<u>343</u>
<u>Anderson Graduate School of Management</u>	25	25	33
<u>College of Education</u>			
Art Education	2	2	3
Counselor Education	4	3	3
Educational Administration	5	6	7
Educational Foundations	9	7	8
Elementary Education	9	7	9
Health, Phys Ed & Rec	34	37	41
Home Economics	1	2	2
Secondary & Adult Education	9	10	13
Special Education	4	3	3
<u>TOTAL</u>	<u>77</u>	<u>77</u>	<u>89</u>

TABLE 7. Graduate Assistants, Teaching Assistants, and Teaching Associates, 1983-84 (Number of Awards) (Cont'd)

College School, Division	Summer 1983	Fall 1983	Spring 1984
<u>College of Engineering</u>			
Chemical and Nuclear Engr	5	7	6
Civil Engineering	2	5	8
Computer Science	13	17	19
Electrical & Computer Engr	15	19	18
Mechanical Engr	6	10	11
TOTAL	41	58	62
<u>College of Fine Arts</u>			
Art	24	28	34
Music	10	11	12
Theatre Arts	5	5	5
TOTAL	39	44	51
<u>College of Nursing</u>	1	3	1
<u>Division of Public Administration</u>	4	3	3
<u>Other</u>			
Bureau of Engr Research	1	1	1
Electronic Technology	1	1	1
General Library Skills Center	2	4	4
General Honors/ Undergrad Seminary Library	1	1	1
General College	5	8	5
Latin American Institute	2	2	2
Native American Studies	0	0	1
NM Research & Study Coun	2	2	2
Women's Studies	2	1	1
TOTAL	16	20	22
<u>Graduate Studies - Challenge Asst.'s</u>	4	5	5
GRAND TOTAL	505	561	589

00118

TABLE 8. Research Assistants and Project Assistants, 1983-84
(Number of Awards)

College, School, Division	Summer 1983	Fall 1983	Spring 1984
Anthropology	0	2	0
Biochemistry	4	2	2
Biology	12	3	5
Bureau of Engr Research	35	36	46
Cell Biology	1	3	3
Chemical & Nuclear Engr	3	1	1
Chemistry	21	11	18
Clinical Nutrition Program	1	1	1
Communicative Disorders	1	1	1
Comptroller	0	0	1
Computer Science	0	4	4
General Accounting	0	2	0
Geology	14	13	13
Institute of Meteoritics	2	3	2
Maxwell Museum	0	0	1
Mathematics and Statistics	1	0	0
Mechanical Engineering	1	1	1
Microbiology	1	2	3
NM Historical R			
Astronomy	13	12	14
Psychology	3	0	0
Public Administration	1	0	1
Southwest Resource Center for Science and English	3	0	0
Speech Communication	0	0	1
TOTAL	129	99	120

CENTER FOR GRADUATE STUDIES AT LOS ALAMOS

July 1, 1983 - June 30, 1984

Don R. McLaughlin, Director

A. Achievements

Forty-seven courses representing ten university departments, divisions and schools were conducted through the Center for Graduate Studies at Los Alamos during 1983-84. Two were videotaped courses.

Twelve students completing degree requirements at the Graduate Center were honored at a joint convocation with the UNM-LA Branch College in May. Three BA degrees in Computer Science and one each in Chemistry and University Studies were earned. Four MS degrees in Computer science and one each in Electrical and Computer Engineering and Mathematics, and one MBA degree were awarded. The total number of graduates through the Center for Graduate Studies is now 363. A breakdown by degree is given in Table 1.

Other developments affecting the Graduate Center include:

- * Implementation of a three-year time period for the Graduate Center contract.
- * Approval by the EECE Department for a General Option for the MS degree.
- * Major revision of the MS requirements by the Computer Science Department.
- * Several new offerings, including Quality of Working Life Issues, Computers in Chemistry, C Programming, History of Technology, Multivariate Analysis, Seminar in Cell Biology, Electrodynamics, and Astrophysics.
- * Conversion of computer programs in linear analysis and forecasting for the UNM-LA VAX computer.
- * Transfer of the UNM-LA Computer Center management and budget from CSIS on main campus to UNM-LA, effective July 1, 1984.
- * Completion of the first review of the Center for Graduate Studies.
- * Participation in the first TRADE Continuing Education Meeting, held May 30-31, 1984.

The review of the Graduate Center was requested by the Graduate Dean and was conducted on April 23-25, 1984. The review team was comprised of two UNM personnel, three Los Alamos National Laboratory administrators and one Lawrence Livermore National Laboratory administrator. The report of the Review Committee is on file at the Office of Graduate Studies. An extensive Self-Study of the Graduate Center was prepared for the Committee and is included as a appendix to the review report. These documents should be consulted for details regarding the past and current trends, operations and recommendations for the Graduate Center. Major future developments of the Graduate Center recommended by the Review Committee include:

- (1) Establishment of a Graduate Center Oversight Committee.
- (2) Implementation of an interactive television link between UNM and Los Alamos.
- (3) Greater Involvement of Laboratory Management with the Graduate Center.
- (4) Clarification of UNM policy addressing the needs of Los Alamos.

The TRADE (Training Resources and Data Exchange) workshop was organized by Oak Ridge Universities and hosted by Lawrence Livermore National Laboratory. Its purpose was to identify and describe supporting arrangements for the education

and training of scientific, engineering and technical personnel at DOE facilities such as at Los Alamos National Laboratory. Reports were prepared and presented by seven administrators of organizations similar to the CGS-LA. Many worthwhile comparisons and exchanges were made at the meeting which put the Center for Graduate Studies at Los Alamos into a national perspective. Action items from the conference include:

- (1) Proposal for the establishment of a Continuing Education Special Interest Group (SIG) within the TRADE organization.
- (2) Preparation of a matrix report comparing the various DOE contractor education programs.
- (3) Further interaction provided by a SIG meeting in conjunction with the October 1984 TRADE Conference to be held in Richland, Washington.

B. Plans and Recommendations

The cost of education at the Graduate Center has risen rapidly in the last few years (see Table 2 and the attached figure). Significant contributors include inflation and capitalization, principally in the form of support of the purchase of computer equipment in Los Alamos. These are justifiable expenses for education at the forefront of science and technology. Nevertheless

courses in Los Alamos could be delivered much more efficiently using video media. A small video classroom facility has been provided through the CGS-LA contract. The completion of the process for live two-way video transmission will require a larger financial investment by both UNM and Los Alamos National Laboratory. An equitable arrangement would have each institution provide its own video facilities. Reducing the cost of education would be good business on the part of both contracting parties.

Business and Computer Science remain by far the most popular subjects in Los Alamos. These programs should receive commensurate support from both contracting parties. It would be wise to develop management programs useful to the Laboratory, and to pursue extending resources through joint appointments of faculty and release time for employees at the Laboratory.

In the near future students in Los Alamos should have access to courses taught during regular hours at UNM, and to courses taught by selected regularly appointed Laboratory staff/faculty in addition to courses taught by full-time UNM faculty and local adjunct faculty in Los Alamos.

Table 1. Degrees Awarded through the Los Alamos Center for Graduate Studies

Year:	Bachelor		Master		Doctorate		Total
	54-73	74-84	54-73	74-84	54-73	74-84	

Engineering:							
Chemical and Nuclear	0	0	47	6	4	0	57
Computer Science	0	4	0	14	-	-	18
Electrical and Computer	8	13	27	45	3	1	97
Mechanical	1	7	18	1	4	1	32
Materials	-	-	8	1	-	-	9
Science:							
Biology	1	0	0	0	0	0	1
Chemistry	5	1	9	1	18	1	35
Mathematics and Statistics	9	2	6	2	2	2	23
Medical Science	-	-	0	5	-	-	5
Physics	2	0	28	3	14	4	51
Other:							
Business	-	-	0	32	-	-	32
University Studies	0	3	-	-	-	-	3

Total	26	30	143	110	45	9	363

Table 2. Enrollment and Budget Trends.

Academic Year	70/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83	83/84
No. of lecture courses	46	42	45	47	46	41	44	54	52	55	50	45	44	47
Individuals registered	410	414	522	448	498	450	480	520	608	599	537	425	480	494
Average enrollment in lecture courses	11	12	13	12	13	13	14	12	14	13	12	11	13	13
Enrollments:														
Individual study	26	41	63	46	40	39	26	42	57	56	52	30	41	49
Undergrad. lecture	93	65	75	244	197	319	337	211	398	377	309	238	221	349
Graduate lecture	425	421	527	310	378	227	259	456	346	341	280	238	302	241
Total enrollment	544	527	665	600	615	584	622	709	801	774	641	506	564	639
Student credit hours	1640	1632	1935	1736	1748	1639	1672	2020	2245	2198	1916	1570	1827	1875
Budget (\$x1000)	131.6	117.1	147.2	140.9	128.3	140.6	151.2	151.9	196.2	219.0	271.4	321.6	331.0	383.7
Cost per SCH (\$)	80	72	76	81	73	86	90	75	87	100	142	205	181	205
Cost per lecture course (\$x1000)	2.9	2.8	3.3	3.0	2.8	3.4	3.4	2.8	3.8	4.0	5.4	7.2	7.5	8.2

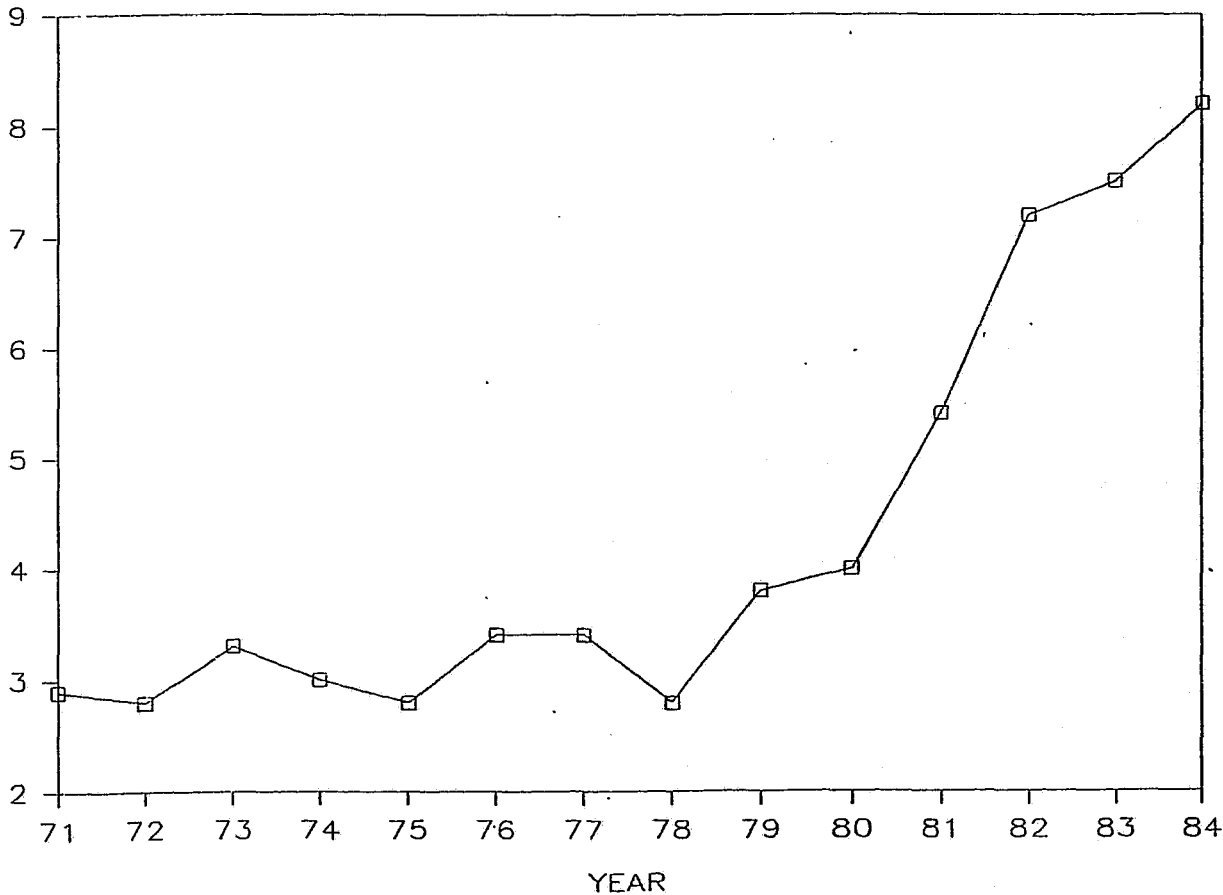
3/22/84

COST PER LECTURE COURSE

SOURCE: TABLE 4

1226

THOUSANDS PER LECTURE COURSE



THE UNIVERSITY OF NEW MEXICO
CENTER FOR GRADUATE STUDIES AT SANTA FE

Appendix B

ANNUAL REPORT

July 1, 1983 - June 30, 1984

Vera John-Steiner, Ph.D.
Director

The Santa Fe Graduate Center has been faced with a shift in patterns of course offerings in 1983-84. While enrollment in education courses have attracted large numbers of students, the Public Administration courses have dropped significantly in enrollment. This pattern required that we strengthen our educational delivery by planning more specialized courses, such as Early Childhood Education and Adult Education, and trying to improve the elective offerings for Public Administration. During the summer of 1984, we have expanded our course offerings further by including a course in Health Education in Stress Management.

The overall enrollment for 1983-84 was lower than that of the previous year: 677 registrations in 1982-83 and 566 registrations for 1983-84. In addition to the trends mentioned above, some of our Master's programs were in their second year, thus we have had some courses with small enrollment as the courses had to be offered for the completion of the students' programs.

The Santa Fe Graduate Center has proceeded to implement some of the recommendations made by the evaluation team from the Graduate Studies office. We have reactivated an Advisory Committee for the Center with the following named individuals: Dr. Stuart Boyd, St. John's College, Ms. Connie Castillo, Santa Fe Public Schools Administration, Dr. Natalie Babcock, State Personnel Department, Dr. Jeanne Knight, State Department of Education, Dr. Dan Lopez, State Employment Security Division, Dr. Jeffrey Dahlia, College of Santa Fe, Dr. Placido Garcia, Jr., Director of the Legislative Education Study Committee, and Dr. Vera John-Steiner, University of New Mexico. The first meeting of the Committee took place on December 15, 1983. (See Advisory Committee Meeting Report attached.)

We have sought to make our presence better known in the Santa Fe community by receiving more publicity. Two articles concerning our course offerings appeared in the NEW MEXICAN, as well as the Director's letter concerning issues of education

in the State. Also, the departments have offered more advisement to our students, and a general open house was held on August 18, 1983, at which time the Dean and Associate Dean of Graduate Studies gave an orientation to students.

A. ADMINISTRATIVE PROCEDURES. No changes were made in the operating procedures during this last year. We continued to assess our income and expenditures after each enrollment period with the increasing reliance of the computer facilities throughout the University. Our office is moving toward installation of computer equipment, which will allow us to coordinate our records with that of main campus.

B. CENTER FACILITY AND STAFF. The facility has remained the same, although the College of Santa Fe has promised to improve the heating and ventilation in the building. These improvements have yet to be done.

The low salary scale for the part-time secretary has created repeated problems for us. Both of the individuals we had hired for this job (Roslyn Gomez and Beatrice Davis) found it necessary to look for better paying positions. We are again working with a temporary person, Betsy Bennet.

C. PROGRAM DEVELOPMENT.

1. Public Administration Division. The considerable drop in PA enrollments may be due to the uncertainties of government employees during the last two years. We hope that with improvement in the State's economic situation the program will again stabilize.

2. Counselor Education. The second cycle of Master's students in Counselor Education are in the process of completing their degrees. This has been a highly regarded program although there are fewer applications for the fall 1984 cycle. At the same time, some of the courses offered by Counselor Education are extremely popular with teachers as well as mental health personnel. This

program is an important link to the Santa Fe mental health community.

3. Secondary and Adult Teacher Education. Courses for recertification and for students enrolled in the Adult Education program are offered by SATE. The latter, while still a small program, is gaining in importance in Northern New Mexico. Some of the Adult Education students are working at the new Santa Fe Community College as volunteers in their literacy program. This connection between our two institutions promises to be mutually beneficial.

4. Special Education. Enrollment remains strong in this department. The new chair, Dr. Debra Smith, has been very helpful in trying to meet the needs of the Center, both in the choice of courses to be offered here and the scheduling of the courses.

5. Educational Foundations. This department continues to offer support and elective courses. (During the spring 1983 semester, the director taught a seminar on the Psychological Development of Women.)

6. Educational Administration. As this department can only offer one course per semester, the students also attend elective courses in Santa Fe and take a few of their courses on main campus.

7. Elementary Education. We are increasing course delivery in the elementary education area, and we have continued to select courses with the help of the Santa Fe Public Schools Administration.

8. Civil Engineering. Courses offered by this department have a small but loyal following. The State Highway Department is strongly supporting these courses and is asking its employees to enroll.

9. Speech Communication. We offer a minimum of one course per year provided by this department. The courses continue to be highly regarded by our students.

10. Political Science. Professor Hain taught an interesting course last spring. An article in the NEW MEXICAN helped to stimulate interest. (The course offered was Topics: Bureaucratic-Legislative Politics in New Mexico.)

11. History. The State Historian, Dr. Stanley Hordes, taught a very successful course for the Center. The course was described in a NEW MEXICAN article, and included among the students were a number of State employees.

D. SERVICE. We have continued to develop good working relationships with the Institute of American Indian Arts (IAIA) and the College of Santa Fe. These institutions and UNM jointly sponsored a presentation by Professor Courtney Cazden, of Harvard University, last March on the College of Santa Fe campus.

E. PROFESSIONAL ACTIVITIES. Dr. Vera John-Steiner participated in the Colloquium on Research of Women (C.R.O.W.) at UNM in February 1984; spoke at the Unitarian Church of Santa Fe on February 12, 1984, speaking on Notebooks of the Mind; March 8, 1984, she addressed "Creative Principles in the Arts & Sciences" in Richter and Sturm's class.

She gave professional papers at Wichita State University, UCLA, University of California at San Diego, and Columbia University. She received a UNM Research Allocation Grant with Professor Peggy Blackwell on the "Acquisition of Science Concepts." She is participating in an International Research Exchange Board funded by a national research team investigating Hungarian/English Bilingualism in the U.S.A. The first meeting of that project was held at Columbia University in the spring of 1984.

Non-teaching University Service: Women Studies Advisory Committee, Senate Graduate Committee, Department of Linguistics Policy Committee, and Director of the Santa Fe Graduate Center.

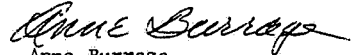
Teaching Responsibilities: In addition to her course-load, Dr. John-Steiner chairs eight (8) doctoral committees and is a member of an additional sixteen (16) committees.

00132

In Summary: The Center is slightly shifting its course distribution, with a great emphasis on offering an increased diversity of courses. The re-establishment of the Santa Fe based Advisory Committee has been successful, and the main campus based departmental advisory group remains an important part of our planning process. We are looking forward to installing micro-computer facilities in the near future, which should strengthen our link with main campus records and activities.

Respectfully submitted:

Vera John-Steiner, Ph.D.
Director



Anne Burrage
Administrative Asst.



FILE
00133

THE UNIVERSITY OF NEW MEXICO
CENTER FOR GRADUATE STUDIES AT SANTA FE

December 20, 1983

MEMO: File
SUBJ: Advisory Committee Meeting

The first meeting of the new Advisory Committee of the Santa Fe Graduate Center met on December 15, 1983. Although we had a threatening snow storm in the morning, attendance was very good. In attendance were Mrs. Connie Castillo of the Santa Fe Public Schools, Dr. Natalie Babcock of State Personnel Department, Dr. Jeanne Knight of State Department of Education, Dr. Dan Lopez of State Employment Security Division, Dr. Jeffrey Dalia of College of Santa Fe Center for Community Programs, Dr. Zane Reeves of UNM Public Administration Division, and Dr. Vera John-Steiner of UNM Santa Fe Graduate Center.

The Committee members provided many valuable suggestions for improving course and program delivery in Santa Fe:

1. They requested that our course descriptions be less academic, and should specify who might benefit from taking the courses, i.e., school teachers, state government employees, etc.

As an example, we will be offering a course this summer (to be taught by Prof. Cellini who is a psychologist at the State Penitentiary) on drug addiction. Such a course would be of value not only to school teachers but to people in state agencies whose responsibilities lie in this area, as well as police officers.

2. Other areas of improvement that Dr. Lopez particularly thought would be valuable to our current delivery are:
 - (a) courses in collective bargaining.
 - (b) personnel courses that would help employees to deal with issues of motivation, job situations, and the identification of mental health problems of employees. He felt that many people who are interested in taking such courses may not necessarily be working for a master's program but are in need of updating their skills in these areas.
 - (c) a course in the issues of bureaucracy.

There was much discussion concerning scheduling. An intensive thirteen-session course may be valuable for some high level administrators who could request educational leave for attending such a course, while other employees may find a combination of evening and weekend schedules of greater value.

MEMO: File
SUEJ: Advisory Committee Meeting

- 2 -

Dec. 20, 1983

The Advisory Committee members agree with departmental chairs that if we could combine a fall schedule and tentative spring schedule, it would provide a more effective planning for students as well as for supervisors. We will definitely aim for such scheduling.

In addition to these issues, some of the Committee members expressed concern with our current facilities. Students have reported discomfort in some of the classrooms which lack window blinds and which are very brightly painted. Dr. Dalia assured me that he will intervene on our behalf and try to arrange for us to use some of the better classroom facilities on the College of Santa Fe campus. It was also recommended that we extend our registration hours past five o'clock, at least one day during our registration period (we will start fulfilling this suggestion during the spring '84 registration). State facilities could also be used for our program, i.e., the Vocational Rehabilitation Department has a good conference room which we may be able to use for certain courses.

The representative of the Santa Fe Public Schools, Mrs. Castillo, told us how pleased she has been with our efforts to work closely with her in our educational courses. She is very eager for us to implement the fifteen-hour graduate program for the gifted. The representative of the State Department of Education, Dr. Knight, has asked us for a broader range of courses in educational supervision.

The December 15 meeting was a very valuable session, and I hope that we will be able to follow through on these suggestions.

Vera John-Steiner, Ph.D.
Director, S.F.G.C.

The cartoon above was presented as "Letter to the Editor" by the Santa Fe Political Action Committee of the National Education Association - New Mexico.

UNM needs more support

By VERA JOHN-STEINER
The University of New Mexico
is at risk.

UNM has been in existence for close to a century. It has taken that many years to build it into a major institution of learning in our state. Years and years are required to create the traditions that shape a community of scholars and a group of effective teachers.

It is shocking that such an achievement is disparaged by carping journalists such as Fred McCaffrey, whose article in *The New Mexican* on March 5 attacked the professional integrity of this community.

To see the university faculty's desire for respect, both intellectual and financial, as an undeserving demand is to misunderstand the structure and purpose of a university. To teach students with the devotion to the highest possible standards of excellence is a task the faculty cannot perform without the support and the respect of the community at large, both public and private.

University teaching requires a high degree of morale, and the morale at UNM at present is at an all-time low. Professors who have been willing to forego pay raises, who have taken over the work of colleagues who have left and not been replaced, and who have seen their classes increase in size have considered these conditions temporary. But the recent events in the Legislature have seriously raised the issue of whether the University of New Mexico can recover from the losses it has sustained.

Every department is struggling

Community forum

A guest column

dealing with the problem of young faculty looking for other jobs. In the library alone, seventeen staff members are looking for alternative employment. The staff at UNM, which is among the worst paid in the state, includes 50 individuals who are on food stamps because their pay checks cannot feed their families.

The university is a growing, living body. Its ability to address the needs of a state which is struggling to meet challenges in science, technology, health care, and public education, is seriously undermined by the lack of resources to effectively service the citizens of New Mexico.

The community of New Mexico is fortunate to be served by dedicated university faculties and staffs throughout the state who continue under these difficult circumstances. But without

competitive salaries and benefits, the University of New Mexico and its sister institutions cannot hope to attract the young scholars and teachers who are the future of these institutions. Nor can we expect the very best of our faculties to turn down more attractive offers elsewhere.

The employees of the state universities are asking for reasonable salary and benefit improvements, they are asking for cost-of-living increases and support services sufficient to meet the important challenges faced by the state.

Failure of the legislature to respond to the genuine needs of the university portends grave consequences. Without vigorous support, the attainment of academic excellence in our schools will consume years that might otherwise have been devoted to the education of our youth.

The author, a Ph.D., is director of the University of New Mexico's Santa Fe Graduate Center.

Our Policies

...on letters

The *New Mexican* encourages readers' letters. Letters must be written to the editor and include signature, address and telephone number. At the editor's discretion, signatures will be withheld by the writers request provided the writer and the information in the letter can be verified. Preference will be given to written letters of one typed page or less, and letters may be edited for brevity. Our guest column, Community Forum, is available to readers with longer comments. Send letters to: Letter to the Editor, The New Mexican, P.O. Box 2046, Santa Fe, 87501.

...on corrections

The *New Mexican* will correct errors in fact in its news stories. To request corrections call the city editor at 983 3303.

Your New Mexico legislators

ANNUAL REPORT
OFFICE OF GRADUATE STUDIES
AFFIRMATIVE ACTION ACTIVITIES
JULY 1, 1983 - JUNE 30, 1984

- I. Introduction
- II. Graduate and Professional Opportunities Program (G*POP)
- III. Recruitment
- IV. Application, Admissions and Enrollment
- V. Advising and Counseling
- VI. Retention
- VII. Financial Aid (G.A.'s, T.A.'s, R.A.'s and P.A.'s)
- VIII. State Funded Fellowship Proposal
- IX. Other Activities
- X. Problems and Recommendations

Tables and Graphs

1. G*POP Table
2. G*POP Recipients
3. Enrollment - Fall, 1983
4. Enrollment for year
5. G.A.'s and T.A.'s

Introduction

GD139

The UNM OGS has had a staffed affirmative action effort since fall 1978 when it received its G*POP grant from the U.S. Department of Education initially. The effort consisted of a federally funded part-time program director/recruiter and part-time secretary. The staffing of the effort now consists of a full-time administrator (Assistant Dean as of January 1, 1984) and a part-time secretary funded from institutional sources. The evolution of the administrative position has also consisted of development of appropriate duties and responsibilities including proposal writing, program administration, recruitment, student advising and counseling, preparation of reports and other applicable functions such as committee work dealing with staff hiring, financial aid, etc.

The following is a summary of activities of the Assistant Dean responsible for the OGS affirmative action activities for the period July 1, 1983 to June 30, 1984.

GRADUATE AND PROFESSIONAL OPPORTUNITIES PROGRAM (G*POP)

In 1983-84, UNM received a G*POP award of \$149,800 for seven (7) new and eleven (11) continuation fellowships. The 1984-85 G*POP award of \$214,900 for eleven (11) new and fifteen (15) continuation fellowships brings the total awarded to UNM under G*POP since 1978 to \$1,111,211. UNM continues to be highly competitive regarding G*POP as evidenced by our recent awards. Of 138 universities receiving G*POP awards for the coming year, only two (Ohio State and the University of Oklahoma Health Science Center) received larger grants than UNM and only one was awarded more new fellowships. During the past year, this office sought and received, resumes from eleven UNM faculty members who were subsequently recommended to the U.S. Department of Education as G*POP readers.

Since 1978 UNM has awarded G*POP fellowships to eighteen (18) law students and thirty-seven (37) graduate students. Of the students, eight (8) have received law degrees; fourteen (14) have received master's degrees, one a Ph.D. and four have resigned their fellowships. Sixteen (16) are expected to continue in Fall '84.

Twelve (12) others have left the program and the university prior to receiving degrees. Several in this group have indicated they hope to return to graduate school.

The eleven (11) new and fifteen (15) continuation fellowships beginning September 1, 1984 will be distributed as follows:

COLLEGE OR DEPARTMENT	NEW	CONTINUATION
Arch. & Plan.	2	0
Engineering	3	3
Law	2	8
Mathematics	1	1
Physics	1	2
Psychology	1	1
Political Science	<u>1</u>	<u>0</u>
TOTAL	11	15

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We expect G*POP to continue despite the present administration's efforts to delete funding since the Congress has overridden the administrations proposal each of the past three years.

Two new "areas", Architecture and Planning and Social Sciences (Economics, Political Science and Sociology), have been approved for fellowships for 1984-85. The UNM G*POP is administered with the assistance of faculty policy/advisory committee representation of all cooperating departments and the Student Financial Aid office.

RECRUITMENT

Recruitment of minority graduate students, consisting largely of faculty and staff visits to other regional universities, mass mailings to students listed by the GRE Locator Service and the Western Name Exchange and appropriate follow-ups continued during 1983-84. During the past year, eleven UNM faculty and staff and the president of the

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Graduate Student Association visited a total of 32 universities in New Mexico, Texas, California, Colorado and Oklahoma for purpose of graduate student recruitment. Several hundred students were contacted on these visits and additional correspondence from this office and academic departments was conducted.

As part of our efforts to improve recruitment activities, a proposal was once again submitted to the UNM Foundation, but unfortunately was once again turned down.

APPLICATIONS, ADMISSIONS AND ENROLLMENT

As of this Fall 1984 semester and as a result of Associate Dean Allen's efforts, the OGS will be able to program a computer printout on the numbers of applications, admissions offered, admissions declined and admissions refused, by ethnicity, race, sex and department, thereby greatly improving our ability to evaluate the university's recruitment efforts and departments affirmative action efforts in admissions.

UNM minority graduate student enrollment has once again shown a decrease from the previous year, however, the decrease does not appear to be as severe as the previous years, 3.8% versus 6.0% last year. While minority women enrollment remained the same, the entire decrease of 24 is entirely attributed to Black and Hispanic men. Likewise, 75% of the decrease (18 of the 24) can be attributed to the College of Education. And while enrollment of minority women decreased by 5.6%

in Education, they held their own by increases in other areas. For example, enrollment of minority women increased by 10 (21.3%) in Arts and Sciences.

The decline in minority graduate enrollment at UNM is consistent with national trends. Any assessment focusing on this decline will have to consider a number of factors over a period of time both at the normal level and within the institution, including institutional policies; the level of financial support for minority graduate students and commitment of funding and personnel resources for recruitment and retention efforts; enrollment and graduation rates at every level; commitment to equal access, the adequacy of support services; the institution's record in providing "role models" through affirmative action in faculty hiring; the quality of minority student life on campus; organizational restructuring of minority student support services; some societal variables such as the commitment to equal access for minorities, the degree of emphasis on this concern relation to other goals and a number of other variables.

ADVISING AND COUNSELING

Advising, counseling and referral of minority undergraduates and graduate school applicants and students in regards to institutional policies, financial aid, etc. continue to be a primary junction of this office and several hundred student contacts were conducted during the past year.

RETENTION

Minority persistence rates and retention through the Masters and Ph.D. programs continue to be major concerns of the OGS and institutional responses and progress should be developed and evaluated.

STATE FUNDED FELLOWSHIP PROPOSAL

The proposal for state funding of graduate fellowships for students from underrepresented groups (despite problems discussed in another section of this report) made significant progress in the past year. It eventually received some support from the state's six universities, the staff and members of the Board of Educational Finance and the Governor and was eventually passed by the House of Representatives before collapsing in the Senate.

The OGS intends to pursue funding for this program in the future.

OTHER ACTIVITIES

Among the other activities in which this assistant dean was involved during the past year are the following:

1. Served as the UNM contact for the National Hispanic Scholarship Fund. No awards were made to UNM students in 1981-82, twelve were made in 1982-83, and six graduate and seven undergraduate awards were made in 1983-84.

2. Served as co-organizer and on the search committee for the Advisory Associate Dean.

3. Served on the UNM Director of Development Search and Screening Committee.

4. Served on the Board of Directors of the UNM Southwest Hispanic Research Intitute (S.H.R.I.).

5. Served on several OGS committees including the Presidential Graduate Scholarship Committee and the Challenge Asssistantship Committee.

6. Set up an information booth at the Governor's Career Development Conference for Women in State Government.

7. Recruited at eight universities.

8. This office contributed funds for a group of UNM Chicano graduate students to attend the National Association of Chicano Studies annual conference in Austin.

9. Have begun discussions with the UNM Placement Center director to co-sponsor a UNM graduate day at which we expect 50-100 graduate schools from throughout the country to participate.

10. Was appointed UNM Coordinating Official for NSF Fellowship Programs.

PROBLEMS AND RECOMMENDATIONS

Among the problems experienced in the OGS affirmative action efforts, the most serious and the one which has persisted the longest, is the lack of adequate funding for recruitment, research, retention and for graduate students, financial aid. Although requests have been

made to the UNM executive administration, each of the past five years, for funds for travel, per diem, equipment, supplies, additional clerical assistance, etc., it appears we will begin our seventh year (1984-85) without institutional funding for this activity. The recruitment has been minimally supported (\$10,000 last year) from the COEA funds which accrue to the OGS from the G*POP grant. It is expected that a significant portion of the approximately \$25,000 COEA funds which the OGS will accrue in 1984-85 will be made available for this effort.

Although the state funded fellowship proposal made significant gains in the past year by passing the New Mexico House of Representatives, it failed to pass the Senate as did several other education related programs. There appeared to be less than enthusiastic support from the UNM executive administration for this proposal. The article in the Campus News regarding UNM's legislative priorities for the 1984 special session of the legislature did not include the fellowship proposal. Also, no mention was made of the fellowship bill in our chief lobbyist's report on Senate legislation which failed to pass in the special session. Efforts should be made to improve UNM's support for the fellowship bill in the next session of the legislature.

It appears inequities continue in the awarding of G.A.'s and T.A.'s. Minorities continue to receive a significantly lower percentage of graduate support. Affirmative Action guidelines regarding employment of assistantships and distribution of these guidelines from the executive level of the university could be helpful in improving the situation.

Although I have not done a careful analysis of minority faculty, there seems to be a general opinion among minorities at UNM that a decrease in hiring has occurred in recent years. A decline in the number of the most visible role models for minority students would be expected to affect minority graduate student recruitment. UNM should renew and strengthen its efforts in this area.

UNM G'POP FELLOWSHIP RECIPIENTS
 BY ETHNIC/RACIAL BACKGROUND, SEX AND DEPARTMENT

1978-84

(As of July 18, 1984)

	Black		Chicano		Other Hispanic		Native American		White		Total	
	M	F	M	F	M	F	M	F	M	F	M	F
Chemical and Nuclear Engineering	1			1							1	1
Civil Engineering			1								1	0
Computer Science			1	2*							1	2*
Electrical & Comp. Engr.			1		1					5*	2	6*
Mechanical Engineering			1		1						2	0
Law	3	2	9	4							12	6
Mathematics/Statistics			2	2			1			4	3	6
Microbiology										2	0	2
Physics	1		1		1			1		3*	3	4*
Psychology			2	2*						1	2	3*
TOTAL	6	2	17	12*	3	0	1	1	0	15*	27	30*
PERCENTAGES	10.9	3.6	30.9	20.0	5.5	0.0	1.8	1.8	0.0	25.5	49.1	50.9

*One Anglo female (Ms. Janie Page) transferred from Physics to EECE on 8/81, one Chicana (Ms. Linda Baca) transferred from Psychology to Comp. Sci. on 8/82, and both are counted twice.

TABLE 2
CURRENT AND FORMER UNM G*POP STUDENTS*
As of February 22, 1984

<u>NAME OF FELLOW</u>	<u>TENURE BEGAN</u>	<u>PROGRAM AREA & DEGREE</u>	<u>COMPLETION DATE AND/OR PROGRESS OF STUDENTS</u>
Donna T. Schultz	9-1-78	Elec. Engr., M.S.	Graduated M.S. 12/80. Employed as a General Engineer, Air Force Weapons Lab., Albuquerque.
Lorraine S. Baca	9-1-78	Mathematics, M.S.	Graduated M.S. 5/80. Employed as a Math Analyst at Sandia National Laboratories, Albuquerque.
Jean Baines	9-1-78	Law, J.D.	Graduated J.D. 5/81. Law School believes she moved Colorado.
Edward L. Chavez	9-1-78	Law, J.D.	Graduated J.D. 5/81. In private practice in Albuquerque.
Patricia J. Duy	9-1-78	Elec. Engr., M.S.	Received fellowship for 3 years M.S. received 12/82.
David A. Graham	9-1-78	Law, J.D.	Graduated J.D. 5/81. In private practice in Denver.
Lynn Koehler	9-1-78	Elec. Engr., M.S.	Received fellowship for 3 years. M.S. received 12/82.
Ernest O. Pacheco	9-1-78	Law, J.D.	Graduated J.D. 12/80. Clerked for NM Supreme Court. Employed with government agency in Santa Fe.
Diana L. Peppin	9-1-78	Mathematics, M.S.	Left program 5/79. Vacated fellowship awarded to E. Roybal. Transferred to SATE. Received M.A. 8/81.
Elizia M. Roybal	9-1-79	Mathematics, M.S.	Awarded fellowship vacated by D. Peppin. Received fellowship for one year. Received M.S. 12/80 in Nuclear Engr.. Employed by Arizona Public Service.

TABLE 2 (Cont.)
 CURRENT AND FORMER UNM G*POP STUDENTS*
 As of February 22, 1984

<u>NAME OF FELLOW</u>	<u>TENURE BEGAN</u>	<u>PROGRAM AREA & DEGREE</u>	<u>COMPEITION DATE AND/OR PROGRESS OF STUDENTS</u>
Lenke E. Vietorisz	9-1-78	Mathematics, M.S.	Left program 5/79. Vacated fellowship awarded to M. Jacobl. Transferred to SATE. Received M.A. 8/80.
Margaret D. Jacobl	9-1-79	Mathematics, M.S.	Awarded fellowship vacated by L. Vietorisz. Graduated M.S. 12/81. Teaching at Santa Fe Community College.
Linda L. Cole	9-1-79	Medical Science, Ph.D.	Received Ph.D. 12/82. Employed as Director Virology Section, St. Joseph's Clinical Lab., Albuquerque.
Judith M. Wallace	9-1-79	Medical Science, M.S.	Received fellowship for 3 years. Took leave of absence. Employed by Research Tech. at Veterans Hospital, Albuquerque. Plans to return to graduate program.
Charles E. Davis	9-1-79	Electrical Engr., M.S.	Received fellowship for 3 years. Received M.S. 12/82. Employed at UNM.
Mauricio Valencia	9-1-79	Electrical Engr., Ph.D.	Received M.S. 5/81. Entered doctoral program. Took leave of absence 5/82. Employed as member of Technical Staff at Sandia National Lab.
Walter Najls	9-1-79	Law, J.D.	Graduated J.D. 5/82. Was Asst. D.A. in Gallup. Presently in private practice in Albuquerque.
Ruben S. Cortez	9-1-79	Law, J.D.	Graduated J.D. 5/82.
Arthur Pablo	9-1-79	Mathematics, M.S.	Left program 10/79. Vacated fellowship awarded to J. Torres.

TABLE 2 (Cont.)
 CURRENT AND FORMER UNM G*POP STUDENTS*
 As of February 22, 1984

<u>NAME OF FELLOW</u>	<u>TENURE BEGAN</u>	<u>PROGRAM AREA & DEGREE</u>	<u>COMPEITION DATE AND/OR PROGRESS OF STUDENTS</u>
Joe F. Torres	1-21-80	Mathematics, M.S.	Awarded fellowship vacated by A. Pablo. Left program. Plans to re- turn to graduate program.
George E. Chavez	9-1-79	Law, J.D.	Left program 8/81.
Olene M. Evenmo	9-1-79	Physics, M.S.	Left program 3/31/80. Vacated fellowship awarded to J. Page.
Janie K. Page	8-25-80	EECE, M.S.	Awarded fellowship vacated by O. Evenmo. Transferred from Physics 8/81. Received M.S. 6/83. Employed in California.
Kathleen L. Hood	9-1-79	Physics, M.S.	Received M.S. 5/82. Employed as Computer Science Analyst with a private company, Management Data Base Systems, Albuquerque.
Linda Baca	9-1-81	Computer Science, M.S.	Transferred from Psychology to Computer Science 8/82. Resigned fellowship 5/83. Plans to attend grad. school at NMSU.
Martha Chavez	9-1-81	EECE, M.S.	Received M.S. 12/82. Started with Hewlett-Packard in Ft. Collins, CO. in February, 1983.
Gilbert Gonzales	9-1-81	Psychology, Ph.D.	Left program 5/82. Partial vacat- ed fellowship (\$3420/yr.) awarded to T. Morales. Partial vacated fellowship (\$1080/yr.) awarded to D. Silva.
Frederic D. Jones	9-1-81	Law, J.D.	Received J.D. 5/84.
Josie Medina	9-1-81	Law, J.D.	Left program 5/82. Vacated fellowship awarded to O. Naranjo.

CURRENT AND FORMER UNM G*POP STUDENTS*

As of February 22, 1984

<u>NAME OF FELLOW</u>	<u>TENURE BEGAN</u>	<u>PROGRAM AREA & DEGREE</u>	<u>COMPEITION DATE AND/OR PROGRESS OF STUDENTS</u>
Philip E. Moya	9-1-81	Mech. Engr., M.S.	Completed M.S. 5/83.
Joe Sedillo	9-1-81	Law, J.D.	Received J.D. 5/84.
Avaine Strong	9-1-81	Physics, M.S.	Received M.S. 8/83. Presently working full-time at Kirtland AFB Weapons Lab. as a Research Physicist and studying for Ph.D. comprehensive exams in Physics.
Eugene White	9-1-81	Chem/Nuc., M.S.	Left program 5/82. Vacated fellowship awarded to M. Trujillo. Department believes he is employed in Data Processing in Denver.
*Henry Baca	9-1-82	Law, J.D.	5/85. Partial fellowship \$3780/yr in 82-83. Law contributed \$720/yr to complete \$4500 stipend. \$720 per yr. from this fellowship awarded to D. Silva in 82/83. Awarded full fellowship for 83-84.
Anna Camenisch	9-1-82	Math/Statistics, M.S.	Received fellowship for 2 years. is expected to complete M.S. 12/84.
*Placido Gomez	9-1-82	Law, J.D.	5/85. Making progress.
*Margarita Griego	9-1-82	Law, J.D.	5/85. Making progress.
Thomas Morales	9-1-82	Psychology, Ph.D.	Awarded fellowship vacated by G. Gonzales. Partial fellowship \$3420/yr. for 82-83. Resigned fellowship 12/82. Transferred to Anthropology.
*Orlinda Naranjo	9-1-82	Law, J.D.	5/85. Awarded fellowship vacated by J. Medina.
Mark Santistevan	9-1-82	Physics, M.S.	Accepted off campus employment. Resigned fellowship 3/31/83. Vacated fellowship awarded to C. Velasquez 6/83.

TABLE 2 (Cont.)
 CURRENT AND FORMER UNM G*POP STUDENTS*
 As of February 22, 1984

<u>NAME OF FELLOW</u>	<u>TENURE BEGAN</u>	<u>PROGRAM AREA & DEGREE</u>	<u>COMPEITION DATE AND/OR PROGRESS OF STUDENTS</u>
David Silva	9-1-82	Civil Engr., M.S.	Partial fellowship-\$1800/yr. for 82/83. Will receive M.S. 12/84. Employed full-time at Roswell, NM branch office of Albuquerque engineering firm, Wilson & Co.
Mary Ann Trujillo	9-1-82	Chemical Engr., M.S.	Awarded fellowship vacated by E. White. Received fellowship for 1 year. Received departmental aid for 1 semester. Working full-time at Intel and working on thesis. M.S. expected 12/84.
*Barbara Vigil	9-1-82	Law, J.D.	5/85. Making progress.
*Sarah Wittrup	9-1-82	Psychology, Ph.D.	5/85. Making excellent progress.
Carmen Veslasquez	6-83	Comp. Sci., M.S.	Awarded fellowship vacated by M. Santistevan. Resigned fellowship 10/31/83.
*George Aragon	9-1-83	Mathematics, Ph.D.	5/86. Making progress.
*Mario Dela Huerga	9-1-83	Mechanical Engr., M.S.	5/85. Making progress.
Latricia Gonzales	9-1-83	Psychology, Ph.D.	Resigned fellowship 12/31/83. Awarded to Kim Tang, Law, 1/1/84.
*Donavon Roberts	9-1-83	Law, J.D.	5/86. Making progress.
*Fermin Rubio	9-1-83	Law, J.D.	5/86. Making progress.
*Donna Siergiej	9-1-83	Physics, M.S.	5/85. Making progress.
*Susan Sinclair	9-1-83	EECE, Ph.D.	5/86. Making progress.

TABLE 2 (Cont.)
 CURRENT AND FORMER UNM G*POP STUDENTS*
 As of February 22, 1984

<u>NAME OF FELLOW</u>	<u>TENURE BEGAN</u>	<u>PROGRAM AREA & DEGREE</u>	<u>COMPETITION DATE AND/OR PROGRESS OF STUDENTS</u>
*Kim Tang	1-1-84	Law, J.D.	5/86. Awarded fellowship vacated by L. Gonzales (1-1-84). Making progress.
*Marie Antoinette Dominguez	1-1-84	Comp. Sci., M.S.	12/85. Making progress.
*Ramon Negron	1-1-84	Physics, M.S.	5/86. Making progress.

*Expected to continue in Fall, 1984.

Appendix D



PRESIDENT'S REPORT
GRADUATE STUDENT ASSOCIATION

1983-1984

MARIE MOUND

PRESIDENT'S REPORT
GRADUATE STUDENT ASSOCIATION

1984

INTRODUCTION

My term as President of the Graduate Student Association was brief, five months. Due to unusual circumstances--the resignation of President C. Jeffery Evans--a special election by voting Council members was held December 16, 1983. As the newly elected President, my term began January 1, 1984. Many of the ensuing projects are highlighted in this report.

The graduate body, as well as faculty and administrators commented positively on our column "Graduated Perspective," featured weekly in the LOBO. Most of the topics focused on financial matters: the GSA budget process, SPSC and SRAC funding, the Legislative budget process, etc. The column was largely intended to be informative but was placed on the editorial page in the case that any of the material were to be opinionated. The copy, two and a half pages, double spaced, was submitted regularly to the LOBO editor.

LEGISLATIVE ACTIVITY

The GSA selected three issues to support during the 1984 legislative session: 1) Graduate fellowships for underrepresented groups; 2) increased library funding; and 3) improved salaries for graduate assistants and teaching assistants.

The GSA hired Diane Snyder to coordinate the student involvement, with the GSA President also acting as an official representative. The Public Affairs Committee reviewed and directed all action, as well as attending portions of the session.

We were pleased that the Graduate Fellowship bill first introduced by Judy Pratt as HB117, was subsequently introduced in the Special Session by Senator Papen, SB7. We were pleased by the state-wide support for the bill, particularly NM Tech, Highland's President Aragon and members of the BEF. We hope to foster improved support for the bill among UNM's administration before the coming 1985 session.

We are told by UNM Budget Director, James Wiegmann, during the June 19, 1984, Regents meeting that graduate assistants and teaching assistants received an 8% increase in salary. This seems equitable in view of the fact that faculty received an average of 6.8%, but assistants receive no benefits. We will conduct a random survey during the coming year to verify implementation of the 8% increase.

The plight of additional library funding is now in the hands of voters in November. The bond for \$1 million to be shared among the six state universities was a substantial disappointment. The goal had been \$6 million.

WORD PROCESSOR

The word processor had been reacquired from the ASUNM Duplicating Center in the summer, 1983. During the fall President Evans had considered developing a self-service operation for use of the word processor. This would have entailed the parttime employment of individuals who would type material in for a price to be paid by the student. This was never established and the word processor was used only for office use during the fall semester. In January we opened use to graduate students for \$1 an hour. The students were required to attend a training

session directed by the office manager, Rebecca Nolda. Each student purchased a disc and kept it filed in the office.

The word processor service charge runs \$155.00 a month. The money collected through student use did not approach this amount and varied greatly each week. However, \$1 an hour seemed the appropriate amount in that most graduate students are not good typists and the benefit of having one's work on a word processor is to experience the editing process oneself. Also, your typical graduate student cannot afford expensive typing jobs.

Since reacquiring the word processor the Optical Character Reader (OCR) has not been operated. We are told by Burroughs representatives that they no longer know how to make the OCR operational. There is a possibility that an individual we have located here on campus can hook it up this summer. The demand for the OCR has not been great, however, if more students knew about it, it would probably be requested. It is a very expensive piece of equipment - \$15,000, but would not be a high demand item if put up for sale.

TASK FORCES

Mental Health Task Force - established in the fall, began as the Wellness Task Force to assess the health needs of graduate students and the adequacy of the current health insurance policy. However, the task force never met. In January we continued the effort in another fashion. Calling it the Mental Health Task Force, we brought together Marcia Sutton, the Director of the then called Student Wellness Center scheduled to open next fall and counselors from the Mental Health Center, Lee Davis and Carolina Yahne, in order to determine what services each would be providing in the coming year. This was of great benefit to

these two sources due to a concern for duplication and a general lack of communication between them. The series of meetings culminated with our LOBO column explaining: 1) services currently available; 2) the lack of sufficient counselors to handle the work load; and 3) the change in the student insurance policy which now provides coverage for mental health expenses.

Computer Use Task Force - also established in the fall, had not met. Its role was: 1) to assess the adequacy of the present system on campus for accommodating graduate students, and; 2) to research possible ways to meet the needs of graduate students. A number of GSA members individually researched the matter and informed the association. It is an area which the GSA will continue to research for the benefit of graduate students. We are aware of the need for more computer time (and sponsorship) for graduate students. We hope that the study committee put together by Dean Garcia of Arts and Sciences, realized this need.

GSA Foundation Task Force - established by President Evans in order to determine the feasibility of establishing an off campus foundation which could negotiate such things as insurance policies for graduate students and solicit outside funding. This committee also never met and was not pursued during the spring semester. It was a novel idea.

Sexual Harassment Task Force - established early in the spring semester in response to the interest or concern expressed by many women students. The task force includes graduate student representatives, Kathy Brooks of the Women's Center, Professor Ruth Luckasson of Special Education, Barbara Thomas of the University Secretary's Office and Rebecca Nolda of the GSA Office.

The tasks as determined by the committee are 1) prepare a written

statement advising faculty and administration about sexual harassment to be signed by President Perovich and put out in the early fall; and 2) develop a comprehensive sexual harassment policy for inclusion in the faculty handbook and other policy documents. This policy would provide for the formal dismissal of a tenured professor in the event of proven sexual harassment. UNM is behind most American universities in formally addressing this problem through educating faculty administrators and students on its forms and effects. This committee will work through the summer and next year.

BY-LAWS

There is little question that the Association needs a set of By-Laws to direct the many decision-making areas and procedures used. The topic emerged during the past two years. It was mentioned by former President Barnhouse that a set of By-Laws be drawn up by the end of the semester.

Upon assigning the work study student the task of digging through records to begin pulling relevant motions concerning procedure, we discovered the forgotten By-Laws of 1969 through 1973. They had been revised almost every year. Much of the material was obsolete because the GSA now has far fewer officers than at its outset. Those items which seemed relevant were compiled by the current president into a list and combined with a list of the other areas in which guidelines are followed in making decisions. It will now be necessary for a committee of students to study the alternatives and determine which are suitable for current operations. The new By-Laws must first be approved by the GSA Council and then by the graduate student body in the spring elections of 1985.

COMMITTEES

Senate Graduate Committee - Through participation on the Senate Graduate Committee we were able to get the support of the Deans and faculty for the development of a department evaluation for use by graduate students. Presently there is no official vehicle for student input on their respective departments for use by external evaluators.

The form was developed by a small group of graduate students, most particularly, Karen Bracken, Ph.D. student in Sociology. The Graduate School provided the funds for the evaluation form to be typeset. The graduate students working on the form suggested that an internal GSA committee be established to handle the data processing. Because of the nature of the work, there should probably be some compensation for this type of work. It will also be necessary to develop a system for keeping the results of the evaluations on file either in the GSA office or the Graduate School, or both.

Ombudsman Committee - Though the GSA office has no record of notification that the Faculty Senate was establishing a committee to study the need for a student conciliation position, we assume President Evans simply failed to relay the information. Consequently we had no graduate student input to this committee during the fall semester. In late January Professor Alan Reed left a message that a student representative was needed. No meetings were held until after the Legislative session.

Dan Primozic of the Philosophy Department was appointed to represent the GSA. He reported that the Ombudsman Committee had already developed the following proposal: recruit a faculty member for a three year term at \$35,000. Said faculty person would receive a six month

sabbatical at the close of the term in order to readjust for the return to teaching. Primozic further reported that the concern of the faculty which led to the establishment of the committee was that too many students were bringing suits against the University and its faculty. Such suits are a source of bad publicity for the University.

Graduate students considered this proposal unsatisfactory. The major role of an Ombudsman is to protect students' rights. It is a conciliatory function charged with carrying out due process on the behalf of the student. It was also felt that the Committee had performed inadequate research on how such a position is handled at other universities. We know that some schools include graduate students as assistants to an ombudsman, with the student performing needed research. Overall, the GSA felt that the professional position should be filled by a non-faculty person.

In the final meetings, during which we objected to the proposal, Olga Gandara, representing the Dean of Students Office, noted that the Ombudsman position had failed to be established in the past because students reacted to the use of a faculty member. Professor Reed was under the impression that it would be impossible to pull someone in from outside the University for a temporary position of three years. At this final meeting a schedule was presented for passing the proposal through the final stages with the final report before the Faculty Senate for a vote set for April 10th. Fortunately we were able to stop this process and the Committee, with student input, developed the following proposal for report to the Faculty Senate (see attached).

Consequently, the committee will continue next year. It is now called the Student Conciliation Committee. It is important the students

be active on this committee. It is important that due process procedures which are amenable to both faculty and students be established.

However, may it be noted that the final report to the Faculty Senate did not mention funding for the study committee, though a request for funding had been agreed to by the full Committee.

FINANCES

This was the first academic year in which the GSA enjoyed the benefits of the new fee. Though the student body approved the fee hike from \$11 to \$15 in the spring elections of 1981, the issue was not brought before the Regents in a timely fashion. It was finally approved by the Regents in 1982. The new amount allows three dollars, rather than one, to go to the student's department for use by student organizations (Pro-rated benefits). The most evident use of the increase in funding is seen in the allocations for SPSC and SRAC. During the year Council responded to the request for even greater funds for SRAC. An additional \$2,000.00 was put in the fund.

GRADUATE STUDENT ASSOCIATION

1984-1985
(Based on an estimated graduate student billing of 3800 to 4300 students/semester)

Estimated 1983-84 surplus	\$8,780.00
Total GSA income 1983-84	121,524.00
Estimated GSA revenue 1984-1985 (Based on enrollment figure of 3800)	130,000.00
Cost of Accountant	6,450.00
GSA Portion of Student Accounts Audit	400.00
Available revenue 1984-85 (minus cost of SUB use and audit)	<u>123,150.00</u>
<u>Indirect Services</u>	
GSA Staff Assistant (see item one)	9,094.00
GSA Work Study	500.00
GSA Office Operations (see item two)	6,717.00
President's Education Grant (12 mos. x \$430/mo)	5,160.00
President's Contingency Fund	600.00
Chairperson's Contingency Fund	<u>400.00</u>
	22,471.00

<u>Direct Services</u>	
SRAC	23,000.00
SPSC	10,000.00
PB Funds (Based on 3800 enrolled)	22,800.00
General Contingency Fund	5,000.00
President's Underrepresented Group Recruitment Fund	500.00
	61,300.00
INTERNAL BUDGET TOTAL	83,771.00
EXTERNAL BUDGET TOTAL	39,662.00
GRAND TOTAL	123,433.00

Child Care Co-op continues to experience problems. A group of graduate students in Business Administration worked on the structural and communication problems within the Co-op. However the results of their study are not available at this point. Some changes in management structure are likely needed, particularly the establishment of a Board of Directors.

Additionally, this year we saw once again the threat of the termination of Title XX funds for student parents. Efforts were made by PIRG, ASUNM and GSA, as well as the Graduate School, to prevent this action. Ultimately, after the close of the semester and after public hearings had been held, the Human Services Department cut Graduate Students from the list of qualified recipients. This will have serious repercussions for GSA. We currently fund the Child Care Co-op \$8000 a year. If we find that these cuts in Title XX affect many graduate students currently using the facility, it may be difficult to continue funding the facility.

Unquestionably an alternative day care program must be developed. Effort should be made to establish line item funding through the

Legislatively approved University budget in order to develop an internal program to serve student parents' needs.

Cultural Series Student Discounts - Due to the Cultural Series Committee's failure to submit an application to the Finance Committee, the GSA was confronted with the possibility of losing student discounts on season and single tickets. Through the reasoning of both GSA and the Popejoy Board a compromise was reached. The GSA appropriated \$2000 through the Special Projects and Speakers Committee, a substantial cut from the previous year's funding of \$6000.

RECOMMENDATIONS:

Elections: The current process is not only too complicated but inadequately serves the graduate student body. Lighter weight ballot boxes are needed and every department should have one. The system of scheduling 12 boxes and rotating them daily is too complicated for the students to keep track of. If we want more students voting, we must simplify this process.

Office hours: Need to become more regular with the office opening around 9 instead of 8 am. The lounge could be opened by the Account Manager at 8 am for student use.

Application fee: The use of the \$25 paid by new applicants to the Graduate School should be looked into. It may provide a source of matching funds for our SRAC funding. Joel Jones will be helpful in understanding the use of these funds.

Teaching Assistant Resource Center - It is our understanding that the administration is now devoted to stabilizing this program. For

fiscal year 1984-85 \$7000 from the budget of the Provosts will go toward the salary of a Graduate Assistant for the Center. President Perovich feels that TARC should be under the supervision of the Provostial level of administration in order to give it greater credibility among doubtful faculty.

The program is vital to assistants who need training and support for their teaching duties. New Mexico State University provides for this function through a Teaching Assistant Training Coordinator within the Graduate School. There is no question that the vitalness of the TARC program is recognized by the President and the Provost, however, it will be necessary for the GSA to continue voicing its support of the program. Our goal should be to eliminate any waiting for this service on the part of interested Teaching Assistants.

The Graduate School was great to work with this year. They took the initiative to write a memo to Graduate Advisors in all departments lacking representatives to the GSA. The purpose of the message was to prompt faculty to take responsibility in making sure that their students are aware of the organization and its function. Because the student body is in continual flux, often new students are not aware of all the services around them. When policy decisions affecting students are implemented, the student may not know that there is a channel for their input until it is far too late.

The Office of Graduate Studies was also supportive of the GSA's lobbying effort behind the Graduate Fellowships for Underrepresented Groups (HB117 and Special Session SB7) during the 1984 Legislative Session. This proposal originated among the graduate Deans throughout New Mexico some six years ago.

Finally, at the suggestion of the Office of Graduate Studies, we jointly designed a six column brochure covering policy and contract questions for assistantships. At this point the brochure has not been finalized and printed. However, we feel sure the Graduate Deans will approve a final copy.

The Report of the Women Studies Program
July 1, 1983 - June 30, 1984
Helen M. Bannan, Acting Director

I. Significant Developments during the Academic Year, 1983-84.

Once again, the Women Studies Program is in the gratifying position of reporting continued growth and development, and of predicting further movement toward our goals next year under the new director we selected after a national search, Professor Tey Diana Rebolledo. While this search consumed much of our time and energy this spring, we also have moved several items from our list of "future plans" in last year's report to our list of annual accomplishments: establishing a field experience course, holding a very successful campus-wide Colloquium for Research on Women, hiring a full-time Associate Director for next year, and succeeding in obtaining outside funding for Women Studies activities. These will all be highlighted in their appropriate sections of this report.

Once again, our enrollment growth heads the list of accomplishments. Last year, the 398 students enrolling in courses originating in the Program--not including 11 courses with women studies content offered by regular faculty members in other departments--represented a 21.7% growth over 1981-82. This year, 440 students enrolled in Women Studies Program courses, again excluding 11 courses with women studies content offered by other departments, representing a 10.5% growth over 1982-83, and a most impressive 34.6% over 1981-82. Part of this growth was an increase in our cooperation with other departments and with the Division of

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Continuing Education, with which we cross-listed twice as many courses originating in Women Studies. In a few cases we shared financial responsibility for instructors' salaries. We hope to increase this mutually beneficial cooperation in future semesters.

Enrollments in Courses Originating in Women Studies Program

<u>Semester</u>	<u>No. of Students</u> <u>Total</u>	<u>No. of WSP Courses</u> <u>(not including</u> <u>problems courses)</u>	<u>No. of WSP Courses</u> <u>Cross-Listed</u>
Fall 1982	162	10	2
Spring 1983	204	10	1
Summer 1983	<u>32</u>	<u>1</u>	<u>1</u>
Totals	<u>398</u>	<u>21</u>	<u>4</u>
Fall 1983	151	9	2
Spring 1984	256	14	5
Summer 1984	<u>33</u>	<u>1</u>	<u>1</u>
Totals	<u>440</u>	<u>24</u>	<u>8</u>

Our curriculum included four new courses this year, two of which were funded through Continuing Education: Women and Mental Health, taught by Dr. Lou King; Women and Leadership (cross-listed with both Educational Foundations and Public Administration), taught by Dr. Elizabeth Stefanics, (HPER), and Mothers and Daughters, taught by Anne Schulherr Waters, MA, our half-time instructor. The 40 students enrolled in the Women and Leadership course made it one of the largest Women Studies Program courses within recent memory. Our summer course, which was taught by History Professor Jane Slaughter and cross-listed with that department, The History of Sexuality, was also an excellent new addition to our

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curriculum. Included in the 11 courses with Women Studies content offered by other departments were three new ones: Women and Nature, American Studies 332/501, by Dr. Vera Norwood; Women in Folklore and Mythology, Anthropology 430, by Dr. Marta Weigle; and Women, Violence, and the Mass Media, American Studies 301/501, by Dr. Jane Caputi. We are especially pleased that students have had the opportunity this year to learn more about the many varied areas of contemporary feminist scholarship.

The quality of our course offerings is indicated by the consistently high scores students give them on the ICES evaluations. Once again, our departmental "average of means" is considerably above average, and several of our instructors each semester were among those included on the university-side "Listing of Instructors Rated Excellent by Their Students." Kristi Anderson (Women Abuse) and Dr. Helen Bannan (Women in the Southwest and Women and Work) were among the top 10% of UNM instructors teaching similarly sized courses; Dr. Maisha Baton (Her Own Voice: Black Women Writers), Wendy Carse (Seminar for Returning Women Students) and Trisha Franzen (Introduction to Women Studies) were among the top 30%, as were teachers of departmental Women Studies content courses Dr. Jane Slaughter (History of Women Ancient to Modern and Women in the Modern World), Dr. Vonda Long, (Non-Sexist Counseling), Dr. Debra Rosenthal (Women in Politics) and Dr. Anne Boylan (Family in U.S. History). Program averages in courses reported to the Program were as follows:

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ICES Departmental Averages in Women Studies Courses, 1983 - 84

	1 = poor	6 = excellent	
		Fall 1983	Spring 1984
Course content		5.58	5.19
Instructor		5.62	5.33
Course in general		5.52	5.17
Courses included		7	9

Another curriculum development this year was the Faculty Senate Curricula Committee's approval of a new Women Studies course, 498: Field Experience. As we have structured this course, students will be able to apply and test their theoretical Women Studies background against supervised work experience in an organization or agency dealing with women, for example, the Shelter for Victims of Domestic Violence or the Rape Crisis Center. The course would require 10 hours per week on-site work, considerable interaction with the academic field experience supervisor, and completion of a weekly log and two evaluations of the agency itself and the student's experience within it. We are excited about the course, and expect it to both increase our ties to the Albuquerque women's community and strengthen our curriculum.

In addition to our course offerings, this year Women Studies offered the University community a number of other educational opportunities. Foremost was our first annual Colloquium for Research on Women, co-sponsored with the Faculty and Professional Women's Association, the Women's Center, and the Statewide Training for Sexual Assault Program. This two-day event, held at the Student Union Building March 1 and 2,

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included 75 women and men, most of them UNM faculty or graduate students, as presenters, and attracted a large and appreciative audience of over 200. A highlight of the event was the speech by Vivian Gornick, nationally acclaimed author of Women in Science and co-editor of Woman in Sexist Society, at the breakfast session on Friday. We hope that next year's event will be even more successful, and will reach a wider audience, as we plan to combine it with the Statewide Women Studies Conference next spring.

Through co-sponsorship, Women Studies this year was able to participate in bringing to campus and publicizing the visits of several well-known feminist scholars and activists, in addition to Gornick. Especially memorable were the presentations of Angela Davis, author of Women, Race and Class, Mary Daly, author of Gyn/Ecology, and Flo Kennedy, co-founder of the National Organization for Women and the National Black Feminist Organization, and Yasmine Ergas, an Italian historian. Annie Wauneka, an important Navajo leader and health care advocate, spoke to our American Indian Women class at the request of its instructor, Luci Tapahonso. These visitors help our students understand the breadth and excitement of feminist scholarly activity, and also improve the visibility and reputation of our Program, both locally and nationally.

Women Studies also continued its on-going series of Brown Bag Lunches, co-sponsored with the Women's Center, and Instructors' Seminar Programs, both of which strengthen internal cohesiveness in the Program, and encourage research and discussion of feminist scholarship. Another exciting addition to this programming was a day-long Multicultural

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Feminist Education Seminar for students, faculty and staff, led by Anne Schulherr Waters, our half-time instructor, whom the Program sent to a summer seminar on that topic at the University of Illinois-Chicago in 1983. The Saturday seminar, funded in part by dissemination funds from the Chicago program, included Women Studies instructors Helen Bannan, Maisha Baton, Jennie Chavez Montoya, and Elsie Salcido of Political Science as keynote panelists, and many other Women Studies students and instructors as discussion leaders. The session was very well attended, and gave the Program a prime opportunity for self-examination on progress toward its goal of becoming truly multicultural.

Another long-term Women Studies goal is to increase the impact of feminist scholarship on the university's curriculum, and a major step was taken in that direction this year. Associate Dean Elinore Barrett of the College of Arts and Sciences worked with Women Studies Acting Director Helen Bannan to convene a group of faculty interested in the idea of "mainstreaming" feminist scholarship. Professors Tom Daniels of Speech Communications and Debra Rosenthal of Political Science designed a questionnaire, which was distributed to faculty to determine the level of interest in, and practice of, integration of materials on women into the university-wide curriculum. The results of this study helped us design a grant to support further activities in this area, which will be explained in the appropriate section of this report.

One less than happy development this year was the increase in the volume of the flow of water through the consistently leaky roof of Marron Hall. An April snow created a flood in the Director's office,

ruining many of the books and journals belonging to Acting Director Helen Bannan. The leak, which has never been properly repaired, drowned our literally antediluvian opposition to the planned relocation of ethnic and women's programs to Mesa Vista Hall, which we expect to occur next fall.

Governance of the Program continues to be shared with the Women Studies Committee, composed of faculty, students, and staff members, and the Women Studies Advisory Board, composed of faculty members. The support of both groups was critical in the difficult process of conducting a nation-wide search for a permanent faculty members to be director of the program, which leads us to the next section of this report.

II. Personnel Changes

Dr. Helen Bannan completed her second year as Acting Director of the Program, and next year will become Associate Director, a new position in the Program that the Women Studies Advisory Board strongly urged be created, to free the Director, who will also have departmental faculty responsibilities, from some of the administrative burdens of advising students and running our growing program, and to insure Program continuity. She will also teach 2 courses per year. The Women Studies Program is extremely grateful to the Provost's office for supporting this new addition to our staff.

The national search for a new Director found an outstanding candidate for the position, Dr. Tey Diana Rebolledo, Associate Professor of Spanish at the University of Nevada-Reno. Dr. Rebolledo's unanimous selection from an exceptionally well-qualified pool of 80 applicants

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completed a year-long process. Dr. Rebolledo, a native New Mexican and a nationally known scholar in the field of Chicana literature, will also hold a faculty appointment as Associate Professor in the Department of Modern and Classical Languages. We expect her to lead the Program to increased prominence nationally, as well as strengthening its regional emphasis.

Anne Schulherr Waters, a UNM alumna with a Master's degree in Philosophy from Washington University, served as our half-time instructor this year. She taught our Introduction to Women Studies, Race, Class and the Feminist Movement, and Contemporary Feminist Theory courses, as well as a new topics course on Mothers and Daughters. As previously mentioned, her attendance at the University of Illinois-Chicago's Summer Seminar on Multicultural Feminist Education had many positive results for the Program, including her sharing with the Instructors' Seminar some of the materials collected at the conference, and her leadership of a one-day multicultural seminar for our Program. She did not seek reappointment to the position, deciding instead to resume her graduate education in philosophy.

As unfortunately standard, the remainder of our instructional staff was composed of temporary part-time instructors and graduate assistants hired on a per-course basis annually. We have repeatedly complained about the budgetary restraints that have kept this feminist program in the most uncomfortable position of continuing to underpay women professionals. Such annual hirings consume a great deal of time and emotional energy, and also hamper attempts to establish continuity

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in the Program. The instructors, as usual, all did excellent work, and contributed much to the Program. Women Studies, however, did not contribute to their financial welfare or professional credibility what was their due. The establishment of more full or half-time instructorships in Women Studies continues to be one of our major goals.

The temporary part-time instructors and graduate assistants who served the Program so admirably this year are:

Catherine Aguilar, J.D., Women and Law I and II, fall and spring
 Kristi Anderson, M.A., Women Abuse (fall) and Media Arts and
 Women (spring)

Maisha Baton, Ph.D., Her Own Voice: Black Women Writers (spring)

*Kathryn H. Brooks, M.A., Reducing Math Anxiety (fall and spring)

Wendy Carse, M.A., Seminar for Returning Women Students

Trisha Franzen, M.A., Teaching Assistant: Heterosexism and the
 Oppression of Women (fall) and Introduction to Women Studies
 (spring)

*Lou King, Ph.D., Women and Mental Health, (fall)

*Judith Grasso, M.A., Reducing Math Anxiety (fall and spring)

Jennie Chavez Montoya, La Chicana (spring)

L. Kay Morgan, M.A., Teaching Assistant, Women in Sports (spring)

*Luci Tapahonso, M.A., American Indian Women (spring)

Those instructors whose names are marked with an asterisk had at least a portion of their salary paid by another unit: Continuing Education or Native American Studies. We hope to increase this sort of cooperation

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in the future, which might enable two programs to share the cost of one full or half-time salary, rather than continuing to underemploy these talented people. Also teaching for Women Studies this year were Professor Ann Nihlen, Educational Foundations and former coordinator of Women Studies (Introduction to Women Studies and Sexism in Education (spring); Professor Elizabeth Stefanics, HPER (Women in Leadership (spring); and Professor Jane Slaughter, History (History of Sexuality (summer). Professor Nihlen's salary was paid fully by her department, although only one of her courses was cross-listed in that department. Professor Stefanics taught the course through Continuing Education as an overload, continuing to teach her regular departmental course load. Professor Slaughter's summer salary was paid in large part by Women Studies, although History did contribute a small portion. Expansion of the cooperation shown by Educational Foundations and History could also help us achieve our goal of more permanence for our instructional staff.

We are fortunate in that most of our part-time instructors will teach for us next year. However, we will miss the services of: Catherine Aguilar, who has entered into a private law partnership; Kristi Anderson, who has accepted a full-time position in the English Department at Eastern New Mexico University; Lou King, who has obtained full-time employment with the Indian Health Service; and Kay Morgan, whose course will not be offered in 1984-85 due to its regular biennial rotation.

Next year, Women Studies will also miss the services of Yolanda Moya, who ably served as Department Secretary from November 1981 through

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June 1984. The Program attempted to upgrade its secretarial position to administrative secretary, a title (and salary) more appropriate to the substantial supervisory and administrative responsibilities of the secretary to the Program Director. All of us, but especially Mrs. Moya, were disappointed when this attempt failed. Mrs. Moya took a leave of absence from UNM employment, to accept a job as a legal secretary that paid considerably more. The Program will hire a temporary secretary from the Personnel pool until the new Director arrives in August, to allow her to choose the person who will best help her run the office.

Professor Elizabeth Stefanics has been named Acting Director of the Program for the summer; her term of office will be from June 1 to August 15, in the next fiscal year.

III. Professional Activities of Women Studies Program Staffmembers

This year, Women Studies Program staffmembers participated in a large number of national and regional conferences, continuing trends of previous years. Six UNM representatives attended the statewide Women's Studies conference at Eastern New Mexico University in Portales in April, and three attended the National Women Studies Association convention in New Jersey in June. We will host the state conference next year, and hope to be able to send a larger delegation to NWSA 1985 in Seattle.

Individual instructors were very active this year in conferences in their own fields. Jennie Chavez Montoya presented a paper at the National Conference on American Farm Women held in Las Cruces, and also attended the National Chicano Studies Conference in San Antonio, which was focused this year on La Chicana. Luci Tapahonso gave poetry readings

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in Los Angeles and New York City. Trisha Franzen presented papers at the Western Association of Women Historians conference in California, and also at the Special Interest Group for Research on Women in Education in Tempe. She was also awarded a Fellowship by the American Association of University Women to continue her graduate education. Anne Schulherr Waters presented papers at the Lesbians of Color conference in California, and at a national Symposium on Simone de Beauvoir in Philadelphia. Helen Bannan presented papers at the National American Studies Association in Philadelphia, and at the Lake Mohonk Centennial Conference on the History of Reform in Indian Policy. She also lectured on Harriette Arnow's The Dollmaker in the New Mexico Humanities Council Literature in the Libraries Program. Maisha Baton was principal organizer for a program funded by New Mexico Humanities Council, "Afro Americans in New Mexico," which included presentation of her research on Juneteenth Celebrations throughout the Southwest, as well as a Reader's Theatre performance of her original play, "Mitote," on black women in New Mexico's history. Kay Morgan presented her research on the history of women in sports at UNM at the state Women Studies Conference in Portales. Many Women Studies instructors, as well as associated faculty, also presented their work at our own Colloquium for Research on Women. All of these activities help enhance the Program's reputation for excellence regionally and nationally.

Since most of the Women Studies instructors need other jobs to support themselves, they do not have as much time to devote to writing as they would like. Therefore, our publications list is shorter than we

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we hope it will be in the future. Helen Bannan's article, "Newcomers to Navajoland: Transculturation in the Memoirs of Anglo Women, 1900-1945" appeared in the New Mexico Historical Review, and her paper, "Mothers and Daughters in Twentieth Century Native American and Immigrant Autobiography" was published in the ERIC Microfiche Document Series. A paper based on her on-going research was published as SIROW Working Paper, No. 18, "True Womanhood on the Reservation: Field Matrons in United States Indian Service." Her review of Gae Whitney Canfield's Sara Winnemucca of the Northern Paiutes appeared in the Journal of American History. Anne Schulherr Waters is on the editorial board of the University of Illinois-Chicago's Multicultural Institute project, and will have an article coming out in the report of that project soon.

IV. Outside Sponsorship of Women Studies Activities

This year, Women Studies was successful in finding funding for two of its projects for next year. The UNM Development Foundation provided \$650.00 to help us improve our Program library. The Southwest Institute for Research on Women will provide \$2,285.00 to sponsor our faculty development project, "Mainstreaming Feminist Education with Library Computer Assistance."

This mainstreaming project, the genesis of which was described earlier, will bring together a group of 25 faculty members interested in learning more about the new scholarship on women, and committed to using this material in their "mainstream" courses--not specific "women and ..." courses, but general courses in their disciplines. The money provided by SIROW will allow each faculty member in the group to perform

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one on-line search in the library, since the questionnaire results stressed faculty interest in building bibliographic knowledge concerning women studies. Participants will be given review articles in their disciplines, as well as the computer-generated bibliography, and will be expected to annotate a portion of that as well as submit "before and after" copies of syllabi, to illustrate the impact of the project on their classes. We are very excited about this project, which will again increase the academic reputation of women studies on campus.

V. Future Plans

Of course, we plan to continue our growth and development as a Program, increasing our visibility and academic reputation on campus, and becoming another of the University's "Centers of Excellence." The appended report to the University Planning Task Force outlines our goals well, and that to the Governor's Commission on Education, emphasizes our mission in a university-wide context. The following summarizes our long-term and short range goals.

1. Establish an officially approved Women Studies Minor.
2. Increase cross-listing of Women Studies courses, including sharing of costs.
3. Approval of Women Studies courses for group requirement credit in various UNM colleges.
4. Hiring of more half-time and full-time instructors, rather than temporary part-time staff.
5. Increasing enrollment in Women Studies courses.

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6. Through the Mainstreaming project, increasing faculty involvement in feminist scholarship.
7. Moving the Program offices to a building more professional in appearance and kept in better repair than Marron Hall.
8. Improving the physical working facilities in our Program offices and library: providing filing cabinets and typewriters for instructors, as well as Program ownership of computer terminals and a xerox machine.
9. Expansion of the Colloquium for Research on Women into an annual event, combined at times with the State Women Studies Conference, to increase our influence statewide.
10. Exploring other mechanisms for increasing awareness on campus of the academic merit and real vitality of feminist research, and of the Women Studies Program.
11. Increased seeking and finding of outside grant funding to sponsor Women Studies Program activities.
12. Beginning an annual film festival, or other popular event, to draw attention to our program and raise funds.
13. Continued and increased cooperation with other UNM units, particularly other interdisciplinary programs.
14. Continued curriculum development.
15. Increased outreach and communication to women of the various communities we serve on campus, and in this city, state, and nation.

With our determination and hard work, and the continued support of the University's administration, faculty, and students, we know that these goals are attainable.

DATE: September 23, 1983

TO: Professor Fred Harris, Chair

FROM: Helen M. Bannan, Acting Director, Women Studies Program *Helen M Bannan*

SUBJECT: Governor's Commission on Higher Education

In an era in which women constitute the majority of university students (52% of UNM's student population in 1982)¹, the question of women's access to higher education may superficially seem solved. However, when analyzed more closely, several areas of concern must be addressed, at each level of the university population. This report will emphasize questions of access, as requested, and also emphasize the usefulness and value of a Women Studies Program in redressing past inequities and preparing women for the challenges of more active involvement in the university, and in society at large.

The statistics in this report have been gathered from a variety of university documents, and are noted. I understand that the Provost has provided more recent data on access issues in his report, but the figures used herein will provide an indication of the kinds of data previously available.

1. Subtle Sexism and the University Environment: In spite of the gains made by feminists of the past 15 years in fighting sexism in its myriad forms, it should surprise no thinking person that sexist bias, so long entrenched, has not yet disappeared. While egregious examples of blatant sexism are encountered less frequently, the attitudes underlying such behavior are extremely resistant to change, and often emerge in more subtle ways. Some remarks, not intended as insults, ("a good grade for a woman"), nonetheless have damaging effects upon the quality of education women receive. For instance, a professor who persistently fails to ask women substantive questions in class, and interrupts them more frequently than male students may discourage a female student from participating in class at all, particularly since her childhood socialization may have stressed passive demeanor and tentative speech style as feminine ideals.

The Association of American Colleges prepared a report in 1982 entitled, "The Classroom Climate: A Chilly One for Women?" (copy enclosed). This report explains in thorough detail some of the forms subtle sexism takes on campus, and how such behavior negatively affects female students. Using this report as a starting point for discussion, the directors of Women Studies and the Women's Center joined with the Associate Provost in organizing a workshop for faculty and administrators last spring. The group met twice, and several hours of lively discussion produced a consensus on the existence, and seriousness, of the problem at UNM. When female students are viewed and treated primarily as "girls," and not taken seriously as students, the quality of their education is questionable. In addition to the effects of sexism of women students, the group discussion brought out several examples of sexist remarks and behavior addressed to female faculty members. Subtle sexism has thus poisoned the climate across campus, not only in the classroom, and while it is more difficult to fight, is

no less dangerous and damaging to women's full participation in university life than more blatant forms.

The discussions of this group produced a memo to President Perovich outlining the major conclusions of the group, and recommending that a committee to be formed to address this issue. (copy enclosed). The President seemed supportive, and recommended that widespread publicity would be more effective than more committee work. A public statement from the highest echelon of the university power structure that such behavior will not be tolerated could begin the publicity process most effectively. In addition, workshops for faculty, staff, and students should be planned to raise awareness of the issue among all groups.

2. Women's Access to Graduate Education: Increasing numbers of women are enrolling in UNM's graduate and professional programs. Statistics show that 50% of graduate, law, and medical students were female in 1982, up more than 10% since 1974². While this is encouraging, there are some access issues that still need to be addressed, since specific kinds of training critical to professional success may not be equally available to female graduate students. The close relationship between faculty mentor and graduate protege, a phase critical to degree completion and job recommendations, may be complicated by sex differences. A faculty overwhelmingly male, particularly in its higher ranks, gives female students less opportunity for training by a female professor, who could serve as a role model in a more direct way. Also, aggregate statistics, such as I have thus far seen, do not address issues of equal access of women to assistantships of various kinds, or to departmental recommendations for fellowships and prizes. Sex ratios of students completing degrees would also be most useful.

I would recommend that the Graduate Office, perhaps in conjunction with the Office of Institutional Research, the Graduate Student Association and the Affirmative Action Office, undertake a thorough study of these issues, and specifically issues of differential treatment by sex, would help discover the extent of this problem at UNM; attention to it might begin to change the situation. Women Studies and the Women's Center have jointly scheduled a Brown Bag lunch to discuss "Classroom Climate" concerns of graduate students; perhaps this will begin the process of revealing the extent of the problem.

3. Special Concerns of Returning Women Students: UNM has an increasingly large number of older students at every level, and many of these are women who have delayed their own educations while working, in and out of the home, to support the education of other family members. There is growing awareness of the importance of this group within the student population, and some programs designed for them have been implemented. For instance, the Women Studies Program offers a 3-credit course that is geared toward analysis and discussion of the problems of re-entry and improvement of rusty academic skills. Orientation programs for adult students offered by the Assistant Dean of Students, with the cooperation of the

Returning Students Association, are extremely helpful to those who attend. The PACE grant program, for Part-time Adult College Entry students, which grew from a proposal presented by the Directors of Women Studies and the Women's Center to the Adult Re-entry Advisory Committee, provides some financial aid to this important group.

However, much more needs to be done. Surveys taken of adult students indicate that the Lobo is their major source of information about campus activities, and that faculty members serve as primary advisors for this group of students. An organized, on-going transition program, with sessions devoted to explaining the various advisement services available, and presenting the usefulness of these offices, should be begun, with sessions widely advertised in the Lobo. Also, the PACE grant program provides \$250.00 per semester for the first two semesters of a renewed education--but is only funded to allow 5 students per year to receive this help. Instead of doubling the number of traditional age students who receive Presidential Scholarships, I think that more money should be channeled to adult students, who have proven their dedication in 12-24 recent credits, and could complete their degrees faster if they could financially afford to enroll full time for at least one year. The Development Office should be encouraged to make this new program (PS II??) one of their priorities in fund-raising; I think that such a program would be at least as popular in the community as the present Presidential Scholarship Program. In addition, the money allocated to the PACE grants should be substantially increased, and the availability of the grants widely advertised in the community. Recruitment of adult students should be given priority status, and should be especially geared toward encouraging enrollment of minorities and women, particularly minority women.

4. Concerns of Female Faculty and Administrators: In 1982-83, 18.8% of all UNM full time faculty members were female³. In 1979-80, the comparable figure was 20.6%⁴. While this decline is slight, it is nonetheless a decline, a regression in an institution allegedly committed to affirmative action. Women are largely concentrated in the lower ranks; only 7.1% of the full professors on the main campus in 1982-83 were female⁵.

These statistics indicate that more emphasis should be placed on results, rather than procedures, in UNM's affirmative action plan for hiring. The concentration of women in lower ranks also calls for implementation of affirmative action principles in tenure and promotion procedures. We need a thorough study of the breakdown by sex of the Code 3, Tenure, and Promotion decisions of the past 5 years, that would include grounds by which men's and women's contracts were not renewed, and comparison among successful and unsuccessful individuals' records in teaching, publication, and service. If there is a pattern of discrimination, it must be addressed. Also, faculty development programs aimed at preparing all new faculty members for the Code 3 and tenure

processes would be most helpful to women and minority faculty members, who may be outside any "old boy" network that provides such information informally. Since departments vary in their requirements, these sessions would have to be general, but they would provide guidelines applicable across campus, and inform all new faculty equally of what they should expect in terms of departmental guidance and review procedures. Then, if a department is lax in following the procedures listed in the Faculty Handbook, a new faculty will know what should be happening, and can request more information. In this way, the results of truly affirmative action in hiring would make a more permanent impact on the faculty population.

The administration that would lead this affirmative action campaign is overwhelmingly male. The most recent statistics I have available, from 1979, show that 11% of deans and assistant deans were female, and 27.1% of all executives, administrators, and managers were female⁶. An informal count of those individuals included on the recently released telephone list of "Academic and Other Administrative Officers" shows 53 female names out of 290, or 18.27%, a relatively large decline, if the populations are comparable, which is unclear. The list includes 4 female department chairs out of 55, or 7.2%; 3 female deans and 13 assistant or associate deans, for a total of 16 out of 50 listed, or 32%, a dramatic increase in 4 years⁷. This improvement needs to be continued. I suspect that a chart drawn to reflect the numbers of women at various positions in the staff-administrative hierarchy at UWM would resemble a truncated pyramid, with its top cut off, and a very broad base, in clerical-secretarial positions. Staff development seminars that would encourage upward movement from this secretarial base would be an important part of an assertive affirmative action plan. For higher levels of administration, nomination of women for fellowships/internships in academic administration seems critical, as well as affirmative action in hiring and promotion. There are increasing numbers of women on this campus who have gained some administrative experience, who should be seriously considered when high level openings occur. The abortive presidential search last year was remarkable in avoiding nomination of any female; certainly there are many women of at least the same caliber as the candidates located in that search.

5. The Role of Women Studies Programs in Higher Education: Throughout this report, I have attempted to emphasize the positive actions this Women Studies Program has initiated and supported to increase awareness of women's issues on campus. If the level of university support for this Program, which represents its commitment to the study of women as a serious, academic endeavor, is an index of its level of concern, we are typical of the response levels noted above. We do as much as we can with a limited budget, by hiring temporary, part-time teaching personnel, a practice which puts us in the most uncomfortable position of continuing to underpay female professionals. Part of an assertive affirmative action plan should include hiring women professors in various departments committed to teaching and research in areas of women's studies in their disciplines. The full time faculty

members who have been active in our Advisory Board, and the more than 40 women who responded to our initial call for a research network on campus, show that there is much support for women studies scholarship campus wide. But women studies activity is seldom seen as a positive aspect of these professors' careers within their departments. Strong leadership emphasizing the importance of the field to the university's drive toward true excellence, matched by monetary support, could make this program one of national prominence. We already have a nationwide reputation for our emphasis on regional issues, and courses concerning race and class. With greater levels of funding, and more faculty hired specifically for their expertise in the Women Studies field, we could expand our research network to a true research institute and become a national leader in the field. The increased visibility and academic reputation of such a program could help provide stronger leadership on campus toward redressing the questions of inequitable access emphasized in this report.

The presence of a strong Women Studies program is vital to fulfillment of the university's mission. Women Studies courses provide information that may be missing from offerings in other departments - information that enables students to better understand sex role socialization and both the need for and difficulty of social change in the direction of equity. Women Studies classes help prepare students to actively participate in creating a more egalitarian world. We train women to take more pride in themselves and have confidence in their ability to contribute to our society and we train male students to support and work for such changes. In addition to addressing sexism, all of our courses include analysis of the effects of race and class, so our commitment to the concerns of equity is extremely thorough, leading to student awareness of the complexity of social problems. All students in our classes are encouraged to be rigorous thinkers, and expected to challenge assumptions, to analyze evidence on the basis of their own perceptions and values. This emphasis helps develop their critical skills in thinking and writing, skills fundamental in any definition of education.

A Women Studies Program also is an important resource for faculty and staff. As an interdisciplinary program, Women Studies is particularly exciting, encouraging the cross-fertilization of ideas and concepts from different fields, enriching the scholarship in both. Faculty who participate in Women Studies research collaborate with colleagues from other disciplines, and become conversant with trends outside their own areas of specialization. Women Studies faculty often teach and research in more than one area, providing a breadth of expertise that, without "diluting" the worth of their work, greatly expands its scope. Women Studies faculty are often called upon by colleagues in various departments to give guest lectures and other presentations that help non-specialists include women's concerns and experiences in their courses. Women Studies also serves as a focal point for feminist concerns on campus - we are asked to report on such issues as women's access to education, for instance, by groups such as the Governor's Commission on Higher Education. We are always glad to perform such service, and in general to do all we can to improve the quality of education, and the quality of life, for women at UNM.

- 1 Richard H. Cady, "Some Characteristics of UNM's Students (And Other Information)" report prepared for Alumni Board and Council meeting, June 9-12, 1983, p. 3.
- 2 Ibid., p. 4.
- 3 Senate Budget Review Committee, "Faculty Survey-Summary Report," February, 1983, p. 2.
- 4 Salary Survey, Full-Time Faculty, Semester I, 1979-80, calculations based on men only (588) and women only (153) figures.
- 5 "Fall 1982 UNM Main Campus Faculty Salaries and Other Selected Indicators," p.1.
- 6 "Ethnic Minorities and Women at the University of New Mexico: A Presidential Progress Report," July 1979; calculations based on figures on last page.
- 7 "Academic and Other Administrative Officers: Telephone Extensions for the Above," Anne J. Brown, August 31, 1983. My counting and calculations provide an unscientific data base, but as accurate as possible.

DATE: May 6, 1983

TO: John Perovich, President

FROM: Classroom Climate Discussion Group

SUBJECT: The Classroom Climate For Women Students

Many faculty members and administrators have long been concerned with subtle and overt behaviors which express different expectations of, and stereotypical attitudes toward, men and women on campus. A recent publication of the Association of American Colleges, The Classroom Climate: A Chilly One For Women?, indicated the nationwide awareness of this problem, and led Joel Jones, Kathryn Brooks and Helen Bannan to convene a group representing a cross-section of UNM faculty to discuss the applicability of this study to our University. Two lively afternoons of discussion led to a consensus on the following points:

1. Discriminatory attitudes and behavior toward women compromise the dignity and respect for individuals that should be valued at any institution of higher learning.
2. We are particularly concerned that female students may find their intellectual enthusiasm and confidence seriously undermined by patterns of faculty behavior in which they are either ignored or singled out because of their gender. Remarks such as "a pretty good grade for a woman," addressed to the person who earned the highest grade in the class, not only degrade women, but reinforce whatever prejudices men in the class may hold.
3. It is increasingly recognized that there may have been many incidents on the campus involving discriminatory practices toward women. During our own discussions, several faculty women described incidents of such behavior directed toward them by colleagues or administrators. Discrimination affecting female faculty members serves to reinforce negative student perceptions of the value of the contributions women make at all levels in the University.
4. Perhaps the effects of subtle discriminatory behaviors and attitudes may be the most profound upon women who are graduate students, because they necessarily must work more closely with their faculty advisors. Such discrimination may serve to discourage them from continuing their educations, or from entering particular fields of graduate study, constituting a real loss both to individuals and to society at large.
5. Discriminatory behaviors and statements have been most blatant in traditionally male fields, and, although these are changing as more women enter them, special efforts should be made to continue to address discrimination in these fields.
6. During the discussion, discrimination of the subtle "classroom climate" variety was differentiated from blatant sexual harassment for discussion purposes. However, sexual harassment is a matter of great concern. We

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think existing channels for remediation of sexual harassment cases need more publicity, and university policy in this area needs to be defined in clear uncertain terms, but separate and specific action should be taken to remedy this concern.

We wish to share our sense of urgency with you. To this end, a subgroup of this discussion forum is most eager to work with you to establish a permanent committee that would explore and coordinate concrete efforts to alleviate the problem of discrimination against women in the classroom. In addition, since unequal treatment of women on campus compromises the excellence for which we strive, we hope you will also urge your Committee on Excellence to add this issue to their agenda for discussion and action. We hope that addressing the issue of discrimination against women will open the way to dealing with other forms of discrimination.

DATE: April 16, 1984

TO: University Planning Task Force

FROM: Helen M. Bannan, Acting Director, Women Studies Program *HMB*

SUBJECT: Unit Questionnaire

I apologize for the delay in forwarding this report. Much of my energy recently has gone into the search process for a new Program Director. Also, the Committee process that Women Studies remains committed to requires considerable amounts of time to discuss all sides of the major issues involved in long-term strategic planning. These, then, are my ideas, and must be considered as a preliminary program response. It would seem more appropriate for the next Director to write this report; you may receive a revised sequel next fall.

INTRODUCTORY REMARKS:

Many of the questions in the report guidelines referred to faculty members. As you know, the Women Studies Program employs no full-time faculty members. Our courses are taught for the most part by temporary, part-time instructors, who, primarily for economic reasons, soon leave us to seek more permanent employment elsewhere. The major strategic plan I would suggest would be to hire more permanent Women Studies faculty members. In our present status as a Program, of course, tenure-track appointments are impossible; but official joint appointments between Women Studies and another department would seem expedient. It seems particularly incongruous for a feminist program to be constantly in the position of continuing to offer only underemployment to qualified professionals. Permanent, full or part-time instructor positions in the Program are another possibility, but in recent years we have had only funds for one half-time instructor, in what has been a two-year term rotation. The Program's strength and vitality, in spite of heavy turnover of teaching personnel, is remarkable, but this should argue more strongly for further development, in order to fully realize another potential Center of Excellence.

Of course, Women Studies at UNM includes more than employees of this Program. Individual faculty members campus-wide are involved in Women Studies research and teaching; the considerable number of cross-listed courses and the outstanding response to our first (we hope annual) Colloquium for Research on Women, provide ample testimony to this fact. But, too often, faculty members are discouraged from pursuing Women Studies interests, which are seen as tangential to the major themes of their disciplines. A policy that would encourage formal joint appointments might help, and we hope our planned effort to "mainstream" Women Studies research into the University's courses will also raise department awareness of the importance of this field.

A. SELF-ASSESSMENT OF UNIT PERFORMANCE

1. Research: In spite of the tenuous nature of their positions, Women Studies instructors have been quite active in pursuing their own research. Many of our instructors are at early stages of their academic careers, gaining experience and giving much energy to their courses. However, in recent years, many have been active in presenting papers at conferences, and several have successfully published their work. We encourage research by urging instructors to present their work informally at the Brown Bags we co-sponsor with the Women's Center. We also have bi-weekly Instructors' Seminars, many of which have served as forums for discussion of research findings, and our recent Colloquium expanded the audience, and we hope appreciation, for Women Studies research. Our areas of strength are in the energy and dedication of our individuals, and the regional

focus of much of their work; our areas of weakness are in terms of the kinds of support we are able to offer this research.

2. Teaching: Since Women Studies does not offer a graduate degree, as a Program, there are few courses originating in our Program that are offered for graduate credit. Those faculty in other departments who offer Women Studies content courses for graduate credit are, I think, among the best at UNM, and do offer quality graduate-level courses.

The Program itself concentrates on undergraduate courses, and emphasizes quality. Each year, our instructors are hired on the basis of thorough examination of their academic credentials and proposed syllabi, a rather grueling process for everyone concerned, but one that does ensure careful planning of courses. We participate in the ICES evaluation system, and our instructors consistently receive much higher than average grades from their students. The instructors' Seminars mentioned previously also focus on teaching techniques, and offer opportunities to share ideas on successful pedagogical methods. One obvious problem seems endemic to our reliance upon temporary, part-time instructors: that of continuity. An instructor often puts in much time and effort to produce an outstanding new "topics" course, and our limited budget makes it difficult for us to offer that course again, even on a two-year rotation. If we were to offer more permanent employment to our instructors, they would be able to develop more of a following among the students, and their courses would similarly improve with more opportunity to try something different that second, and third time around.

3. Service: Women Studies, from its activist beginnings, has had a strong commitment to serving the community, both on campus, and in a local, regional, and national sense. Our coordinators, and instructors, are often called upon to speak in school and university classes, and at local organizations' meetings. We also attempt to offer courses that have a strong "service" component, defining that service as helping women outgrow the stereotyped roles they have been trained to accept as self-definitions, thus improving the quality of individual and cultural life. In a national context, UNM's Women Studies Program has long been recognized as one of the strongest in the nation, and has particularly been singled out for its continued commitment to including all women in this region. We are attempting to build a truly multicultural program, and while that process is often stormy, the importance of the goal justifies the effort. We also continue to emphasize activism, and encourage our students to follow the example of many of their instructors in taking active roles in local women's organizations, including the Rape Crisis Center, and the Shelter for Victims of Domestic Violence. The newest course in our curriculum is a Field Experience course, which will enable students to work under supervision at these and other agencies, testing their theoretical background against actual situations, and evaluating their experience for academic credit.

B. DEVELOPMENT OF UNIT GOALS

1. Women Studies is an interdisciplinary field, and we expect to continue to grow in a way that encourages creative sharing of concepts and models across disciplinary boundaries. Once we have an Associate Coordinator position, and we would hope more permanent faculty members, we intend to develop a grant-writing program, that will encourage and provide funds for

research. We are particularly interested in developing a program of interdisciplinary research by and about the women of this region, involving women of various ethnic backgrounds in investigating major themes in the lives of their own foremothers and contemporary sisters, and collaborating for analyses of cross-cultural interactions. We also plan to work on "mainstreaming" Women Studies research, increasing awareness of its vitality as a research field, and its relevance to the various disciplines. We are currently working on an initial grant proposal to provide funds to initiate this project, which we hope to expand. Thus, our research plans are both multidisciplinary and interdisciplinary. We hope that the new Director will also bring additional energy, expertise, and leadership to this phase of our Program.

2. PROGRAM DEVELOPMENT

Nationally Women Studies is currently involved in pursuing two seemingly contradictory goals: Program development and mainstreaming of Women Studies materials into the college curriculum campus-wide. These goals are not at cross-purposes; instead, the mainstreaming effort is planned to increase awareness of the field, and spark interest in study of women in more depth, within Women Studies courses and programs. To remain at the forefront of the field, UNM's Women Studies Program must develop continuity and strength within, always emphasizing its commitment to multicultural feminist education. We also need to continue to reach out to the campus community, forging new links with the departments through joint appointments and faculty development programs on "mainstreaming."

Trends indicate that Women Studies is winning increasing acceptance as an academic field; more programs are established annually, and some programs are becoming departments, gaining tenure track faculty members and students. We plan to remain part of this growth; our enrollments should continue to increase as more women, particularly of non-traditional age, enroll at UNM. We hope, within the next year, to join the 436 colleges and universities offering an undergraduate Women Studies minor, that would give students a structured concentration that they could combine with their majors to provide a solid foundation for self-development, as well as for careers in many professions. We also want to see more permanent staff-members in the Program, as I stressed in my introductory remarks. This is especially critical. Having a senior level faculty Director, an Associate Director with some teaching responsibility, and a full staff of instructors with a commitment to continuity in the Program will increase our academic strength considerably. We will continue to welcome active involvement of students, staff, and faculty in the Program, since the concept of Women Studies involves collectivity, but the leadership roles of the professional staff in the Program will be clarified.

We plan to continue to develop our curriculum by offering sequences of courses, and expanding into areas that have not been fully covered previously. Some of the topics courses that have been very successful both within the Program and in various departments should become regular offerings. We are especially interested in doing more team-teaching, which funds have severely limited in the past, and more cross-listing of our courses with other departments. With a more permanent staff, the opportunities for development of new topics courses would be enhanced.

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Within the next five years, then, I would wish to see Women Studies a larger Program, with an undergraduate minor, a series of concentration options in various departments at the graduate level, and regularly scheduled course offerings, both those with Women Studies numbers, and those given by faculty in various departments. We would have a staff of instructors hired on a permanent basis, as well as some faculty with joint appointments in Women Studies and their own fields, offering courses of the quality we have always emphasized and striven toward.

3. OPTIMUM ENROLLMENT

I think our optimum enrollment in courses with Women Studies numbers could well increase to 500 undergraduate students per semester in 5 years, given the plans for development outlined above. There is considerable student interest in our field now; with increased awareness, an expanded Introduction to Women Studies course that would be acceptable for group requirement credit, and a minor, our enrollments at both upper and lower divisions could well double its current level. This projection does not include enrollment in courses with Women Studies content offered by faculty members in other departments. Those that are currently offered regularly by excellent instructors, such as Women's History, have consistently strong enrollments. Making these offerings regular in other fields (ie., English, Art History, etc.) would develop a similar enrollment phenomenon, and total Women Studies enrollment would reach over 1000.

Graduate student enrollment depends almost entirely upon departmental resources; the student interest is there, I am certain, to warrant close to 50 graduate students with a Women Studies component in their programs in wide range of fields. With joint appointments and more departmental recognition of the value of Women Studies as a sub-field, UNM could be a center for the development of Women Studies scholars of the future.

The question of physical space for the Program is one we have been wrangling with this semester, and we are not yet certain whether we will stay in Marron Hall or be relocated to Mesa Vista. We have little choice, generally, to do any but reactive planning. Where ever we go, we will need more faculty office space than we currently have, since at least 2 instructors share each office, and we would need to have a seminar classroom nearby. My enrollment optimum is based on our continued ability to offer at least 10 courses per semester, and to have these courses taught by instructors who have the opportunity to develop their reputations for excellence among the students.

4. RESOURCE ALLOCATION

In order to hire more permanent instructional staff, and an associate coordinator, Women Studies needs an increased budget. We also will need more space for offices for these instructors, and more support in terms of equipment, particularly filing cabinets and a xerox machine. If we are successful in our grant-writing, some of the clerical support staff we need could come from soft money.

5. ADAPTABILITY

We are beginning to study the question of reallocation of funds currently used to hire temporary, part-time instructors, to instructors in a more permanent status. We will need a budget increase to actualize our plans for an Associate Coordinator, and will need departmental willingness, encouraged by administrative support, to

realize a goal of joint appointments.

Further cuts in facilities, staff, or faculty would destroy the Program. We have not experienced declining enrollments in the past several semesters, but a budget cut would seriously affect our ability to offer the range of excellent courses we have thus far managed to produce at bargain rates. There is no "fat" in Women Studies; anorexia is a most accurate medical metaphor to describe our financial status for the past several years.

6. CAREER POSSIBILITIES

Women Studies is too new a field for our graduates, who number a few BUS students annually, to have any "traditional" career expectations. Since we stress in our courses the general aspects of the contemporary job market (its segmentation, narrow definitions of success, residual sexist barriers, and undervaluation of "women's" jobs) that affect the future employment of our students, they are perhaps more realistically prepared for the world of employment than the average graduate.

7. INTERACTIONS WITH OTHER UNITS

As I have previously mentioned, attainment of our goals will rely to some extent upon the willingness of various departments to offer the courses and joint appointments that will increase the strength, depth, and breadth of the Program. The continuing support of the Provost's Office is obviously critical. Mutual support among ethnic and women's programs has been and will remain helpful to all of us. In order to establish our minor, and have more of our courses approved for group requirement credit, we will need the support of the Deans and faculties of the several colleges.

Our Women Studies Advisory Board provides an essential base of broad-based faculty support of the Program. We also plan to formalize a "Women Studies Network," composed of everyone on campus with a sincere interest in helping this Program achieve its promise of excellence, which we could call upon for advice and support.

8. EXTERNAL FACTORS

Short of global thermonuclear war, the complete achievement of the goal of equality would require a reassessment of the goals of the Program, but this does not seem imminent. The external factor of legislative support seems more directly pertinent, and more ominous.

C. INTEGRATION OF UNIVERSITY, STATE, AND WOMEN STUDIES GOALS

If the University's role is to help produce an enlightened populace that will lead our state's progress toward the future, Women Studies has a critical role. Though we are clearly not a "high-tech" field, we are encouraging our students to become the fully confident and flexible people with strong humanistic values who will be needed in our changing future. Our greatest natural resource, in New Mexico, the nation, and the world, is our people. By raising awareness of the potential of the female half of the population, by helping students understand and reject the artificial barriers to progress imposed by outmoded sex role stereotypes, and by emphasizing the value of multicultural education in producing mutual respect required for true pluralism to work, we are helping to develop that natural resource.

Thus, Women Studies shares and helps realize the traditional goal of education as enhancement of the quality of life, which must continue to characterize UNM's present and future.

OFFICE OF THE ASSOCIATE PROVOST FOR COMMUNITY EDUCATION

July 1, 1983 - June 30, 1984

Alex A. Sanchez, Associate Provost

1983-84 was a challenging and productive year for the Office of the Associate Provost and the units reporting to that office: the three branches (Gallup, Los Alamos and Valencia), the Division of Continuing Education and Community Services, and the Telemedia Activities Service Center project.

- I. Branch funding for 1983-84 was sufficient to allow for continued equipment purchases in the instructional and administrative areas. Enrollments have either increased or remained stable at the branches as they enter various phases of program and facilities expansion. Notable changes at the branches this past year include the following:

Los Alamos - Completion of new buildings, computer acquisitions, new program offering in Criminal Justice and Basic Lab Skills.

Valencia - Successful passage of a local mill levy for the construction of new facilities,

physical expansion at existing facility and the hiring of new staff to expand student services.

Gallup - Designation as an area-vocational school and construction of additional buildings for technical programs.

- II. The Division of Continuing Education with its diverse offerings--community college, credit courses, non-credit courses, Bureau of Conferences and Institutes, and correspondence courses--experienced growth in some areas and remained stable in others. Computer courses were the focus of much student interest and the Division responded with the acquisition of microcomputers for the expanded course offerings.

Continued work with various college departments should lead to additional credit offerings in the coming year for a series of telecourses to be broadcast on KNME. A long expected change at the Harwood Foundation took place at the end of fiscal year 1983-84. The operational responsibility for the library at the Harwood was transferred to the City of Taos. This will save the general

University budget a considerable amount of money each year. The museum portion of the Harwood remains a UNM operation and a drive is on to establish an endowment to operate the museum.

Still under negotiation through June of 1984, was the acquisition of the Masonic Lodge. Pending successful negotiations, the building will be used for activities of the Division of Continuing Education. This will correct one of the greatest problems Continuing Education has faced in the recent past--lack of adequate facilities.

III. The Telemedia Activities Service Center (TASC) project continues to attract attention and support in the higher education community. Though interim funding is currently being sought, the project does have statewide support. With the anticipated successful passage of legislation and funding in the 1985 session, TASC and its affiliate, New Mexico Educational Development Consortium (EDCON), will take on a long awaited pro-active statewide profile.

IV. Events of the Office of the Associate Provost for Community Education of note are the following:

1. coordination of branch connection to on-line computer use with the mainframe
2. completion of articulation agreements (culminating in a brochure between UNM units--branches and General College and Albuquerque Technical-Vocational Institute)
3. visit to the Angel Fire community in response to a request for information on establishment of a branch campus
4. work with the Provost's office on alliance arrangement involving shared educational offerings and services among T-VI, UNM and APS
5. Alex Sanchez - elected President of New Mexico Association for Community Education Development for 1984-85
6. Susan Lynch - appointed to the North Central

Commission as a consultant/evaluator

7. Idalee Vogel - hired as the Telemedia Activities Service Center Coordinator on September, 1983 to replace Amy Atkins

TELEMEDIA ACTIVITIES SERVICE CENTER

July 1, 1983 - June 30, 1984

Alex A. Sanchez, Director
Idalee Vogel, Coordinator

Since 1981, the Telemedia Activities Service Center (TASC) has been working steadily toward its goal of the creation of an educational telecommunications network. The past year's workscope was supported through funds from the University of New Mexico and the Fund for the Improvement of Postsecondary Education.

The University of New Mexico, through the Office of the Associate Provost for Community Education, is acting as the coordinating and administrative unit for a state-wide consortium, New Mexico Educational Development Consortium (EDCON), a widely endorsed group including representation from New Mexico's two- and four-year postsecondary institutions, educational agencies of state government, and the Governor's Commission on Public Broadcasting.

UNM-TASC and EDCON have prepared a number of documents, policy statements, and studies about distance learning for the Board of Educational Finance; worked with state

agencies in their plans for telecommunications capabilities; and developed a mechanism for advising and guiding the establishment of a hardware system and courseware development system.

During the 1984 legislative session, TASC and EDCON assisted in the drafting of the "Educational Telecommunications Act of 1984." This bill was designed to support (1) the postsecondary institutions in the implementation of the instructional telecommunications system, including its maintenance, faculty training, and other resources, and (2) the development of state policy regarding distance learning services delivery and financing. Although this bill was not acted upon during the last legislative session, nevertheless it generated tremendous support among legislators interested in seeing New Mexican institutions benefit from this program.

During the past year, TASC has coordinated a number of conferences and group activities to promote adult and professional continuing education delivered through instructional telecommunications.

In addition to serving as a resource to other faculty

on campus who are interested in educational telecommunications, TASC has been working with Sandia National Laboratories, the University of Wisconsin, and the Milwaukee Area Technical Consortium (MATC) to cooperatively produce a national satellite teleconference on computer graphics technology. The program is tentatively scheduled for Summer, 1985.

Other conferences held in 1983-84 were:

- November 17, 1983, "Learning Styles and the Adult Learner"
- January 12 and February 23, 1984, "Telecommunications: A Primer to Postsecondary Applications," sponsored by the American Association for Higher Education (AAHE)
- April 23, "Ada [®] on the Move," co-sponsored by BDM Corporation
- May 11, "Faculty Introduction to Annenberg/CPB Program"
- May 24, "Current Practice and Future Issues: Telecommunications in Postsecondary Learning"
- May 31, "Project ALLTEL (Assessing Long Distance Learning via Telecommunications) National Teleconference," sponsored by the Council on Postsecondary Accreditation (COPA) and the State Higher Education Executive Officers Association (SHEEO)
- July 19, a special televised demonstration/presentation on educational telecommunications, broadcast via satellite uplink from Santa Fe and Albuquerque to the Board of Educational Finance meeting in Hobbs, NM

TASC has been operating for three years now. It will be seeking interim funds to continue working on the development of the statewide instructional telecommunications network.

THE REPORT OF THE
DIVISION OF CONTINUING EDUCATION

July 1, 1983 - June 30, 1984

Dr. Rupert Trujillo, Dean

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DIVISION STAFF

Division personnel as of July 1, 1983, consists of the following individuals

Rupert A. Trujillo	Dean
Robert Barela	Conference Coordinator
Mary Bullock	Registrar
Victoria Burke	Clerical Specialist V
Eva Cianchetti	Clerical Specialist IV
Sherrie Garcia	Staff Assistant
Laurie Kastelic	Staff Assistant
Carmen Maestas	Clerical Specialist V
Anthony Oliver	Director, Credit Programs
Patricia Probst	Clerical Specialist IV
Joyce Robbins	Clerical Specialist V
Ronald Shibata	Director, Business Office
Roland Tovar	Director, Conferences and Institutes
Cynthia Turowsky	Staff Assistant
Sandra Valdez	Administrative Secretary

Terminations--Transfers--Resignations

Eva Cianchetti, Clerical Specialist IV, February 24, 1984
 Carmen Maestas, Clerical Specialist V, February 24, 1984
 Patricia Probst, Clerical Specialist IV, February 17, 1984
 Mary Percival, Clerical Specialist V, April 6, 1984
 Kathryn Metcalf, Clerical Specialist V, January 1, 1984
 Cynthia Turowsky, Staff Assistant, January 31, 1984
 Sandra Valdez, Administrative Secretary, October 31, 1983

DEAN'S OFFICE REPORT

The nineteen eighty-three/eighty-four fiscal year can be considered a settling down/regrouping year. Fall semester proved to be a sluggish one; enrollments failed to materialize. Further adjustments on the budget were required. The Fall semester demonstrated the need to once again try something special/different for marketing the activities of this Division. The usual competing activities in the Albuquerque area continued to exist. This plus the sluggish economy seemed to bear negatively on this Division.

It was decided that the monies being devoted to Public Relations and Marketing through the local newspapers were not generating the necessary returns. Based on the Division experience in Bernalillo (the experiment in Bernalillo failed to produce intended results) it was decided that a big push via media for marketing was necessary. Accordingly, an advertising/marketing firm, Harris & Love, was identified and selected to help this Division create a new image.

Harris & Love is a relative newcomer to the Albuquerque area; however this firm had considerable experience working with The Division of Continuing Education at The University of Utah. It seemed that this firm had the expertise necessary to help turn this Division around.

Spring semester awoke and the Greater Albuquerque Community found itself greeted by the now universally recognized slogan - Add A Little Class; the objective of this effort was to create a new image for UNM's Division of Continuing Education and Community Services. That was clearly accomplished. Enrollments stabilized and any number of agencies began calling this Division asking for site specific training. Some examples of this are the contracts signed between this Division and Sperry Flights, The Department of Defense, Albuquerque City, New Mexico Game and Fish Department, Bernalillo Public Schools, AT & T, the U.S. Air Force and so on.

A number of in-house training programs begun this year will continue on to the next fiscal year; another Micro Computer Lab, off-campus, will be set up. The 1984-85 budget will support a full-time Non-Degree Advisor and half-time Media Education Coordinator. Both have been needed for several years. These two positions will clearly help keep the momentum in Credit and Non-Credit offerings.

We end the year on a very positive note and I say to one and all who have been a part of this success -
Mil Gracias.

THE BUREAU OF CONFERENCES, INSTITUTES AND SHORT COURSES

The Bureau has continued to experience extraordinary growth with potential for generating substantially increased monies in the very near future. The measured expansion that has been planned and fostered has met new community needs while improving on those activities that have consistently resulted in firm fiscal growth.

Consistently high enrollments from both the community and University populations for microcomputer short courses has again resulted in the purchase of new equipment. Nine new instructional systems were purchased for a third laboratory. This facilitates the procurement of institutional training programs specifically designed to meet stated needs of identified staff and personnel.

Four new professional microcomputer systems have also been obtained for the ever-growing needs of administration and the overall operation of various Division components. These further enhance the increased efficiency sought through the restructuring of virtually all aspects of Division programming and its often complex operations at all levels.

Special emphasis is currently being placed on increasing the number of jointly-sponsored activities between the Division and other UNM departments. Fiscal year 1983/'84 already generated an increase of over 50% of said kind of scheduled activities.

It is the heavily weighted conclusion of Division staff and faculty that the fiscal soundness and incremental growth of the Bureau is virtually assured when viewed in conjunction with the extraordinary growth that has already begun to take place during fiscal year 1984/'85. Guarded excitement is the prevailing mood of the Bureau in light of Fiscal year 1983/'84.

THE COMMUNITY COLLEGE

A continued and careful approach to the growth of the number and kinds of courses offered through the Community College has proven vital to the continued fiscal soundness of all programs. Course fees were not increased and, in some cases, were actually reduced where said reductions could prove beneficial to a greater segment of the community by making the courses more accessible.

In addition to initiating new offerings and expanding on old ones, the College has provided follow-up courses in the Intermediate and Advanced ranges that heretofore had not existed. A complete restructuring of the entire marketing program, its goals and objectives as well as techniques, have been thoroughly revisited. Their implementation has resulted in a greater assurance that stability and growth will be maintained.

Gross and Net revenues remained stable throughout the Fiscal year and made possible the reinstatement of several positions that had been abolished eighteen months earlier. A rechannelling of funds toward establishing a broader marketing base for courses resulted in marketing efforts being made to a far greater segment of the Community than had been possible in recent years.

Cooperative efforts have escalated to include joint marketing with Albuquerque Public School Community Education and T-VI. A growing relationship will certainly prove fruitful to the community and the various entities concerned through a support of shared marketing instruments and careful planning of offerings.

The College is in the most advantageous position that could be envisioned toward a strong and viable capability to continue to provide program leadership in the community that is consistent and generally on the cutting edge of innovative efforts. Its staff and faculty look forward to a new fiscal year of unprecedented fiscal and program soundness and expansion.

COMMUNITY COLLEGE--ENROLLMENT STATISTICS--FY 1977 - FY 1984

<u>FISCAL YEAR</u>	<u>TOTAL REGISTRATION</u>	<u>SEMESTERS</u>	<u>AVG. NUMBER OF STUDENTS PER CLASS</u>
1977	6675	FALL--3341 SPRING-3334	24 24
1978	7697	FALL--3800 SPRING-3897	25 27
1979	7897	FALL--3846 SPRING-4051	24 22
1980	8803	FALL--4353 SPRING-4450	23 22
1981	9222	FALL--4052 SPRING-4720	21 21
1982	9919	FALL--4727 SPRING-5192	21 21
1983	9623	FALL--4716 SPRING-4907	19 22
1984	7559	FALL--3930 SPRING-3629	16 15

COMMUNITY COLLEGE
CLASS STATISTICS--FY 1977 - FY 1984

<u>FISCAL YEAR</u>	<u># CLASSES OFFERED</u>	<u># CLASSES CANCELLED</u>	<u># CLASSES ACTUAL</u>	<u># CLASSES CLOSED</u>	<u>AVERAGE TUITION FEE</u>
1977	FALL-148	12	136	N/A	N/A
	SPRING-151	15	136	---	---
1978	FALL-170	20	150	49	\$36
	SPRING 172	30	142	49	\$36
1979	FALL-208	46	162	46	\$30
	SPRING-218	32	186	38	\$36
1980	FALL-212	23	189	47	\$35
	SPRING-230	25	205	49	\$35
1981	FALL-282	65	217	43	\$37
	SPRING-273	46	227	40	\$37
1982	FALL-311	72	239	47	\$41
	SPRING-301	51	250	44	\$41
1983	FALL-387	136	251	68	\$38
	SPRING-270	46	224	32	\$41
1984	FALL-247	55	192	57	\$43
	SPRING-249	58	191	38	\$43

CREDIT CLASSES

Any course listed in the University of New Mexico Bulletin, catalog issue, may, subject to appropriate approval, be offered for credit through the Division. The Division obtains approval from departmental chairpersons for all courses to be offered for credit. Approval of teaching faculty is obtained by the Division from the departmental chairperson, and if necessary, from the Dean. However, obtaining approval from the Graduate School for a person to teach at the graduate level is a departmental responsibility.

The need for a credit course may be identified in several ways: an employer may desire to have employees take a certain course; an instructor may wish to teach a certain course off-campus; or Division personnel may identify a particular need. Course requests may be directed to the appropriate academic department, the appropriate college, or to the Division of Continuing Education and Community Services. Regardless of the initial contact, the Division is notified of the request and all coordination is accomplished by the Division.

Starting with the Summer Session of 1977, an effort was made to have credit courses offered through the Division in Bernalillo County considered resident credit.

Division personnel coordinate registration for Resident Extension/Extension classes. Registration may occur on-site or through the Division office and in some cases through normal registration channels. Registration forms and admissions applications are sent to the UNM Registrar and fees are sent to the UNM cashier. The students are then treated as regularly enrolled students with grades reported in the normal manner. The Division

has encountered some problems in adapting to the rigid requirements of the total main campus system, however, many of the problems have been minimized by close cooperation with other campus offices. Substantial progress has been made in refining this mechanism.

Those credit courses offered outside of Bernalillo County are still considered to be extension credit and all registration, fee collections, and grade reporting are accomplished by the Division.

The general policy this Division has followed is that credit courses will be established anywhere that sufficient demand warrants. The figures listed in Table I indicate number of classes each term and number of student credit hours produced each term during the Summer Session of 1983 through the Spring term of 1984. Enrollments are broken into Resident and Extension categories.

It should be noted that for the time period of this report, two major events affected the credit planning process and course delivery. (1) In the late Spring of 1983 academic department budgets were cut for the Summer Session program of 1983. Working with the academic departments on campus and appropriate student support systems offices, the Division of Continuing Education was able to salvage a number of courses by transferring enrollments to an Extension basis. This effort required a great deal of work by Division staff in order to minimize student problems. The effort resulted in a substantial increase in Summer Session enrollment for the Summer of 1983. (2) Working with the General College, the Division increased its efforts to offer two year degree programming to the working

adult population. Starting in the Fall of 1983, the Division offered several courses downtown at Mountain Bell during the noon hour and open to the public. Also, the Division assisted in the offering of General College evening courses to the public at large. This should be a growing and continued effort on the part of the University.

As compared to previous years, enrollments continue high in the Resident category which reflects a major effort by the Division to make this the top credit priority. Through Resident credit classes at the Division, 3,253 students were enrolled during this reporting period.

The Division continues to conduct one or more telecourses each regular semester. Costs associated with the program continue to exceed tuition received even though it was raised to \$40 per credit hour during this period. Because we cannot currently count the course for Resident credit, enrollments have been moderate.

Fall 1983

Ed Fdn 493

Introduction to Computer Literacy 37 students

Health Ed 293

Contemporary Health Issues 18 students

Spring 1983

Educ. Fdn 493

Introduction to Computer Literacy 46 students

However, to get a true picture of the total number of individuals served in credit courses by the Division and off-campus, one must take into account all activities of others who offer courses off-campus. Prior to the

establishment of the Branch Colleges, all credit work performed off-campus was by Extension. All lower division work in the Branch area is now performed by the Branches with upper division work by Extension. Several years ago, 1974-75, Teacher Education Centers were established at various locations for upper division (and lower division, in some cases) Resident credit work off-campus. Many of the students who were enrolled in Teacher Education Centers were, in part, enrolled as Extension students. Also, in 1975-1976, Graduate Resident Centers were established in Santa Fe and Los Alamos. Many of the students enrolled in the Graduate Centers were previously Extension class students.

Therefore, when all aspects of the Division's activities and others in credit activities are considered, it is readily apparent that the service of the off-campus community continues at a significant level.

TABLE I

	<u>Number of Classes</u>	<u>Number Students</u>	<u>Student Credit Hours</u>
<u>Summer 1983</u>			
Extension Courses	51	1115	2708
<u>Fall 1983</u>			
Extension Courses	36	678	1356
Resident Courses	84	1530	3680
<u>Spring 1984</u>			
Extension Courses ¹	0	0	0
Resident Courses	91	1703	4135
<hr/>			
1983-1984 Extension (Sub Total) ¹	87	1793	4164
1983-1984 Resident (Sub Total)	175	3233	7815
<hr/>			
1983-1984 Total ¹	401	6999	13,215
<hr/>			
1982-1983 Extension (Sub Total)	177	3064	6817
1982-1983 Resident (Sub Total)	224	3935	6398
<hr/>			
1982-1983 Total	423	6262	14,595
<hr/>			

¹ Enrollment status report not available at time of annual report due to back log from Spring's large volume

CREDIT OPERATIONS

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The Credit Operations section of Continuing Education is responsible for the registration and maintenance of records for the following Division programs:

During this fiscal year, the system will be updated even more with the addition of a terminal to connect the Division with the Visa/Mastercard Computer. With the addition of the new system to verify charge card transactions, time necessary to deal with each transaction has been reduced. In addition, errors which would cause a charge to be returned by the bank have been virtually eliminated.

During this period of time Credit Operations has experienced two changes in personnel. Eva Cianchetti resigned as Non-Degree Clerk and was replaced by Liz Sagrestano. Patricia Probst resigned as Credit Clerk and was replaced by Jewel Sanchez.

The Operations section still relies heavily on the use of temporary help to get through peak registration periods. In light of the current budgetary situation University wide, this practice will be continued indefinitely. The large volume of Extension business has made this practice necessary for other than peak periods. The Operations Section relies exclusively on UNM's Temporary help pool to provide temporary staff. For the past two years, this practice has proved very successful.

ANNUAL REPORT OF THE
HARWOOD FOUNDATION OF THE UNIVERSITY OF NEW MEXICO

July 1, 1983 to June 30, 1984

David L. Caffey, Director

I. 1983-84 in Review

A. Administration

At the University of New Mexico Regents meeting on July 16, 1982, a process was set in motion, and this process would eventually result in the turnover of the Harwood Foundation Library to the local governments of Taos. In 1983-84, we, along with a special University Committee on Taos Properties, made specific preparations for this change, and the transfer came about on schedule, July 1, 1984.

The transfer of the library to Taos local governments was effected by means of a lease and gift agreement. The general circulating collection of books was given to the Taos community, while the University retains ownership of the Harwood special collections on the Southwest, Art, and D.H. Lawrence. By terms of the lease agreement, Taos assumes the use and control of the spaces occupied by the library, while UNM reserves for its own use spaces occupied by the Museum of Taos Art, meeting rooms, maintenance shops, and rental units. UNM will carry out the maintenance functions, which are to be paid for by a lease payment from Taos local governments and revenues from the Harwood apartment rentals. Current

Harwood Director David L. Caffey is to remain a full-time UNM employee for the 1984-85 fiscal year, but by mutual agreement between the University and the Town of Taos, he will direct both the locally owned library and the UNM-owned Museum.

All UNM employees laid off as a result of the library transfer were employed in their same positions by the Town of Taos, with a 7% increase in pay over 1983-84 rates. The Town also agreed to accept sick and annual leave credits earned by these employees, thereby minimizing disruption of their benefits.

B. Financial

We have been on notice for some time now that the University expects both the library and the UNM-administered museum at the Harwood to become self-sufficient in the very near future. From a UNM point of view, this is accomplished with regard to the library by turning it over to the local governments and letting them come up with funds and determine the level of services. With the museum, we are approaching an effort to establish an endowment.

One of the major efforts of this year has been to seek outside funding for the library, so that when the time came for Taos local governments to pick up the full responsibility the amount would be manageable. To this end, we reduced staff and accumulated a substantial year-end balance of funds intended for library use. We also worked with New Mexico

Highlands University in seeking a State Library grant for Interlibrary Cooperation--a grant for improving academic services to Highlands' Taos students. Molycorp of Questa, Taos County's major industry, provided substantial corporate support with a two year grant totalling \$30,000. The grant provided \$20,000 in 1983-84, with an additional \$10,000 pledged for 1984-85. We also assisted the Friends of the Harwood in conducting a successful annual fundraising campaign in May. With this substantial "headstart," and counting on predictable revenues realized through library operations, we presented an expenditure and revenue budget to the Town of Taos for consideration by Taos local governments. The local governments finally appropriated some \$55,000, ensuring a successful transfer.

The only real accomplishment toward making the Harwood Foundation Museum of Taos Art self-sufficient came with the announcement of a 2-year grant totalling \$10,000 from the Skaggs Foundation of Oakland, California. This money will provide interim operating funds for the next two years, while we are accumulating endowment funds.

The most urgent matter for museum funding involves the planned sale of the Degen Property, owned by the University, adjacent to the Harwood, given in 1954 for the benefit of the Harwood. The sale has been delayed, but it should be completed in the coming year, providing a substantial nucleus for an endowment. Additional prospects also will be solicited, in

concert with the UNM Development office.

C. Museum of Taos Art

The major event of the year was our retrospective exhibit of the works of Emil J. Bisttram. The exhibited works were loaned by the Anschutz Corporation of Denver, Colorado, which also provided a grant of \$1500 for the production of an exhibit catalog.

A second special exhibit involved the works of five contemporary Taos wood workers. This exhibit excited quite a bit of local interest.

We also hosted a special exhibit of arts and crafts of Hispanic and Native American Taos residents in connection with our "Fiesta de Colores," a special open house event intended to introduce new users to the library and museum.

D. Harwood Library

Both library circulation and the number of cardholders increased. For the past few years, we have done well to "hold our own" financially, in the face of the almost total shift of funding responsibility.

At some point, when the library situation stabilizes under Taos local governments, we will have to consider the fact that our methods and technology have been standing still while the state of the art of library science has been moving forward. We anticipate that the library will be dragged into the computer age in the not-too-distant future, but that will be the concern of Taos local governments.

II. Staffing

The most significant change in staffing involved the transfer of Harwood Library staff members to the Town of Taos. Technically, this amounted to a lay-off of these employees from UNM and a new hire by Town of Taos.

A. Appointments to Staff

Bernice P. Martinez, 10-83

Lucy Narez, 12-83

Susann McCarthy, 1-84

Kathryn Albrecht, 3-84

B. Separations from Staff

Catherine N. Logue, 12-83

Susan Hill, 12-83

Alyce Dufaux, 3-84

Nova Martinez-Sarhan, 6-84

Kathryn Albrecht, 6-84

Lucy Narez, 6-84

Tracy McCallum, 6-84

Joyce Padilla, 6-84

Susann McCarthy, 6-84

Bernice Martinez, 6-84

Kathleen Rael, 6-84

Victoria Duran, 6-84

C. Staff Publications and Professional Activities

David L. Caffey: President, Taos County Historical
Society.

David L. Witt: "Monika Steinhoff," in JOURNAL OF THE PRINT WORLD (May, 1984). "Bill Acheff," in ARTISTS OF THE ROCKIES AND THE GOLDEN WEST (June, 1984). THE TAOS ARTISTS: A HISTORICAL NARRATIVE AND BIOGRAPHICAL DICTIONARY (Colorado Springs: Ewell Fine Art Press) 1984.

Regional Representative from New Mexico to the Mountain-Plains Museum Association.

Tracy S. McCallum: Officer in SOMOS, local Taos literary organization. Moderator for poetry series sponsored by SOMOS and supported by the New Mexico Humanities Council.

III. Grants

- A. Union Oil Foundation: We received and spent \$20,000 of a total general operating support grant of \$30,000. The remaining sum will be paid to the Town of Taos.
- B. Skaggs Foundation: We received notification of a 2-year grant totalling \$10,000 in support of Harwood Museum activities.
- C. State Library: We received an annual state support grant of \$2,555. We also made application, in collaboration with New Mexico Highlands University, for a special \$10,000 Interlibrary Cooperative Grant.
- D. Anschutz Corporation: The Anschutz Corporation awarded \$1,500 for production of a catalog in support of an exhibit of works from the Anschutz Collection.

IV. Significant Plans and Recommendations

- A. We badly need to carry out plans for establishing a Harwood Museum endowment, by selling the Degen Property and following up with contact of additional out-of-state persons of means who appreciate Taos art. It is recommended that the University Development Office and Real Estate Office, in collaboration with our own staff, proceed with efforts to market the property and approach endowment prospects.
- B. We plan to increase the number of special exhibits and exhibits of living artists in the Harwood Museum of Taos Art. We feel that this will increase our usefulness to the artistic community, as well as provide greater interest for our local and visiting constituencies.
- C. We are considering offering a limited number of continuing education opportunities in subject areas related to the traditional strengths of the Harwood.
- D. We plan to do some minor refurbishing of the Harwood Museum's West Gallery. Most notably, we plan to develop a lighting system that is more attractive and easier to maintain than the present system.
- E. We plan to be alert to every possible opportunity to increase the viability of the Harwood Museum's continued operation as a self-sufficient public service component of the University.

INDEPENDENT STUDY COURSES

Independent Study course enrollment for 1983-84, declined approximately 2% from the past year. Course revisions due to text edition changes remain a problem. Listed below are the 1983-84 course revisions, adds and drops.

Independent Study Courses Revised During 1983-84

- Economics 200C
- Economics 201C
- Economics 315C
- Engineering 203C
- English 100C
- English 101C
- English 102C
- English 220C
- Political Science 110C
- Political Science 200C

Independent Study Courses Added 1983-1984

Math 215 C

The number of students actually enrolled in courses during 1983-84, including new enrollments, carry-overs, withdrawals, and completions was 982. Five Hundred Sixty students were enrolled in all courses during 1983-1984 as compared to 574 in 1982-1983. The enrollment by month is depicted in the following chart.

Enrollments During July 1983-1984

July	36
August	70
September	69
October	31
November	45
December	26
January	57
February	36
March	24
April	41
May	86
June	<u>39</u>
Total	560

COMPARASION OF INDEPENDENT STUDY STATISTICS FOR LAST EIGHT YEARS

<u>Year</u>	<u># of Courses Offered</u>	<u>Enrollments</u>		<u>Total</u>	<u>% of In- crease or Decrease</u>	<u>States</u>	<u>New Mexico Counties</u>	<u>Countries</u>
		<u>Men</u>	<u>Women</u>					
74-75	85	164	192	356	D-21.9	32	26	6
75-76	87	178	222	400	I-12	27	24	5
76-77	94	251	393	644	I-63	30	27	7
77-78	91	278	471	749	I-16.3	32	26	3
78-79	89	137	259	396	D-40	24	27	2
79-80	91	230	443	673	I-58	27	26	11
80-81	69	270	403	673	0	36	23	9
81-82	85	238	348	586	D-12	31	23	1
82-83	70	190	384	574	D-2	29	23	5
83-84	70	198	362	560		24	24	5

NON-DEGREE STATUS

All students classified in Non-Degree status are under the jurisdiction of the Dean of the Division of Continuing Education and Community Services. Students who make application to attend the University of New Mexico just prior to the beginning of the semester and who have missed the deadline to enroll in regular status are accommodated by enrolling in Non-Degree status. The following page enrollment figures are reported for the past seven years.

The Division prepares and maintains personal folders for all students in Non-Degree status. Through these folders up-to-date academic records on approximately 12,000 students enrolled in Non-Degree status were kept during the past academic year. (This figure includes students enrolled for the Summer Session of 1982.)

Furthermore, the Division has responsibility for the probation and suspension of Non-Degree students who fail to maintain the University's academic standards of a two-point average. During the 1983-84 year, 61 Non-Degree students were suspended; 1,437 students were placed on probation; and 686 students were continued on probation.

COMPARISON OF STUDENTS REGISTERED IN
NON-DEGREE STATUS FOR THE PAST SEVEN YEARS
(Regular Semester only)

Year	Semester	Students	% Increase/Decrease over Corresponding Periods	Total for Year
1977-78	1st	4538	14.89% Increase	7645
	2nd	3107	19.63% Decrease	
1978-79	1st	3049	32.81% Decrease	6212
	2nd	3163	1.83% Increase	
1979-80	1st	3441	11.4% Increase	7283
	2nd	3842	21.1% Increase	
1980-81	1st	3876	11.2% Increase	7797
	2nd	3921	2.0% Increase	
1981-82	1st	4047	4.4% Increase	10,705
	2nd	4379	11.6% Increase	
	Sum	2279		
1982-83	1st	4417	9.0% Increase	11,479
	2nd	4575	4.0% Increase	
	Sum	2487		
1983-84	1st	4490	1.6% Increase	10,744
	2nd	4392	4.4% Increase	
	Sum '83	1862	25.1% Decrease	

Many of the students in Non-Degree status are in great need of advice and counseling. Since the Division receives no support for this activity, the Division serves as an administrative unit for these students.

Additionally, assistance is provided by the Division Registrar, Director of Credit Programs, the Dean and clerical staff to the extent possible. College advisement centers continue to provide advisement to Non-Degree students who seek assistance. In cooperation with the College Advisement Centers, the Division has produced a Non-Degree advisement guide to assist all students enrolled in Non-Degree status.

It is felt that Advisement efforts are still only stop gaps for Non-Degree students. At some point, the need for a Non-Degree advisor must be addressed.

NON-DEGREE PROBATION AND SUSPENSION FIGURES

	<u>Placed on Probation</u>	<u>Continued on Probation</u>	<u>Suspended</u>
1976-77	895	246	82
1977-78	963	316	72
1978-79	1001	287	67
1979-80	1055	314	67
1980-81	1178	351	108
1981-82	1392	414	124
1982-83	1738	604	135
1983-84	1437	686	61

DATE	TITLE	CEU'S	PARTICIPANTS
June 28,30 July 5,7	<u>Intro to Micro</u>	XIV 1.2	15
July 12,14,19,21	"	XIA 1.2	16
July 12,14,19,21	"	XIB 1.2	14
July 11,13,18,20	"	XIII A 1.2	16
July 12,14,16.	<u>Pascal</u>	1.2	6
June 28,30, July 5,7	<u>Basic IIIA</u>	1.2	14
Sept. 27,29 Oct. 1	<u>Pascal</u>		I C
Nov. 21,23,28,30	<u>Intro XII</u>		C (UNM F/S)
Sept. 6,8,10	<u>Intro 1200 - I</u>	1.2	15
Sept. 20,22,24	" II	1.2	16
Oct. 4,6,8	" III	1.2	11+3 no show
Oct. 18,20,22	" IV	1.2	16
Oct. 25,27,29	" V	1.2	16
Nov. 8,10,12	" VI	1.2	15
Nov. 15,17,19	" VII	1.2	16
Nov. 29, Dec. 1,3	" VIII	1.2	9
Sept. 19,21,26,27	" IX A	1.2	8 (UNM F/S)
Sept. 19,21,26,27	" IX B	1.2	16
Oct. 3,5,10,12	" X A	1.2	8
Oct. 3,5,10,12	" X B	1.2	12
Oct. 4,6,11,13	" XI B	1.2	6
Nov. 21,23,28,30	" XII A	1.2	15
Sept. 21,26,28	KNME XIV	1.2	13 @ \$50.00
Nov. 14-17	Fish & Wildlife	1.2	5 classes @ \$800.00 per session
Sept. 19,21,26,28	903 I Bernalillo	1.2	12 @ \$55.00

DATE	TITLE	CEU's	PARTICIPANTS
230 Oct. 31, Nov. 2,7 & 9	<u>Basic II</u>		I C
Oct. 25,27,29	<u>Basic I</u>		I C
Sept. 13,15,17	<u>Basic II</u> 1203	Sec. I 1.2	5
Oct. 11,13,15	"	" II 1.2	8
Nov. 29, Dec. 3,4	"	" III 1.2	7
Nov. 1,3,8,10	"	" IV A 1.2	7 (UNM F/S)
Nov. 1,3,8,10	"	" IV B 1.2	9
Nov. 7,9,14,16	"	904 Bernalillo 1.2	7 @\$55.00 1 @ \$45.00 S
Oct. 4,6,8	<u>Graphics</u> 1204	1.2	5
Sept. 20,22,24	<u>Visicalc</u> 1205-B	I 1.2	6
Oct. 11,13,15	<u>Visicalc</u> " II	1.2	7
Nov. 8,10,12	" " III	1.2	I C
Sept. 13,15,17	<u>Word Processor</u> 1206	B I 1.2	I C
Oct. 18,20,22	"	II 1.2	I C
Nov. 15,17,19	"	III 1.2	I C
Oct. 17,19,24,26	"	IV A 1.2	9
Oct. 17,19,24,26	"	" B 1.2	7
Sept. 19,21,26,28	<u>Computers for Kids</u>		I C
Oct. 3,5,10,12	"		I C
Oct. 17,19,24,26	"	Logo for Parent/Child	I C

I - insufficient enrollment
 II - canceled by UNM Bureaus
 III - canceled by co-sponsor & UNM Bureau

DATE	TITLE	CEU's	PARTICIPANTS
Jan. 24,26,28	<u>Intro To Micro.</u> Sec. A	1.2	16
Feb. 7,9,11	" " B	1.2	16
Feb. 21,23,25	" " C	1.2	15
Mar. 13,15,17	" " D	1.2	12
Mar. 20,22,24	" " E	1.2	16
Mar. 27,29,31	" " F	1.2	13
April 10,12,14	" " G	1.2	14
May 1,3,5	" " H	1.2	9
Feb. 6,8,13,15	UNM Faculty/Staff " I	1.2	17p.m., 15a.m.
Feb. 27,29 Mar. 5,7	" " J	1.2	11p.m. 14a.m.
Mar. 26,28 Apr. 2,4	" " K	1.2	15p.m. 13a.m.
Feb. 21,23,25	<u>Basic</u> " A	1.2	8
Mar. 20,22,24	" " B	1.2	5
Apr. 24,26,28	" " C	1.2	I C (UNM F/S)
Apr. 23,25,30, May 2	" UNM F/S " D	1.2	C
	<u>Pascal</u>		
Feb. 14,16,18	" A	1.2	5
Feb. 28, Mar. 1,3	<u>Graphics</u> " A	1.2	I C
Jan. 31, Feb. 2,4	<u>Visacalc</u> " A	1.2	6
Mar. 13,15,17	" B	1.2	7
Apr. 3,5,7	" C	1.2	I C
May 1,3,5	" D	1.2	I C
Jan. 31, Feb. 2,4	<u>Word Processor</u> " A	1.2	6
Mar. 6,8,10	" B	1.2	9
Mar 19,21,25,28	" C	1.2	I C

DATE	TITLE	CEU's	PARTICIPANTS
Jan. 24,26,28	<u>Data Base Management</u> Sec. A	1.2	7
Mar. 6,8,10	" B	1.2	I C
Mar. 6,8,13,15	<u>Computer Systems</u>		I C
Mar. 27,29,31	<u>Courses In Basic</u> Beginners	1.2	I C
Apr. 24,26,28	Intermediate	1.2	I C
Apr. 23	<u>Intro to Ada</u>		
Apr. 18 - July 11	<u>Academy On Computers</u>		
	<u>Intro To Micro.</u> Summer 84		
June 5,7,9	Sec. A	1.2	16
June 26,28,30	" B	1.2	16
June 18,20,25,27	" C	1.2	13 a.m. 13 p.m. (UNM F/S)
June 12,14,16	<u>Basic I</u> " A	1.2	9
June 19,21,23	<u>Data Base Management</u>	1.2	6
June 9,11,16,18	<u>Intro</u> Sec. F a.m.	1.2	13
" "	p.m.	1.2	12

DATE	TITLE	CEU's	PARTICIPANTS
Jan. 21 & 28	Drawing I		15
Jan. 24,25,26	Investments: Stocks, Bonds & Tax Shelters		19
Feb. 3 & 4	Effective Supervision Through T.A.		<u>I</u> C
Feb. 3 & 4	Personal Values Analysis		<u>I</u> C
Feb. 4	Hypnosis & Self Discovery: Exploring Inner Self		7
Feb. 4 & 11	Watercolor I		17
Feb. 8	Breathing Exercises for Migraines		10
Feb. 11	Being A Woman/Being A Manager		<u>I</u> C
Feb. 18 & 25	Drawing I		13
Feb. 25	Anorexia Nervosa & Bulimia	0.7	15
Feb. 7,10,14,16	Learning How To Change		9
Mar. 3	Self-Hypnosis for Self Improvement	0.7	2
Mar. 3 & 10	Watercolor II		15
Mar. 9 & 10	Dreams		12
Mar. 21,22,23	Fault Tree		<u>I</u> C
Mar. 23 & 24	The Import/Export Business	1.7	11
Mar. 24	Personal, Potential, Power & Effectiveness		<u>I</u> C
Mar. 6,8,13,15	Computer Systems		<u>I</u> C
April 7	Relating To The Opposite Sex		<u>I</u> C
April 7 & 14	Oil Painting I		12
April 6 & 7	Mail Order Business	.65	15
April 20,21,22	Video Production Workshop	1.7	12
April 28	Stress Management		<u>I</u> C
April 28 & May 5	Oil Painting I		<u>I</u> C
Me 3,4,5	Grantsmanship	1.7	<u>I</u> C

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DATE	TITLE	CEU's		PARTICIPANTS
May 12 & 19	Landscape: Sketching W/Pencil		<u>I</u>	C
May 22,23,24	Money Seminar	1.7	<u>I</u>	C
June 4,5,6,11,12,13	Investments: Stocks, Bonds & Tax Shelters	.7		15
June 6	Breathing Exercises for Migraines		<u>I</u>	C
June 5 & 12	Time Management & Goal Setting		<u>I</u>	C
June 8,9,10	Hugh O'Brien			90
June 12,13,14	Dreams		<u>I</u>	C
June 16	Parenting Can Be Fun		<u>I</u>	C
June 18,20,25,27	There Are No Opponents - New Techniques For Dealing W/Different People			13
June 19	Winning - How To Make The Most Of Your Best		<u>I</u>	C
June 11, 18, 15 &	The Self-Sufficient Solar Home			17
July 2,9,16,23,30	The Self-Sufficient Solar Home			20

I - insufficient enrollment

II - canceled by UNM Bureaus

III - canceled by co-sponsor & UNM Bureau

DATE	TITLE	CEU's		PARTICIPANTS
July 2	Drawing I			17
July 9	Drawing II			9
July 14 & 15	Mail Order Business	.65		13
July 14 - 16	Shensa			150
July 16	Dynamics of Male - Female		<u>I</u>	C
July 16	Self Hypnosis	.07		22
July 27 - 29	Fault Tree Analysis			17
August 4 - 6	Society of Certified Insurance Counselors			55
August	Career & Job Planning for Teens Only		<u>I</u>	C
Sept. 10 & 17	Drawing I			19
Sept. 20 - 22	The NRA Basic Pistol Markmanship Course		<u>I</u>	C
Sept. 23 & 24	Effective Management & Supervision Through TA	1.4	<u>I</u>	C
Sept. 24 & Oct. 1	Watercolor I			19
Sept. 24 & Oct. 1	Quick Sketch Safaries for Parent & Child		<u>I</u>	C
Sept. 24	Developing Functional Boards	.07	<u>I</u>	C
Sept. 24	Memory Techniques			16
Sept. 26 - 30	The NRA Police Combat Training Course			4
Sept. 30 & Oct. 1	Conscious Uses of Effective Selling	1.7	<u>I</u>	C
Sept. 30 - Oct. 1	The Import/Export Business	1.7		20
Oct. 8 & 15	Drawing II			9
Oct. 8	Beating The Business Failure Odds		<u>I</u>	C
Oct. 8	Self Hypnosis for Self Improvement	0.7		22
Oct. 12	Breathing Exercises for Migraines			16
Oct. 13, 20, 27	Printmaking Art: Without A Press		<u>I</u>	C

DATE	TITLE	CEU's		PARTICIPANTS
Oct 14 & 15	How To Start Your Own Consultant Business	1.4	<u>I</u>	C
Oct. 18 & 20	The NRA Basic Pistol Marksmanship Course		<u>I</u>	C
Oct. 22	Job Interviewing Strategies	0.7	<u>I</u>	C
Oct. 22 & 29	Watercolor II			9
Oct. 24 & 28	The NRA Police Combat Training Course			6
Oct. 29	Removing Psychological Barriers To Sexual Expression		<u>I</u>	C
Oct. 29	Grieving & Transforming Ourselves		<u>I</u>	C
Nov. 5	Family Problem Solving: Improving Parenting, etc.		<u>I</u>	C
Nov. 5 & 12	Oil Painting I			12
Nov. 12	Communicating Effectively Under Pressure		<u>I</u>	C
Nov. 15 & 17	The NRA Basic Pistol Marksmanship Course			8
Nov. 18 & 19	Mail Order Business	.65		12
Nov. 18	Dealing Effectively W/Stress	0.7	<u>I</u>	C
Nov. 21	The Art of Negotiating	0.7		
Nov. 28 & Dec. 2	The NRA Combat Training Course		<u>I</u>	C
Dec. 2, 3, 4	Video Production Workshop: Basic Porta Pac & Editing	1.7		10
Dec. 3	Effective Personnel Management	0.7	<u>I</u>	C
Dec. 3 & 10	Oil Painting II			10
Jan. 7 & 14	Landscape II		<u>I</u>	C
Nov. 11 & 12	Ethnicity	1.1		176

<u>SECTION</u>		<u>ENROLLMENT</u>	
A	June 4 - 8 1984	16	9:00 - 12:00
B	June 4 - 8 1984	16	1:00 - 4:00
C	June 11 - 15 1984	16	9:00 - 12:00
D	June 11 - 15 1984	16	1:00 - 4:00
E	June 18 - 22 1984	16	9:00 - 12:00
F	June 18 - 22 1984	16	1:00 - 4:00
G	June 25 - 29 1984	16	9:00 - 12:00
H	June 25 - 29 1984	16	1:00 - 4:00

OTHER UNM APPROVED CEU ACTIVITIES

LOG NO.	DATE	TITLE	CEU's OFFERED
4219	July 12 - 13	Management Skills for Women advanced concepts	1.0
4220	July 20	Time Management	0.7
4221	July 21	Basic Employee Development: Training Your Employees	1.0
4222	July 28 - 29	Basic Project Management	1.4
4223	August 2 - 4	Improving Personal Effectiveness Within Your Organization	1.05
4224	August 9 - 10	Managing Stress	1.4
4225	August 16	Effective Delegation	0.7
4226	August 11	New Age Thinking - An Investment In Excellence	2.2
4227	Sept. 5 - Nov. 14	Spanish For Medical Personnel	1.6
4229	September 30	Defining Goals & Objectives	0.65
4230	Sept. 14 - Dec. 14	Contact Albuquerque Training	3.3
4231	Oct. 10	Forging New Mexico's Future	1.6
4232	August 9	Myths of the Non-Profit Sector	0.7
4233	August 8	Management Applications of Mini & Micro Computers	0.7
4234	August 10	Functional Accounting Allocation for Non-Profit Organizations	0.35
4235	August 11	Social Marketing & The Not For Profit Organization	0.7
4236	August 12	Making Performance Appraisal Work for The Non-Profit Org.	0.7
4238		A Systematic Tool for Recreation	0.6
4241	Sept. 8 - Dec. 15	Basic Management Program	4.5
4242	Sept. 6 - 7	Budgeting Principles for Managers	1.4
4243	September 14	Communication Skills & Techniques	0.7
4244	Sept. 20 - 21	Managing The Difficult or Unsatisfactory Employee	1.4
4245	Sept. 27 -29	Computer & Data Processing Essentials for Managers	2.0
4246	Oct. 4-5	Essentials of Team Management	1.4

LOG NO.	DATE	TITLE	OFFERED
4247	Oct. 10 - 13	Acct. & Finance Essentials for Exec. Sec. & Admin. Asst.	1.5
4248	Oct. 24 - 25	Neuro - Linguistics Programming	1.4
4249	Aug. 29 - Sept. 1	Mental Health	0.9
4250	Aug. 29 - Sept. 1	Physical Health	0.75
4251	Aug. 29 - Sept. 1	Volunteerism	0.75
4252	Aug. 29 - Sept. 1	Management Policy & Planning	0.9
4256	Nov. 8 - 10	Management by Objectives	1.5
4257	Nov. 8 - 10	Workshop for Executive Secretaries	1.5
4258	Nov. 14 - 16	Accounting & Finance Essentials	2.0
4259	Nov. 21 - 22	Computer & Data Processing Fundamentals for Exec. Sectys.	1.4
4260	Nov. 29 - 30	Managing People	1.4
4261	Dec. 6	Mgmt. Application of Mini & Micro Computers	0.7
4262	Dec. 7 - 8	Controlling Anger for Improved Managerial Performance	1.4
4263	Dec. 13	Meeting for Results	0.7
4264	Oct. 17 - 30	Orient - American Nurse Supervisors Clinical Study	3.5
4266	Oct. 17 - 21	Certification Institute for Municipal Clerks	3.0
4268	Oct. - Nov.	Neonatal Nurse Practitioner Program	6.0
4271	Feb. 15 - 23	Effective Communication for Health Care Personnel	1.0
4272	Jan. 30	Democratic Thinking	1.2
4273	Jan. 30	Analytical View of Yourself & Your View of the World	1.5
4274	Jan. 17	English as a Second Language	3.0
4275	Jan. 30	Psychological Aikido for Supervisors & Managers	0.6
4276	Feb. 21	Strengthening Employee Interviewing Techniques	0.7
4276	Feb. 23 - 28	Self- Management and Wellness	0.4

LOG NO.	DATE	TITLE	CEU's OFFERED
246 4278	Jan 27 - May 4	Base Management Program	4.5
4279	Jan. 11	Personal Computer As A Management Tool	0.7
4280	Jan 12 - 13	Management Skills for Women: Fundamental Concepts	1.0
4281	Jan. 19 - 20	Improving Productivity	1.4
4282	Feb. 2	Professional Effectiveness	0.7
4283	Feb. 8 - 9	Performance Appraisals	1.4
4284	March 9 - 11	Investment in Excellence	1.9
4285	March 13 - 15	Strategic & Long Range Planning	1.6
4286	March 22 - 24	Positive Discipline	1.0
4287	March 27 - 28	Assertiveness Skills	1.0
4288	April 4 - 5	Implementing Team Management	1.4
4289	April 17 - 18	Making Change Work for Your Organization	1.4
4290	April 25	Time Management for Exec. Secty's & Admin. Asst's.	0.7
4291	April 26	Leadership Styles and Skills	0.7
4292	June 11 - 14	Intro to Micro-Computers	2.4
4293	June 11 - 14	Starting Your Own Marketing Business	3.2
4294	June 4 - 7	Baking From Scratch	3.2
4295	June 4 - 7	Certification Workshop for Opticians	3.2
4296	June 4 - 7	Graphic Arts Design	3.2
4297	June 4 - 7	Small Business Accounting	2.4
4298	June 4 - 7	A Review of Certified Professional Secty. Exam	3.2
4299	June 25 - 28	Special Topics in Librarianship	3.2
4300	June 4 - 7	Alcoholism: Another Look	2.4
4301	March 1 - 2	Therapeutic Recreation Workshop	1.0
4302	March 4 - Dec. 31	Overseas: American Clinical Study Program	3.5
4303	Jan. 1 - Dec. 31	Presentation Strategies	2.4
4304	Jan. 1 - Dec. 31	Preparing Major Documents	2.4

LOG NO.	DATE	TITLE	CEU'S OFFERED
4305	Feb. 20	Time Management	0.65
4306	Feb. 28	Management Effectiveness	2.0
4307	April 1	Leading	1.3
4308	Jan. 31	Time Management & Better Meetings	0.65
4309	Jan. 30 - June 30	Diesel Truck Driver Training	12.0
4310	March 30	Management Effectiveness	2.0
4311	May 2 - 3	Forecasting Techniques	1.4
4312	May 8 - 10	Workshop for Exec. Secty's	1.5
4313	May 9	Developing Personal & Org. Excellence	0.7
4314	May 22 - 23	New Ideas in Office Administration	1.0
4315	May 29 - 30	Managing People	1.4
4316	June 6	Successful Writing for Managers	0.7
4317	June 12	Cooperative Negotiating Skills	0.7
4318	June 19 - 20	Controlling Anger for Improved Managerial Performance	1.4
4319	Jan. 31	Career Renewal	0.65
4320	Jan. 31	Managing Stress & Conflict	0.65
4321	Jan. 29 - 31	Institutional Development	0.65
4322	Jan. 29 - 31	Individual Development	0.65
4323	April 12	Recruitment & Selection	0.65
4324	June 25 - 29	Micro-Computers in Elementary Education	3.2

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ANNUAL REPORT

THE UNIVERSITY OF NEW MEXICO-GALLUP CAMPUS

July 1, 1983 - June 30, 1984
John M. Phillips, Ed.D., Campus Director

THE UNIVERSITY OF NEW MEXICO-GALLUP CAMPUS

July 1, 1983 - June 30, 1984

John M. Phillips, Ed.D., Campus Director

ENROLLMENT

The Gallup Branch is continuing to enjoy constant enrollment increases. Fall 1983, enrollment amounted to fourteen hundred fifty four (1454) students which resulted in six hundred thirty five (635) FTE. This indicates an increase of nearly fourteen percent (14%). Spring 1984, enrollments jumped to sixteen hundred ninety (1690) students resulting in seven hundred forty seven (747) FTE. This represents a student increase of nearly thirteen (13%) over last spring's fourteen hundred seventy two (1472) students.

In looking over class enrollments it is interesting to note that more day time classes are running, indicating that the Gallup Campus is no longer a late afternoon and evening college. The college is attracting more and more of the area high school students.

CURRICULUM AND PROGRAM DEVELOPMENT

On January 27 and 28, 1984, the Gallup Campus hosted the New Mexico International Reading Association's 12th Annual State

Conference. Some 800 teachers and college professors from around the Southwest participated in the conference. Sixty speakers and workshops were held, many coming from out of state.

In the past year, a program paralleling the New Mexico State Police Academy was put in place. Students will be taking course work on the Gallup Campus that will prepare them for the State Patrolmen Examination. They will not have to attend the academy upon successful completion of the test.

During the fall 1983 semester, courses in Tribal Enterprise were offered for the first time in response to a felt need by the Navajo Tribe. A degree program is currently under development.

During the first of the year, the Gallup Campus was designated as an Area Vocational School with the first students on campus this fall. The program is unique in that high school students from Gallup McKinley County Schools, Rehoboth Christian School, Zuni Public Schools and Ft. Wingate Bureau of Indian Affairs School are participating in the program. The college is offering courses in Business Technology and Construction Technology as its first programs. Additional programs are planned for the future. A full time faculty member in Construction Technology has also been added to the staff.

COMMUNITY EDUCATION

The increase in the Community Education Department has been a noteworthy accomplishment of the Gallup Campus during the last year. Classes are designed to meet the needs of the widest possible cross-section of the community by providing opportunities to increase skills, information, knowledge and social interaction. This summer, a new program was initiated through Community Services that concentrated on classes for children of the community. There are no entrance requirements for these courses as they are intended for youngsters, teenagers, the general public and the elderly.

The total number of students completing community services courses in 1982-83 was 271. In 1983-84, the total number of students participating was 1,197, a significant accomplishment in one year. The total FTE for 1982-83 was 4.11, in 1983-84 it was 34.25, an increase of more than 800%.

Each semester an increasing number of courses are offered by the Gallup Branch in Zuni. Discussions with the Zuni School Board have encouraged the expectation that an off-campus center will soon be in operation in Zuni. This would enable improved and continual service to the many fine Zuni students.

CAMPUS EXPANSION

The new construction on campus is progressing very well. These new spaces are now badly needed. When completed, the campus will gain 11 classrooms, a welding instructional shop, a construction technology shop, a grand new main entrance and a student center area. It will also provide an art wing and, for the first time, a facility that will provide food service for students.

The New Mexico State general obligation bond which provides capital outlay funds for many State construction projects will be voted on in November. It contains \$300,000 for the Gallup Campus. This will be used to complete some additional space into 8 more classrooms.

PERSONNEL

It is gratifying to be able to state that the Gallup Branch has not lost any of its fine faculty members this past year. However, due to the growth in the student body, additions in curriculum and increased program offerings four new faculty positions were created.

The enlarged nursing department has retained Ms. Ruth Rhoad, her specialty area is medical-surgical and psychiatric nursing.

The implementation of the Area Vocational School has created two new full-time faculty positions. Mr. Robert Cain has been engaged as an instructor in the Construction Technology Program. Mr. Neil Williams has been hired in the Business Technology Program to respond to the additional demand of the Area Vocational School students.

Due to increase of student interest in the education department an additional full-time faculty member has been retained. Dr. Ralph Casebolt has accepted this position.

CONCLUSION

The Gallup Campus has enjoyed another very successful year. The campus expansion plan, enrollments and curriculum development have again advanced significantly. With the fine local support we enjoy, the energetic faculty and the support of our main campus, the future of the Gallup Campus will continue to be exciting and professionally rewarding for everyone involved.

Community organizations and individuals continue to express their pleasure and pride at having a Branch of the University of New Mexico in Gallup. This in turn is the Gallup Branch's most valued asset.

The Report of the Los Alamos Branch College

July 1, 1983 - June 30, 1984

Herbert C. Lyon, Director

I. Enrollments and Finances.

The year 1983-84 saw maintenance of student enrollments at the University of New Mexico-Los Alamos. Enrollment in the Fall was 763 students for 284 FTE, and in the Spring enrollment it was 747 for 270 FTE. In Summer 1983, we had 375 students for 92 FTE, an increase of 21% over the previous summer. The final official FTE enrollment figure for 1983-84, based upon Summer and Fall 1983 and Spring 1984, was 323, compared with 327 for the previous year. The largest components of this enrollment continue to be in computer science and mathematics classes.

State funding for Instructional and General purposes increased during 1983-84 based on enrollment predictions over a number of previous years. It should be noted that UNM-Los Alamos, during its first three years, enrolled considerably more students than had originally been predicted, and was consequently operating on an inadequate budget. The 1984 New Mexico Legislature thus appropriated \$940,900 to UNM-Los Alamos for 1984-85, a significant increase.

II. Facilities.

On January 6, 1984, Governor Toney Anaya was present for the formal dedication of the new UNM-LA Campus of approximately 20,000 square feet. In addition, the major portion of the construction of the new BLS Building was constructed during 1983-84. This facility will have about 8,000 square feet of laboratory space and

2,000 square feet of classroom and office space. The 1984 New Mexico Legislature appropriated \$400,000 for the finishing and equipping of this building, contingent upon approval by the voters of New Mexico in the November, 1984 General Election. The citizens of Los Alamos are extremely pleased with these new facilities, and they are being used extensively.

III. Curricular Developments.

Based on the very positive results of the extensive needs analysis conducted in 1983 by the Behavioral Research Division of UNM, the curriculum for a Basic Laboratory Skills (BLS) program has been developed by the new full time BLS faculty member, Al Locke, in conjunction with a broadly representative citizen-professional task force. Many of the courses in this curriculum are competency-based, so that students may progress at their own individual speeds, depending upon their particular abilities. The curriculum includes three new Associate of Applied Science Associate Degrees in Chemical, Hazardous Materials, and Mechanical Technologies. These three Associate Degree programs have been approved by the Library and Curricular sub-committees of the UNM Faculty Senate. Completion of the UNM approval process is expected in Fall 1984. UNM will begin to offer courses in the BLS area in the Fall 1984 semester. A Certificate Program in BLS will be developed in 1984-85.

The curriculum for the Associate of Applied Science degree in Electronics (with a Laser option) was revised in conjunction with UNM Albuquerque and TVI and was approved by UNM in Spring 1984.

An Associate of Applied Science degree in Criminal Justice was developed and will be jointly offered by UNM-LA, Northern New Mexico Community College and Santa Fe Community College. This degree program, which was approved by the UNM Faculty Senate in Spring 1984, is a prototype for the State in that each institution will offer a particular option: viz., UNM-LA will offer an option in Security, Northern New Mexico Community College in Law Enforcement and Santa Fe Community College in Corrections. A core of general education and criminal justice courses is common for the three institutions. Students may take courses simultaneously from all three institutions, and courses are transferable from one institution to another. UNM-LA will begin to offer the new courses in this program in Fall 1984. (Several criminal justice courses have already been offered by UNM-LA.) A Certificate in Criminal Justice (Security) is also available.

Several courses in the area of Computer-Aided Drafting and Design were offered during the year, based on the recommendations of the CADD Task Force, in both electronic and mechanical CADD. This group continued to meet and recommended a revision of the curriculum to include a generic low level introductory course and refinement of the electronic and mechanical CADD courses. A new course in architectural CADD was also proposed. These new CADD courses will all use IBM Personal microcomputers and will be offered during 1984-85. The CD 2000 computer link to Los Alamos National Laboratory computers will be discontinued.

UNM-LA faculty members continue to develop new courses in their areas of expertise, including "Introduction to IBM-PC's",

"Introduction to Microcomputers", and "Music Theory for Non-majors". UNM-LA also offered computer science courses for Los Alamos Schools personnel.

IV. Computer.

The UNM-LA VAX computer had its disk storage capacity upgraded from 166 megabytes of storage to nearly 900 megabytes. Additional dial-up lines were installed, and several IBM Personal computers were purchased, for both instructional and administrative use. These were supplemented with many peripherals, particularly for computer-aided design and drafting.

V. Relationship with UNM-Albuquerque.

UNM-LA continues to enjoy good relationships with the Albuquerque Campus. Greg Nunz continues to serve as a member of the Faculty Senate Curricula Committee and Barbara DuBois was reelected as UNM-LA representative on the UNM Faculty Senate.

A number of concerns have arisen however during the year and the UNM-LA Advisory Board recommended that UNM Regents should be invited to discuss these issues with the UNM Branch Advisory Boards. A letter of invitation to such a meeting was sent to the UNM Regents in February.

VI. Staff

The following staff changes occurred during 1983-84. Al Locke was hired as a full time faculty member in Basic Laboratory Skills in July 1983. Gloria Montoya was hired as receptionist in November. Mont Jones was hired as a full time Library/Bookstore Assistant in November. Michael LaGrange was promoted to Maintenance Technician in January, and Frank Pacheco was hired in

December as Custodian. Tina Salazar-Langley was promoted to Student Adviser III, Rita Critchfield to Personnel Specialist II, Mary Baxter to Associate Director for Student Services, and Linda Reichert to Library/Bookstore Coordinator. Letitia Naranjo de Lujan was hired as Special Programs Adviser and Jim Spray was hired as Career Counselor in January. He resigned in April. Geraldine Edwards resigned as Staff Assistant for Instruction in May.

During 1983-84 a UNM-LA Faculty Assembly was created, the President being Martin Gursky. Other officers were also elected, various sub-committees were formed in the areas of Library, Budget, Curriculum Student Services, and Faculty Development, and a constitution was written.

Greg Nunz and Barbara DuBois continued to serve as Division Heads of Science and Humanities respectively. Professor Nunz served on the UNM Faculty Senate Curricula Committee in 1983-84, and he will continue in that position in 1984-85. Professor DuBois represented UNM-Los Alamos on the Faculty Senate in 1983-84 and will continue to do so through 1984-85.

ANNUAL REPORT OF UNM VALENCIA BRANCH

July 1, 1984 - June 30, 1984

Omero Suarez, Director

The 1983-84 academic year saw continued transition in the Student Services, Academic Services, and Business areas of the college. The most significant changes appeared in the development of the new scheduled facility.

The Valencia Campus has continued to make progress in its development for a permanent campus in Tome, New Mexico. The following is a chronology of events during the 1983-84 academic year:

1. October 18, 1983 - The voters of the Belen and Los Lunas School Districts passed a 2.5 million dollar bond issue.
2. November 18, 1983 - The University Board of Regents approved the preliminary design for the Valencia Campus in Tome, New Mexico.
3. January 22, 1984 - The UNM Valencia Campus Advisory Board adopted a resolution supporting the Tome site for the new campus.
4. January 27, 1984 - The Board of Valencia County Commissioners endorsed and supported the Tome site under Resolution 84-24 recorded in the Valencia County Courthouse.
5. Spring 1984 - The Valley Improvement Association obtained right-of-way and a license from the Middle Rio Grande Conservancy District to handle drainage at the Tome site. The Valencia County Commission voted to grant an easement that would lead to the Rio Grande River.
6. April 26, 1984 - The UNM Valencia Campus Advisory Board voted to proceed with the selling of the bonds for the construction of the first phase of the Valencia Campus in Tome.

VALENCIA CAMPUS ANNUAL REPORT (83-84)

7. May 11, 1983 - The Board of Regents accepted the selling of bonds for the Valencia Campus.
8. Architectural plans are now being finalized with anticipation of construction beginning December 1984.

I. ENROLLMENT DATA

Listed below are some comparisons in enrollment figures of the 82-83 and 83-84 semesters:

<u>FALL COMPARISONS</u>	<u>Fall 1982</u>	<u>Fall 1983</u>
Credit Area		
Headcount.....	637	695
FTE.....	280	284
Non-Credit Area		
Headcount.....	100	227
<u>SPRING COMPARISONS</u>	<u>Spring 1983</u>	<u>Spring 1984</u>
Credit Area		
Headcount.....	938	894
FTE.....	366	297
Non-Credit Area		
Headcount.....	141	396
<u>SUMMER COMPARISONS</u>	<u>Summer 1982</u>	<u>Summer 1983</u>
Credit Area		
Headcount.....	333	420
FTE.....	89	108
Non-Credit Area		
Headcount.....	0	83

II. STUDENT SERVICES

A. ORGANIZATIONAL STRUCTURE

1. CAREER SERVICE CENTER - A career services division was created within the Student Services Office. A Guidance Information System Service, formerly

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available through the Skills Development Center was moved to the Student Services Office to serve as the core for a more fully developed Career Services Center. The Career Service Center is housed within the office area of Student Services; and, in addition to the GIS, the Center includes a career information library, aptitude and interest testing, and career counseling.

- 2. STUDENT EMPLOYMENT OFFICE - A part-time Student Employment Office was established in January with the purpose of providing jobs for students and spouses at Valencia Campus and as a service to the community. Employment positions were solicited from local businesses and included occasional positions and permanent part-time positions.
- 3. FINANCIAL AID PROCESSING - Financial aid services at the UNM Valencia Campus were expanded by processing both first and second reviews at the local campus rather than processing on Main Campus. The change resulted in a coordinated process and definite awarding time for those students who applied by the deadline. All students who applied at the appropriate time will be notified of awarding prior to registration.

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4. ADVISEMENT FILE SYSTEM - An advisement file system was established in the Student Services Office which was separate from the record system in the Registrar's Office. Advisement sheets, programs of study, and a tracking system for both Valencia Campus degree programs and Main Campus programs were established. Updated transcripts and advisement sheets were used for academic advisement and degree checks. The separation of advisement records from the Registrar's Office allowed for more convenient student advisement.

B. RECRUITMENT EFFORTS

1. COLLEGE DAYS PARTICIPATION - The Student Services Office of the Valencia Campus participated in College Days activities at Belen, Los Lunas, Socorro, Mountainair, Estancia, and Moriarty. Initial meetings with high school counselors were followed by presentations at each high school on their designated College Day.
2. CAREER FAIRS - The Valencia Campus participated in Career Fairs at Belen and Los Lunas High Schools and hosted a Career Day for the Senior Class of Mountainair.

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3. RECRUITMENT MATERIALS DEVELOPED - Recruitment materials in the form of folders, information cards and posters were developed for distribution within the community.
- C. STAFF CHANGES WITHIN STUDENT SERVICES AREA
1. APPOINTMENTS TO STAFF
 - a. Donna Romero, Assistant Coordinator of Student Services, February 1, 1984
 - b. Jeanette Garza-Otero, Counselor (Occasional Status), June 4, 1984
 - c. Gayla Truelock, Coordinator of Educational Services at the Central New Mexico Correctional Facilities, May 10, 1984 (temporary), July 16, 1984 (permanent)
 2. SEPARATIONS FROM STAFF
 - a. Alicia Alarcon, Counselor, September 13, 1983
 - b. Edna Rivera, Secretary, June 8, 1984
- D. SIGNIFICANT PLANS AND RECOMMENDATIONS FOR THE NEAR FUTURE
1. EXPANSION OF CAREER SERVICES OFFICE - The Career Services Office will be expanded by making the GIS available to the community at large through an organized campaign to advertise its availability.
 2. RECRUITMENT EFFORTS EXPANDED - Recruitment efforts will be expanded through the use of the GIS and the assignment of an individual to serve as a liaison between the schools and the campus.
 3. COMPUTER USE - Advisement records will be placed on

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the computer for immediate access and updating.

4. REGISTRATION COMPUTERIZED - Registration procedures will be computerized as much as possible and hopefully linked by computer to Main Campus.

E. OUTSIDE PROFESSIONAL ACTIVITIES OF STUDENT SERVICES STAFF

1. New Mexico Placement Council, Santa Fe, N.M., November 9, 1983
2. Financial Aid Officers Meeting, Albuquerque, N.M., October 11, 1983
3. JTPA Conference, Albuquerque, N.M., November 14, 1983
4. New Mexico Counselors Meeting, Portales, N.M., January 17-18, 1984
5. New Mexico Placement Council, Albuquerque, N.M., March 7 and 8, 1984
6. New Mexico Association of Registrars and Admission Officers, Las Cruces, N.M., March 14-15, 1984
7. "Vocational-Technical Planning--A Process", Albuquerque, N.M., May 2-4, 1984
8. NMCIS, Roswell, N.M., November 16-17, 1983
9. New Mexico Counselors Meeting, Portales, N.M., January 17-18, 1984
10. Career Services Workshop, Santa Fe, N.M., March 8, 1984

III. ACADEMIC SERVICES

A. ORGANIZATIONAL STRUCTURE

1. THREE DEPARTMENTS CREATED - The UNM Valencia Campus academic program was divided into three departments under the supervision of department chairs reporting

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to the Associate Director for Instruction. The three departments are:

- a. Department of Math, Science, and Technical Engineering
 - b. Department of Business and Service Occupations
 - c. Department of General Studies
2. ADMINISTRATIVE COUNCIL ORGANIZED - An Administrative Council, consisting of the supervisors of each campus department, was organized to (a.) assist the Branch Director in decision making and (b.) open communication channels between all departments on campus. The Council meets with the Director every Friday morning.

B. ACADEMIC PROGRESS

1. NEW DEGREE APPROVED - A new Associate of Arts degree in Business Administration was approved during the spring semester 1984.
2. INTERNSHIP ESTABLISHED - An Electronics Technology internship in pulse power technology was established at Sandia Labs.

C. STAFF AND FACULTY CHANGES IN INSTRUCTIONAL AND ADMINISTRATIVE AREAS

1. FACULTY APPOINTMENTS

- a. Gregory Candela, Ph. D., Chair, Department of General Studies, August 13, 1983
- b. Karla Watanabe, Ed. D., Chair, Department of Business and Service Occupations, August 13, 1983.

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2. FACULTY SEPARATIONS

- a. David Knott, M.S., Electronics Technology Instructor, May 11, 1984

3. STAFF APPOINTMENTS

- a. Richard Melzer, Ph. D., Associate Director, August 15, 1983
- b. Patricia Kelliher, Ph. D., Coordinator of Student Services, August 9, 1983
- c. Jose Cano, M.P.P., Business Manager, December 21, 1983
- d. Joaquin Gurule, Custodian, March 26, 1984

4. STAFF SEPARATIONS

- a. Beatrice Melendrez, M.A., Co-Coordinator of VIPS Project, June 15, 1984
- b. Roland Wildman, M.B.A., Business Manager, November 13, 1983
- c. Carol Weinles, M.L.S., Librarian, May 25, 1984
- d. Ron DeCarolis, Custodian, December 29, 1983

D. SIGNIFICANT PLANS AND RECOMMENDATIONS FOR THE FUTURE

- 1. CATALOG - UNM Valencia Campus's first campus catalog was written during the spring semester. It will be published early this fall.

E. PUBLICATIONS

- 1. Richard Melzer, "Wild to Fight: The New Mexico Rough Riders in the Spanish-American War," New Mexico Historical Review, Vol. 59 (April 1984).
- 2. Richard Melzer, book review, Hispanic American Historical Review, Vol. 63 (November 1983)

F. OUTSIDE PROFESSIONAL ACTIVITIES (INSTRUCTIONAL AND ADMINISTRATIVE AREAS)

1. "Vocational-Technical Planning--A Process," New Mexico State Department of Education, Albuquerque, May 2-4, 1984
2. "The Challenge of Organizational Cultural Changes," UNM, March 30, 1984
3. "Partners for Excellence: High Schools and Community Colleges," New Mexico Association of Community and Junior Colleges, San Juan College, Farmington, NM, June 6-8, 1984
4. "Learning Styles and The Adult Learner," an interactive video teleconference, UNM, November 17, 1983
5. Departmental Leadership Institute, Vail, Colorado, May 6-9, 1984
6. National Adult Literacy Teleconference, New Mexico State Department of Education, Albuquerque, February 29, 1984
7. New Mexico Library Association Conference, Albuquerque, April 11-14, 1984
8. CAD/CAM Workshop for Construction Technology Instructors, UNM Valencia Campus, March 16, 1984
9. Vocational-Technical Teacher Conference, New Mexico State Department of Education, Ruidoso, March 12, 1984
10. Association of New Mexico Learning Resource Center Conference, Albuquerque, April 13, 1984
11. Women in Transition Conference, University of Albuquerque, May 11-12, 1984
12. "High Technology and The Humanities," University of Albuquerque, March 30, 1984

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G. HONORS AND AWARDS (INSTRUCTIONAL AREA)

1. Altha Crouch, Coordinator of Community Education, was the recipient of the American School Health Association's Distinguished Service Award in 1983.

III. BUSINESS AFFAIRS

A. PHYSICAL FACILITIES

1. CAMPUS SPACE EXPANDS - In the summer of 1983 an additional 7,000 square feet of space was rented for additional classroom use in the Rio Communities Center located adjacent to our campus.
2. NEW CAMPUS - Plans were developed and formulated for passage of a local bond issue to help provide funds for construction of new facilities for a permanent campus for the Valencia Branch on land donated by the Valley Improvement Association. The bond issue for approximately \$2,500,000 was passed on October 18, 1983. The bonds were sold on June 26, 1984, at a very favorable interest rate.

The remainder of the funds necessary to complete Phase I will become available upon passage of a statewide general obligation bond issue in the fall of 1984. The bond issue is for approximately \$2,490,000.

Work was begun on the drawings and specifications for construction of Phase I for the new facilities. The bid documents are expected to be

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completed early in the Fall with the subsequent bid opening before the end of the year. Construction should also begin before the end of the year.

3. EQUIPMENT ACQUIRED - Grant and contract funds from the Department of Vocational Education were used to acquire much needed equipment for the vocational programs and for the library. Among the programs purchasing equipment were:

Computer Science -- microcomputers and related software

Business Technology Lab -- microcomputers, dedicated word processors, and typewriters

Construction Technology -- computer assisted drafting system and related software

Electronics Technology -- digital data analyzers

B. SIGNIFICANT PLANS AND RECOMMENDATIONS

1. NEW CAMPUS - We are planning to submit the proposal during FY 84-85 for construction of Phase II of the new campus.
2. MAINFRAME COMPUTER TIE-IN - Plans are underway to install the necessary hardware and software to allow the Valencia Campus to tie-in to the mainframe computer on the Main Campus and allow access to student records and some financial records. Use will be

limited to accessing the information. This should allow for significant improvement on the timeliness of financial and budgetary reports, which are currently quite delayed. Additionally, plans will be completed to automate other financial and administrative systems presently done manually.

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ANNUAL REPORT 1982/1983

SCHOOL OF ARCHITECTURE AND PLANNING

George Anselevicius, Dean

ANNUAL REPORT 1982/1983
SCHOOL OF ARCHITECTURE & PLANNING
George Anselevicius, Dean

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I. DEAN'S STATEMENT

I am very pleased to report that we have made major moves forward. The curricula of the architecture and planning programs have been refined and are more demanding and provide more choices and opportunities, especially at the graduate level. Fourteen new courses have been added to the School's programs in 81/82 and 82/83.

In 81/82 we were visited by a team of the National Architecture Accreditating Board (NAAB) on their regular five year visit to the School, and they reported to then-President Davis. The visit was a very positive one, and so was the report (October, 1983). The full accreditation of our professional degree in architecture, the Master of Architecture, continues.

We are concerned both with the future and the past. Thus, we now offer more computer courses (we have spent \$12,000 buying new computer equipment) and courses dealing with energy-conscious design, as well as a new course by Associate Professor Edie Cherry in preservation, conservation, and recycling of buildings. Lectures and film series, exhibitions, visiting foreign architects, and local practitioners now play an important part in the life and spirit of the School.

Our physical environment has been and is being improved as the remodelling of the School continues in the fall (83).

I am pleased to report that efforts to start a "Friends of the School of Architecture and Planning" organization are underway and support has reasonable success to date.

However, the School needs at least one planning position (resource planner) and one architecture position (computer aided design) as well as secretarial support (one position) and support in staff in the computer center, resource center, and shop. Also a CAD computer system should be made available to our students.

Personally (among other things), I have been teaching one studio each semester (12 contact hours per week), have lectured at Arizona State and University of Arizona, have reviewed Architecture thesis proposals at MIT, have been consultant to the City of Albuquerque downtown planning efforts, have presided over panel discussions at the National Association of Schools of Architecture annual conference in Santa Fe, as well as at the National ACSA conference in Cranbrook.

II. DEGREES AND PROGRAMS

A dual-degree program, Master of Community and Regional Planning and Master of Latin American Studies, has been developed with the Latin American Institute and has been approved by the University.

Curriculum Development

1983 Curriculum Changes for the Master's Degree in Planning:

The first revision of the Master's Degree in Community and Regional Planning was completed in the spring. The revision adds more applied methods courses and additional work in the Southwest context, cultural context, and regional planning. The thesis and professional project option stays in place, with more clarity and articulated criteria for the terminal professional project. Total hours for completion of a MCRP is 52, increased by 10 graduate credit hours.

The new curriculum reflects the program's response to the first two years of operation as a separate formal degree and the addition of two dual-degree options (Latin American Studies and Public

Administration). Students collaborated with faculty on curriculum revisions.

New Courses in Planning 82/83

Land Use Controls: Legal	Donald Peterson	Spring 83
Transportation Planning	Rick Marshment	Fall 82
Environmental Impact Analysis	Paul Robinson	Spring 83
Environmental Dispute Resolution	Ann Painter	Spring 83
Capital Budget Planning	Siembieda/Rusk	Spring 83
Grant & Proposal Techniques	Min Kantrowitz	Spring 83
Seminar in Latin American Devel.	R. Anderson	Spring 83

1983 Curriculum Changes for Master's in Architecture

The new Master's of Architecture curriculum establishes a number of exit requirements that every student, regardless of undergraduate degree, must complete. Exit requirements for the M. Arch include five semesters of design studio, eight semesters of technical courses in structures, construction, working drawings, environmental controls, and site planning. Additional requirements include programming, design and behavior, and history. The number of required architecture courses for the B.A. in Architecture has been decreased, allowing for more flexibility in the undergraduate experience.

New Courses in Architecture in 82/83

Lighting in Architecture	Donald Felts	Spring 83
Historic Preservation	Edith Cherry	Spring 83
Advanced Structures	W. Gafford	Spring 83

Program Emphasis: Energy Conscious Design

The architecture program is developing a special concentration in the area of energy conscious design. A total of seven courses will be available in 1983-84 dealing with issues related to energy. We are thankful to the Public Service Company of New Mexico (PNM), which will support this effort by having their energy specialists

teach two three-credit courses. A course on "Energy Conscious Design for Residential Facilities" will be offered in the Fall 1983 semester and "Energy Conscious Design for Commercial Facilities" in the Spring 1984 Semester.

Students will also have access to PNM's computer programs and other materials. In 1982-83 we also obtained support from the State of New Mexico Department of Minerals and Energy for a special course in advanced energy conscious design developed and taught by Assistant Professor Stephen Dent. Visiting faculty for this course included, among others, Ed Mazria from Albuquerque, Douglas Balcomb from Los Alamos, Jeff Cook from Arizona State, and Ralph Knowles from USC. We hope to receive continued support from the state in 1983-84 to expand this emphasis in the architecture program.

The curriculum committee also is developing concentrations in the graduate architecture program. The concentrations (beyond the one dealing with energy) will be in the areas of planning, construction management (with the College of Engineering), behavior and design, as well as community design and service.

Continuing Education

The School has and will continue to offer courses through the UNM Continuing Education program. These courses are open to professionals and to students and try to respond to the needs of the profession. The following courses have been offered in Adobe Technology by Paul McHenry, Computer Use for Small Architectural Offices by John Peck, Site Planning by G. R. Johns, Principals of Construction Specification by Ken Guthrie, Passive Solar Retrofit by Jeffrey Bell, and Sketching for Architects by Paul Wright.

Exchange Program with Mexico

The School of Architecture and Planning at UNM has begun an exchange program with the Escuela de Arquitectura of the Instituto Tecnológico y Estudios Superiores de Occidente (ITESO) in Guada-

The exchange began with nine graduating students from ITESO attending the community design studio at the School's Design and Planning Assistance Center for six weeks during the summer semester. This is being followed by two graduate students from our school attending classes and seminars at ITESO. The exchanges have focused upon community design, rural planning and development, and passive solar technology.

In November 1982, the Director of the Escuela de Arquitectura at ITESO, Architect Alejandro Ramirez Ugarte, visited UNM and the School of Architecture and Planning to promote further exchanges of students and faculty and the sharing of technical information. Supporting funds, however, make this program rather ad hoc.

The Design and Planning Assistance Center (DPAC)

DPAC is one of the important traditions at the School. It provides opportunities for students to become involved with "real world" projects, especially as they relate to less privileged groups and members of society. The Center, under the direction of Edward Norris, has, in the past, been involved in forty to fifty projects yearly, ranging from insulating houses of the poor to providing planning studies for Native American groups. Staffing of the Center was mainly by full-time VISTA volunteers from all over the U.S., as well as by students from the School, who could work at DPAC for credit. The elimination of the VISTA program by the federal government has made the task of DPAC more difficult, but we hope to find funding to continue the socially important function of DPAC. A total of 43 projects were worked on at the Center. Among the projects developed in 82/83 were:

- Planning for the Santa Domingo Pueblo;
- Head Start Building Addition for the Santa Clara Pueblo;
- Rehab Center for the Isleta Pueblo;
- Development of Geothermal Hot Spring for the Pueblo of Zia;
- New Moon Lodge for the San Juan Pueblo;
- Site Design for the Pueblo of Jemez;
- Acoma Pueblo Visitor Center;
- Alameda Housing Co-op;

Harvey House Restoration, Belen;
 Church Addition, Placitas;
 La Nueva Vida, Baptist Church;
 Yale Children's Center;
 Bethany Retreat House;
 J.O.Y. Senior Center, Hagerman;
 North Valley Community Center;
 Greenhouse for Montoya Elementary School;
 Emerson School Playground.

III. FACULTY

The Full and Permanent Part-Time Faculty remained the same since 1981-82 except for Lecturer Enid Howarth who was on a year's leave of absence. Nine new part-time faculty members joined the School for 1982-83:

R. Lujan;
 Van Gilbert;
 W. Shelton;
 Don Felts;
 B. Hilditch;
 Donald
 Rick Marshment;
 Paul Robinson;
 Ann Painter.

List of Faculty 1982-83

Permanent Faculty

George Anselevicius, Dean and Professor
 Diploma of Arch., Leeds School of Architecture, England
 Richard A. Anderson, Professor
 Ph.D., Michigan State University
 Edith Cherry, Associate Professor
 M. Arch., Rice University
 Robert C. Cohlmeier, Assistant Dean and Professor
 B.S. Architectural Engineering, University of Illinois
 Stephen Dent, Associate Professor
 M. Arch., Arizona State University

Van Dorn Hooker (part-time), Associate Professor
Ph.D., University of New Mexico
B. Arch, University of Texas

Enid Howarth (part-time), Lecturer
Ph.D., University of New Mexico

Theodore Jojola, Assistant Professor
Ph.D., University of Hawaii

Daivd Kal, Lecturer
M.A., University of Illinois

Paul E. Lusk (part-time), Associate Professor
M.Arch., University of Pennsylvania

Baker Morrow (part-time), Lecturer
B.A., University of New Mexico

Richard S. Nordhaus, Associate Professor
M. Arch., University of Pennsylvania

Edward B. Norris, Lecturer
B.A., Howard University

Wolfgang F. E. Preiser, Professor
Ph.D., Pennsylvania State University

Don P. Schlegel, Professor
M. Arch., Massachusetts Institute of Technology

William J. Siembieda, Associate Professor
M.C.R.P., University of California (Berkeley)

Anne P. Taylor, Professor
Ph.D. Arizona State University

Robert C. Walters, Associate Professor
B.F.A., UNM

Part-Time Temporary Faculty

Louis J. Colombo, Adjunct Associate Professor

Don Felts, Lecturer

Bruce R. Hilditch, Lecturer

G. R. Johns, Lecturer

Min Kantrowitz, Lecturer

Don Peterson, Lecturer

Paul Robinson, Lecturer

Fred Shellabarger, Lecturer

Associated Faculty

Christopher C. Mead, Lecturer
Department of Art

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William F. Gafford, Professor
Department of Civil Engineering

Jose A. Rivera, Assistant Professor
School of Public Administration

Faculty, Special Appointments

Two important adjunct appointments were made during the 1982-83 academic year:

John B. Jackson, Adjunct Professor of Architecture and Planning

Mr. Jackson is a nationally and internationally recognized author, cultural geographer, educator and editor. He has been professor at Harvard and Berkeley and was editor and publisher of Landscape Magazine. He will be available to the School for lectures, discussions, and advice.

David Rusk, Adjunct Associate Professor of Planning

Mr. Rusk was mayor of the City of Albuquerque and will be available to the School for seminars, lectures, and advice.

Faculty News

Professor Don Schlegel has been elected a Fellow to the American Institute of Architects. Citing Don Schlegel's efforts in the advancement of the profession, the investiture was held at the annual AIA Convention in New Orleans on May 21, 1983.

Associate Professor Robert Walters was awarded tenure by the University of New Mexico as of the academic year 1982-83.

Stephen Dent was promoted to Associate Professor, Spring 1983.

Professor Robert Cohlmeier was appointment Assistant Dean of the School of Architecture and Planning as of the academic year 1982-83.

Ed Norris continuing services on Mayor's Selection Advisory Committee for Architects, City of Albuquerque as representative of the Albuquerque Chapter AIA. As co-chair of Dean's Advisory Committee on Latin America, will continue coordinating exchange program, begun last year with the Escuela de Arquitectura of the Instituto Tecnológico y Estudios de Occidente in Guadalajara, Mexico.

Professor Wolfgang Preisler is cited in Who's Who, 1983-84.

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Professor Anne Taylor is cited in Who's Who in American Women, 1983-84.

Special Program of Visiting Foreign Architects Teaching a Graduate Studio

A program to bring distinguished foreign architects to teach in a graduate studio is now in its second year. This program permits varied cultural views to be part of architectural education and exposes students and faculty to a broad range of issues. The following architects have been teaching for seven weeks each in Spring, 1983:

Cristian Circi, Barcelona, Spain

Mr. Circi has just been awarded the contract to reconstruct the Mies van der Rohe Pavillion in Barcelona.

David Owers, Cambridge, England

Mr. Owers has a practice outside Cambridge. He has taught at the School of Architecture in Cambridge and has been doing work in Saudi Arabia.

Faculty Development

A program of faculty development seminars was started in 1982-83 and is continuing three evening meetings at houses of different faculty members, dealing with professional, scholarly, or research issues. Future meetings are scheduled for 1983-84 to discuss the following:

"Architecture v.s. Energy"	Stephen Dent
"Old Micros (applies) v.s. New Micros (DEC, IBM)"	Bruce Hilditch
"A Model to Link Education and Architecture"	Anne Taylor/ Wolfgang Preisler

Publications

Edith Cherry

New Mexico Statewide Task Force on Secure Treatment for Violent-Mentally Ill Youth. Final Report for New Mexico Legislature.

00281

Christopher Mead

Reviews of architectural texts for The Art Bulletin and Design Book Review (in publication, Spring, 1983) and articles for Artspace (Spring, 1983) and New Mexico Architecture (in publication).

Wolfgang F. E. Preisler

"Navajo Mission Academy New Student Housing-An Experiment in Cross Cultural Research Program, and Design." Proceedings of the National ACSA Conference, Santa Fe, New Mexico, March, 1983. Republished in: Design Methods and Theories.

"A Combined Tactile/Electronic Guidance System for the Visually Handicapped." Proceedings of the First International Symposium on Maps and Graphics for the Visually Handicapped: Washington, D.C. March, 1983.

"The Habitability Framework: A Conceptual Approach Towards Linking Human Behavior and Physical Environment." Design Studies, Vol., 4 No. 2, April 1983, pp. 84-91.

"Albuquerque 2000: Sharing the Plan." Century, Vol., 3, No. 15, May 4, 1983, pp. 12-15.

"A Prototype Post-Occupancy Evaluation of the Argicultural Sciences Building South at the University of Kentucky." Proceedings of the Conference on People and Physical Environment Research, Wellington, New Zealand, June, 1983.

"The Habitability Framework: Linking Human Behavior and Physical Environment in Special Education." (Anne P. Taylor, co-author). Exceptional Education Quarterly, vol.4, No. 2, August 1983.

Anne Taylor

Edit and reprint: School Zone Learning Environments for Children School Zone, Inc., Albuquerque, New Mexico, 1983.

Guest editor Exceptional Education Quarterly, issue devoted to "Learning Environments for Special People," August, 1983.

"The Habitability Framework: Linking Human Behavior and Physical Environment in Special Education." (with Wolfgang F. E. Preisler, to be published in Exceptional Education Quarterly, August, 1983.

"Graphics for Learning" in School Arts, September, 1983.

William Siembieda

Contributed a chapter on "Implementation Procedures" for South Valley Area Plan Workbook - Editors: Paul Lusk and Jose Rivera.

Delivered a refereed paper "The Level of Intensity Technique: An Idea in Good Currency" at the meetings of the American Planning Association, October, 1982.

Grants Received (30% of Full Time and Permanent Part-Time Faculty)Steve Dent, Associate Professor

Support for Seminar in Advanced Energy Conscious Design
Department of Energy & Minerals, State of New Mexico \$6,678.00

Paul Lusk, Associate Professor

Support for South Valley, Albuquerque Area Plan, Bernalillo
County Commission \$1,700.00

Baker Morrow, Lecturer

Botanical Garden Study (City of Albuquerque) \$20,000.00

W. Preiser, Professor

Tactile Electronic Guidance System for a nature trail in
Albuquerque National Endowment of the Arts. \$9,840.00

Anne Taylor, Professor

Mentorship program for Architects-in-the School's National
Endowment of the Arts \$15,200.00

IV. STUDENTSStatistics

Total number of credit hours:

	<u>81/82</u>		<u>82/83</u>
Architecture	4894	Architecture	5023
Planning	<u>1183</u>	Planning	<u>962</u>
Total	6077	Total	5985

Student Awards

The following awards were given to outstanding students last spring:

Honor Awards

1. National AIA Awards
 - a. 1983 - Henry Adams Medal - James Palmer
 - b. 1983 - Certificate of Merit - Roy Hertweck
2. 1983 Alpha Rho Chi Medal
 - a. Gregory Faulkner

Scholarship Awards

1. La Cienega Prize - \$500.00
 - a. Stevens Williams
2. Albuquerque Chapter AIA
 - a. John Heimerich Scholarship - \$350.00
 - (1) Patty Davis, Architectural Graduate Student
 - b. Albuquerque Chapter AIA Scholarship - \$100.00
 - (1) David Reddy, Undergraduate Student
3. Friends of the School
 - a. Peter Marquez, Undergraduate Student
 - b. Anne McLaughlin, Graduate Student \$500.00
 - c. Planning Graduate Student (selection deferred) \$500.00
 - d. The Lath and Plaster Industry Scholarship - Arto Harjupaa \$600.00

Two planning students were awarded summer positions at Los Alamos National Laboratories. They are Robert Prommel and Stephanie Coonley.

MRCP student Jeffrey Evans was elected President of the Graduate Student Association.

John Tascheck is the new environmental planner for the Village of Corrales.

V. ADMINISTRATIVE STAFF

The School's administrative staff has undergone a complete change. The new persons are: Christine C. Chiesl, Administrative Assistant to the Dean; Betty Grubb, Academic Advisor; and Tina Taylor, Department Secretary.

VI. FRIENDSFriends of the School of Architecture & Planning

A concentrated effort is being made to develop a supportive group: The Friends of the School of Architecture and Planning. The "Friends" group is open to organizations, such as architectural and planning

offices and others involved in the development and construction of the physical environment, and to individuals, alumni, architects, planners, allied professionals and concerned citizens. The School welcomes everyone to join in a commitment to improve the quality and responsiveness of our man-made environment within the best traditions of our beautiful state and region.

A brochure stating the above mentioned was sent to all alumni of the School and to architects and some allied professionals in New Mexico.

Very special thanks are due to Max Flatow and Gene Hunt, who have spearheaded this effort.

The following categories of individual memberships are available:

1. Regular member - \$25
2. Sustaining member - \$100
3. Patron member - \$250 & above

A special category of firm or corporate membership also is available (with a recommended support of \$2,000). Checks should be made payable to the UNM Foundation for use by the School of Architecture and Planning. Our immediate goal is the achievement of \$20,000 yearly and on a continuing basis to support extremely important needs of the School as it is growing and developing. Essentially, the money will be spent for the following:

1. Three \$500 scholarships (two to architecture students, one to a planning student);
2. Support of student development, such as travel to special conferences and seminars;
3. Yearly publication of MASS and the School's newsletter;
4. Support of the School's lecture series and film series;
5. Traveling exhibitions;
6. Acquisition of books for the School's Resource Center;
7. Acquisition of special teaching equipment, especially for technology courses.

There are now twelve corporate members, four patrons, nine sustaining members, and thirty-four regular members.

The Kidder Fund

Through the generosity of Harriett Kidder of Santa Fe in memory of her husband, Bradley P. Kidder, architect of Santa Fe, there is a continuing fund whose yearly interest can be used in the development of technology at the School.

VII. SCHOOL ACTIVITIES

Exhibitions

The 1982-83 academic year ended with an important exhibition of the work of Alvar Aalto, "The Mystery of Form." This exhibition, which filled both the first and second-floor exhibition space at the School, was supported by the Finnish government.

During the past two years, Albuquerque architects have displayed their work at the School in three-week intervals. Their exhibit consisted of one project chosen by them from preliminary sketches through design drawings, contract documents, and finally, photographs of the completed project. The following architects' work was exhibited:

1. Burns-Peter Group
2. Cherry and See;
3. Dean and Hunt;
4. Fernandez, Lujan, Beltran;
5. Flatow, Moore and Bryan;
6. Van Gilbert;
7. Howard Kaplan;
8. McClernan, Mazria, and Schiff;
9. Robert Peters;
10. Antoine Predock;
11. Schlegel and Lewis;
12. Westwork Architects.

1983-ACSA Convention Held in Santa Fe, New Mexico

The Association of Collegiate Schools of Architecture held its annual convention in Santa Fe. Our School of Architecture and Planning was

the host school for this occasion and helped to plan and organize the conference, which was attended by the largest group of educators since ACSA conventions were begun. Dean Anselevicius welcomed the delegates at a special reception at the Museum of New Mexico in Santa Fe and also chaired one of the main sessions of the conference. Professor Don Schlegel organized "New Mexico Day", which included lectures on the history and development of architecture in New Mexico by Michael B. Stanislawski, Christopher Wilson, and Antoine Predock, as well as trips to pueblos, to Hispanic communities in Northern New Mexico, and to passive solar buildings around Santa Fe.

School Lecture Series/Film Series

A lecture series of ten public lectures per semester was started in the Fall of 1982. The lectures are now held in the movie theater at the Student Union Building, as no appropriate facility is available at the School. Attendance has been good (2000 + per semester). Among the lecturers were Reyner P. Banham, Garrett Eckbo, Bruce Goff, Gyo Obata, Lawrence Halprin, Charles Moore, Nathaniel Owings, Lou Sauer, Jerry Soltan, Judith Chaffee, Susanna Torre, and Peter Blake. The lecture series is partially supported by the Friends of the School and by the AIA Chapter Albuquerque, the AIA Chapter Santa Fe, and the AIA Southern New Mexico Chapter.

A bi-weekly film series also was begun in the 1983 Spring semester. Among the many films shown were a number of films by Charles Eames and a film on the work of LeCorbusier.

School Publications

An important event was the publication of MASS volume 1, no. 1. This journal, which will be published annually, dealt in its first issue with John Gaw Meem and the regional tradition. The publication's staff was a group of graduate students: Editors were: Eileen Devereaux and Stevens Williams with the support of Leslie Allen, Patricia Davis, John Hooker, Kim Miller, and James Palmer. The Advisory Board consisted of George Anselevicius, John B. Jackson, and Christopher Mead. The publication was supported by the Friends

of the School. Two thousand copies were printed and distributed to alumni, students, faculty, schools of architecture in the U.S., Canada, and abroad, and architects in New Mexico.

VIII. FACILITIES

School Remodelling

During the summer of 1982, a group of students under the direction of Assistant Professor Stephen Dent extensively remodelled the first and second floors of our building, improving studio space, lecture and seminar rooms, staff and faculty offices, and exhibition space. The University has now allocated funds for this summer to extensively remodel our not-so-inviting basement. Thus, with the additional space in the TAC building (across Stanford Street), which is used for studio space for freshmen and sophomores, School facilities have been much improved, yet more space is needed. In the long run, a new building for the School is essential. The University five-year plan identifies a request for budgeting money for a new Architecture and Planning building in 1985.

Computers

Computer facilities have been improved considerably through a grant from the UNM Foundation of \$12,000.

Library and Resource Center

The School's library facilities are located essentially in the Fine Arts Library but also in the library of the College of Engineering and in the library of the Anderson School of Management. It is therefore, essential to keep basic books on architecture and planning in a resource center at the School. We have started this effort now, which should lead to a collection of approximately 1,000 books. The Accrediting Board also thought this is important and stated this to the University administration. At this time, books are bought with money from the Friends of the School, but I expect University support in the future.

SCHOOL OF ARCHITECTURE AND PLANNING

1983/1984

PROGRAMS AND COURSES

This past year the Architecture Curriculum Committee finalized changes in the B.A. in Architecture and Master of Architecture curricula. The general intent of these changes was to treat the six years required for the professional Master's degree in Architecture as a package.

Under the new program, all students receiving the M.Arch will have to complete the same exit requirements. A student who takes more of the exit requirements as an undergraduate may specialize during the last two years. For example, an Energy Emphasis consisting of 11 credit hours plus Independent Project has been defined. Other emphases will be Planning Behavior and Design and Construction Management.

A student who has an undergraduate degree in some other field, or a student who received a Bachelor of Environmental Design, will have to complete the exit requirements as a graduate student. These students will have less flexibility in the last two years, and the selection of electives will mean staying in school longer. However, these students had a broad educational experience as undergraduates that should balance the demanding architecture requirements of the last two years.

The National Council of Architectural Registration Boards has ruled that after June 1984, national certification will require a professional degree, and the New Mexico Board of Architectural Examiners will also require a professional degree for the licensing examination. At UNM the professional degree is the Master of Architecture. This ruling and the long-recognized need to have a uniform set of requirements represented by the M.Arch at UNM have prompted our changes in the curriculum. We feel that they provide a reasonable balance of requirements and electives.

Next fall, the Curriculum Committee will begin examining the requirements for the Bachelor of Environmental Design. The changes in this degree will direct it especially toward students planning on careers in landscape architecture, planning, and perhaps environmental education.

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Planning Program

The revised Master of Community and Regional Planning (MCRP) curriculum will go into effect in fall 1984. This revision, the first since the program began, raises the number of hours needed to graduate from 42 to 50. The major changes are due to a need to increase the number of methods courses, develop a separate practice course where professional activities can be studied, and provide the student with a firmer background in cultural and developmental aspects of the Southwest. The new curriculum will have a number of new courses and will clarify the sequencing of courses and requirements for the student. The new MCRP student will have more required courses, fewer electives, and a more structured examination process.

For the second year the program has used "short course modules" to broaden its offerings of special topics. In spring 1984 Maria Varela taught a four-week module on "Dissent in Rural Development," which focused on small-scale methods of rural development. An Painter and Alan Weinstein taught a four-week module on "Techniques of Mediation and Negotiation."

"Techniques of Planning Communication" is a new course developed by Paul Lusk and Min Kantrowitz. This course provided basic communication skills in the areas of: graphics, report writing, oral presentation, video tape, and electronic media. One product of this course is a complete introductory slide and tape orientation program for new MCRP students.

The Planning Program's intern component has expanded. In addition to internships with the City of Albuquerque and other local agencies, the City of Santa Fe and the County of Los Alamos have developed special placement opportunities for planning interns. As the internship component of the program expands, the program's presence throughout the state will grow. This growth is important as it fulfills one of the program's objectives of public service activities throughout the state. It is expected that during the upcoming year, other cities and state agencies will be added to the internship list.

A new course in the use of computers by planners will be offered fall 1984. James Greenwood, who is the director of Economic Development for Los Alamos County and is affiliated with Los Alamos Technical Associates, will teach the course. This course will include a set of basic software

tools for planners, as well as an introduction to mainframe and stand-alone computers.

Nelson Valdes, Associate Professor of Sociology, team-taught a seminar on Latin American Development Planning with Richard Anderson in the spring of 1984. This course is part of the dual degree requirement between Latin American Studies and the MCRP program. The team-teaching across disciplines is another way to enrich the total offerings of the School.

The MCRP Program is now included in the GUIDE TO GRADUATE EDUCATION IN CITY AND REGIONAL PLANNING published by the Association of Collegiate Schools of Planning, in conjunction with the American Planning Association. This is the first time the School's program has had national publication distribution.

Emphasis in Energy Conscious Design

This is a new program of study within the guidelines of the graduate program. It requires a minimum of eleven credit hours in courses and/or in energy-related independent study, plus substantive energy-related content in the thesis or independent project. Courses available are:

1. Environmental Controls, Passive (S. Dent)
2. Environment Controls, Active (D. Felts)
3. Lighting (D. Felts)
4. Regional Energy Systems (new course - R. Wells)
5. Energy-Conscious Residential Design (new course - M. D'Antonio)
6. Energy-Conscious Commercial Building Design (new course - M. D'Antonio)
7. Building Energy Use, Case Study (new course - S. Dent)
8. Advanced Energy Design Technology (S. Dent)
9. Solar Retrofits (P. Wilkes)

"Energy Emphasis" coordinator is Associate Professor Stephen D. Dent.

The program is partially supported by the Public Service Company of New Mexico and the N.M. Energy and Minerals Department.

A special energy-related studio was taught in the 1984 spring semester by Edward Mazria.

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New Courses

Ten new elective courses were offered by the School in 1984, seven in architecture and three in planning. Four of these courses were part of the Energy Emphasis program described elsewhere in this newsletter. The other six courses were:

1. Case Studies in Structures by Hal Bowers
2. Culture and Architecture by Enid Howarth
3. Interior Design by Nancy Traylor
4. Earth Architecture by Paul McHenry
5. Rural Development by Maria Varela
6. Mediation and Conflict Resolution by An Painter

Visiting Architects Program

Two distinguished foreign architects taught seven weeks each in a graduate studio during the spring semester, Lorenz Moser, an architect from Zurich, Switzerland, dealt with a multipurpose project in downtown Albuquerque. Mr. Moser's office does much work in housing, especially housing for the aged. He has taught previously in Virginia and Arizona.

Anant Raje, architect and educator from Ahmedabad, India, was the second visitor and worked with the students on an administrative and research facility in India. Mr. Raje is the director of the Architecture Program at the School of Architecture in Ahmedabad and has his own office. He was closely associated with Lou Kahn and has completed Kahn's projects in India after Kahn's death. He has previously taught at Harvard and New Mexico.

Dual Degrees

The Master of Community and Regional Planning and Master of Public Administration dual-degree program was officially approved by the Academic Senate in December. This is the second formal dual degree program for the School. The other is with Latin American Studies.

Exchange Program with Chiapas, Mexico

With the visit of our School in March of Architect Roberto Olavarieta, director of the School of Architecture at the Universidad Autonoma de Chiapas, (UNACH) in Tuxtla Gutierrez, Mexico and the visit in May of Edward Norris to UNACH, a program in rural housing has begun involving

both schools. Some 200 units of self-help housing are proposed for the rural community of Suchipa, Mexico. Students from both schools will participate in the programming and design phases of the project. Students will also participate in the construction phase, working together with the residents. The houses will be of adobe construction utilizing passive solar technology.

Computers

The School of Architecture and Planning has been offering a limited curriculum in computer applications for several years. Recognizing the increasing importance of computers in the planning and design fields, the School has been strengthening its program. Last year, a \$12,000 grant from the University Fund provided money to purchase several terminals, a second Apple II microcomputer, a digitizer, a small plotter, printers, and some software. In addition, three courses were offered. Bruce Hilditch taught two, introducing students to a wide range of computer applications on the mainframe and the micros, and Toby Flatow offered an evening course that surveyed Computer Aided Drafting. Engineering and energy courses at the School are also making use of the computer lab.

The School has made a commitment to staff the computerlab for 40 hours per week. It is recognized that the current facility must be improved for a subject area that is becoming increasingly important to the profession. The Computer Committee, with Associate Professor Richard Nordhaus as Chairman, has been working on long-range plans to develop curricula and facilities that would enable the School to provide a technically progressive education.

The first step has been to reorient our course offerings. The School will not longer offer a general introduction to computers. Such courses are available other departments. Our resources will be better utilized by focusing on intermediate-level architectural and planning applications and on special projects with advanced students developing software for the School.

The next step will be to define a long-term strategy for obtaining hardware and software with the underlying objective of making computers available and useful to all students in the School for a wide range of applications, including design.

ACTIVITIES

Lecture Series

The Monday evening lecture series continued to draw good audiences of students and professionals. The following lectures were offered in 1983-84:

Fall Semester

- Richard C. Peters: THE LIGHT OF ALVAR AALTO
Dominic Marti: LOW-RISE CLUSTER HOUSING IN SWITZERLAND
Ricardo Legorreta: RECENT WORK IN MEXICO
J. B. Jackson: VERNACULAR ARCHITECTURE IN THE USA
Lawrence Susskind: ENVIRONMENTAL PLANNING IN CHINA
Robert Marquis: ARCHITECTURE, A HUMANIST ART
James L. Nagle: RECENT WORK
Bruce Graham: ARCHITECTURE OF CITIES
Joseph Passonneau: GLENWOOD CANYON, COLORA ROADBUILDING IN A NATURAL LANDSCAPE

George Pearl: FROM PIT HOUSE TO OUR HOUSE

Spring Semester

- William R. Curtis: RECENT TRANSFORMATIONS OF THE SKYSCRAPER
Ronald B. Eichner: CHANGING NOTIONS OF PUBLIC AND PRIVATE
William Turnbull Jr: REMEMBRANCES OF THINGS PAST
Peter Blake: LE CORBUSIER, VISIONS FOR OUR TIME
Lorenz Moser: RECENT PROJECTS IN SWITZERLAND
David Crane: THE PUBLIC/PRIVATE ART OF CITY BUILDING
Jakob Schilling: THE ARCHITECTURE OF SWITZERLAND
Gerald R. McSheffrey: PUBLIC HOUSING IN IRELAND
Myron Goldsmith: THE WORK OF MYRON GOLDSMITH
Anant Raje: RECENT PROJECTS IN INDIA
Sally Woodbridge: JULIA MORGAN, ARCHITECT

The lectures are partly supported by the Friends of the School of Architecture and Planning and by the Albuquerque, the Santa Fe, and the Southern New Mexico Chapters of the AIA.

Film Series

The Wednesday luncheon film series was organized by graduate student

John Hooker and supported by funds from the Friends of the School. The following twelve films were shown: Cities, Stations, The New Alchemists, At Home 2001, Image of the City, Organism, Rome, Leningrad, The Mondragon Experiment, Noguchi, The Social Life of Small Urban Spaces, and Man of Aran.

Exhibitions

With the support of the Friends of the School, six exhibitions were brought to Albuquerque in 1983-84. Shown at the School were:

1. The Work of Marquis and Associates, San Francisco
2. Architecture and Urban Design, the Work of Norman Klein
3. The Work of Myron Goldsmith
4. Projects for Venetian Towns 1926-81
5. The Work of Pierre Zoelli

Because of its size, the exhibit "Pro Helvetia, the Architecture of Switzerland", was shown at the Museum of Albuquerque. Jakob Schilling, noted Swiss architect from Zurich came to Albuquerque to lecture which was supported by the Swiss Government.

Mass Magazine

"House and Houses" is the title of the second issue of MASS, the School's magazine. It contains articles by George Anselevicius, J. B. Jackson, Edward Norris, Antoine Predock, and Christopher M. Wilson, a book review by Sven Govaars, a tribute to John Gaw Meem by George Pearl, and MASS interview with Bart Prince. The 1984 issue is edited by graduate student Eileen Devereux, with the help of other graduate students. The first issue of MASS dealt with the traditions of regional architecture in New Mexico and architect John Gaw Meem. The magazine is being sent to all alumni, so please let us know if you received it. Comments and letters about the magazine and its articles are welcome and should be sent in care of the editor of MASS.

"Genesis of Form"

An important summer workshop was held at the School from June 11-20, 1984. Its intent was to study influences found in the powerful physical images of New Mexico. Hence the title, "Genesis of Form".

The workshop was an intense visual exploration of the grand geological scale of the Southwest's mountains, valleys, mesas, and deserts, compared

with the massive stone architecture of cultures that built in this region in challenge of nature's dominance.

Connections with art, archeology, and anthropology to reveal elements of ritual, cultural mystique, technology, and historic information were discussed at seminars.

Robert Walters, Associate Professor of Architecture, organized and developed the workshop. The faculty included George Anselevicius, Dean of the School; Edward T. Hall, anthropologist and author; J. B. Jackson, cultural geographer and author; Michel Pillet, architect on the UMM faculty; Antoine Predock, FAIA, Albuquerque architect; and Rina Swentzel, pueblo architect (Santa Clara Pueblo).

The actual schedule included:

An orientation session at the School;

A field trip to the Elena Gallegos Park site, where Rex Funk, superintendent of the open space program for Albuquerque discussed that program;

A one-day field trip to the Salinas ruins of Abo, Gran Quivira, and Quarai, which included an information tour directed by Ms. S. Scholfield, a National Park ranger;

A one-day field trip to the pueblos of Puye and Santa Clara, with Rina Swentzell as leader of that tour and discussion and a field trip to the Bandelier Monument and Frijoles Canyon with Michel Pillet as leader of the trip;

A seminar with J. B. Jackson and Edward T. Hall at the home of J. B. Jackson in La Cienega;

An extended field trip to Chaco Canyon and the Anasazi Ruins;

On the last day a design seminar with Antoine Predock and visits to some of his projects in Albuquerque;

Finally, a fiesta celebration on the patio of Professor Walters' home.

Seventeen people participated in this workshop. We hope that this workshop can become an annual or biannual event.

COMMUNITY

The Design and Planning Assistance Center (DPAC)

Now in its fifteenth year of service, the Design and Planning Assistance

Center was established by the School of Architecture and Planning and the profession as a community service organization that provides research, planning, and design assistance to low-income families, community groups, and nonprofit organizations throughout New Mexico.

During the past year, students at the DPAC have undertaken a variety of projects under the direction of faculty member Edward Norris, director of DPAC.

Among projects developed by the DPAC in 1983-84 were:

Restoration of El Salon de Atrisco, a historic community building in Albuquerque; classroom addition for St. Bonaventure Academy in Thoreau; alcohol treatment facility for San Juan Pueblo; design of the resource center at Grants; remodel of community facilities for Mountainair; community building proposal for Zia Pueblo, playground design for Emerson Elementary and Hoover Middle Schools in Albuquerque; recreational site planning at Rio Rancho; design for center and workshop for handicapped in Albuquerque; youth resident facilities in Albuquerque; rural housing in Dona Ana County; restoration proposals for the Harvey House in Belen and for San Lorenzo Church at Picuris Pueblo; nursing home addition for Laguna Pueblo; Chavez House restoration in Alameda and remodel of the Rio Grande Center in Embudo.

DPAC is also the recipient of a \$15,000 grant from the New Mexico Department of Energy and Minerals through the new Community Energy Alternatives program. Four graduate students are working on a program to provide passive and solar retrofits to residences of the elderly and handicapped in Grants.

Special Planning Seminar

A planning seminar taught by Associate Professor Lou Colombo studies crime in the University area. The course in methods of researching planning questions examined police statistics and conducted an interview survey. Members of the University Heights Neighborhood Association and the local business community met with the class to discuss concerns about crime in the area.

Architecture Students at Local Schools

During the 1983-84 academic year, under a Special Projects Grant from the National Endowment for the Arts, the School of Architecture and Planning and the Institute for Environmental Education undertook a unique project. In an experimental spinoff from the Architects-in-schools program of the National Endowment for the Arts, architecture students were trained to become Apprentice Residents (AR's) to work in classrooms in Albuquerque Public Schools. Working with Dr. Anne Taylor, professor at the School of Architecture and Planning, and Terry Conrad, a veteran Architect-in-schools resident, students were introduced to the residency concept at weekly seminar sessions. Sixteen architecture students served residencies at four Albuquerque sessions. Sixteen architecture students served residencies at four Albuquerque Public Schools, a Head Start program in Pena Blanca, and an Albuquerque private school. Resident activities began in one instance with an introduction to the arch using "abode" cookies and chocolate "mud", to another study of texture that resulted in the installation of a large tile mural.

All of these residencies were AR's working individually with an experienced teacher in the classroom. In February, an AR team spent two days at a head start facility in Pena Blanca with children, staff, and parents designing a playground. In April, they conducted an intensive "Architecture Week" at Sunset Mesa Schools in Albuquerque. In both of these short-term experiences, students, teachers, administrators, and parents were asked to draw, chart, model, inventory, and tally as much program information as possible. This material once assimilated into a program document, then served as the basis for specific design suggestions for each site.

Response of the architecture students to the residency experience follows the lines of a poem:

"The lesson lies in learning by teaching, we are taught."

In having to work through and then articulate a group presentation on design concepts, the AR realize that an awareness and understanding of the visual vocabulary cannot be taken for granted. They also became aware that in communicating the role and skills of an architect they were in effect educating future clients to be more critical of the built environment.

In using the built environment as a means to learn math, science, history, and other subjects, a whole range of learning activities are open to the class-

room that involve students in the actual school facility and the community.

Due to the success of last year's program, a design residency class is scheduled again for 1984-85. For more information on the design residency concept, please write to the Institute for Environmental Education, School of Architecture and Planning, University of New Mexico, Albuquerque, NM. 87131.

Planning Studies for Local Communities

The Rural Environmental Planning Studio of the Community and Regional Planning program under the direction of Associate Professor Paul Lusk, conducted the following studies:

1. A study of the transfer of development rights (TDR) as a method to preserve farmland in Corrales. The study was conducted by graduate students David Skinner and T. J. Ferguson. The proposed TDR program at Corrales would have three benefits. First, owners of farmland would profit from the sale of development rights while retaining ownership and use of the property as agriculture land. Second, developers acquiring development rights would benefit from the more efficient use of nonfarmland with increased allowable residential densities. Third, the Village of Corrales would benefit from the preservation of the economic base and aesthetic quality of farmland and from greater control over the quality of the built environment through carefully planned development.
2. A study to establish a historic overlay zone within the old commercial district of the Village of Corrales. Within this project an extensive historic building inventory was conducted and mapped. Also included in the project was a set of construction guidelines for residents and builders to follow. The study of graduate students B. Lucero and Steve Burke also recommended that the village adopt an ordinance to create and protect such an overlay zone.
3. A study by Lucero and Burke for the Village of Corrales consisted of a schematic design for paving, landscaping, and street design for a quarter-mile length of Corrales Road through the most congested part of the village.
4. A Planned Development Zoning Proposal for Corrales was presented to planning and zoning administrator John Tascheck. The draft regulations were written by David Skinner, Debbie Chont, and T. J. Ferguson, graduate planning students at UNM, in response to a request from the Village of Corrales.

The planned development regulations are designed to enhance and maintain the rural character of Corrales in the face of increased development pressures.

5. A study of graduate student John Martin developed and recommended plans for open space and recreation for two geographically related areas immediately north of the City of Albuquerque. For the Village of Corrales, Martin prepared an open space plan including jogging trails along the ditches and the bosque and more passive open space areas on the mesa slopes and the arroyos west of the Corrales Main Canal. For Sandia Pueblo, Martin recommended two picnic areas, playfields, and fishing areas for tribal members as well as for rental use.
6. Graduate students Carlos Romero and Juan Cabral studied the ongoing planning process in the South Valley in Bernalillo County. The focus of their inquiry was to produce an overview of the active social and political forces in the South Valley that could influence the implementation of a plan for the area.
7. A study of the transportation needs of the five Sandoval Indian Pueblos of Cochiti, Santa Ana, Sandia, Zia, and Jemez was prepared for the Five Sandoval Indian Pueblos, Inc. (FSIP) by graduate student Deborah Chont.

Special Courses

The following two courses were offered in 1983-84 through the School of Architecture and Planning and the Division of Continuing Education:

1. Exploring Albuquerque and Its Environment, taught by Hy and Joan Rosner. Organized mainly for elementary and secondary teachers, this course dealt with the environment of the Greater Albuquerque area. A variety of environmental concerns and issues were touched upon, and appropriate field trips were required.
2. Seminar Park Maintenance, taught by Ray Suter. A course for those interested in the management of the maintenance operations of an urban park system. The course included lectures, discussions, and demonstrations on turf and related materials, their use, cultural practices, and care in recreational settings.

Rio Grande Valley Botanical Garden

The University of New Mexico and the City of Albuquerque have recently combined

efforts to establish a new botanical garden for New Mexico. The School of Architecture and Planning is handling the site selection and initial master-planning for the garden.

Baker H. Morrow was appointed Task Force Chief for the University of New Mexico/ City of Albuquerque Botanical Garden by UNM President John Perovich and Mayor Harry Kinney last year. He is a principal of a firm of Albuquerque landscape architects and a lecturer in landscape architecture at the UNM School of Architecture and Planning.

FACILITIES

After many years of having to put up with a "less than acceptable" basement, it has finally been completely remodelled. The basement is now sprinkled, air-conditioned, and well lit. The Resource Center (our mini-library) has been relocated there, as well as the student store and the workshop. The major space is taken up by a studio which can hold about forty students. The studio has been used as the fourth-year design studio, as well as providing space for students doing their final projects. Space for exhibitions and school archives are provided.

We have taken over the former Red Wing Shoe Store, a few blocks east from the School on Central. It is being used by the 104 basic design studio and by a number of students doing their final projects or thesis. We now are stretched out along Central Avenue - the Design and Planning Assistance Center on Yale, the School on the southwest corner of Central and Stanford, a piece of the TAC building on the southeast corner of Stanford and Central, and now the ex-Red Wing Shoe Store on Central and Princeton. Tentative plans for a new building are underway.

SCHOOL BRIEFS

John Gaw Meem Memorial

The Santa Fe chapter of the AIA is sponsoring the John Gaw Meem Memorial Scholarship. The chapter hopes that an appropriate sum will be raised to provide a significant annual scholarship for a student at the School. John W. McCue, FAIA of Santa Fe, is chairman of the drive, and any contributions are welcome. A tribute to John Gaw Meem by George Pearl, FAIA, can be found in the 1984 MASS magazine.

Ron Hutchinson Memorial

The School was saddened by the untimely death of Ron Hutchinson of Hutchinson, Brown and Partners, Inc. Ron Hutchinson was well known for his keen interest in the quality of design. We are thankful to Barbara Hutchinson and the firm for establishing an endowment fund which will support a Ron Hutchinson Memorial lecture as part of the School's lecture series. E. Fay Jones, distinguished architect from Arkansas, will be the first Ron Hutchinson Memorial Lecturer.

Jack Arthur Cobbett Memorial

In memory of Jack Cobbett, B.S. in Architectural Engineering 1951, his wife, Marian, has established a memorial scholarship for a third-year architecture student, the selection to be based both on financial need and academic merit.

Jack Cobbett was senior vice president of the Baner Co., General Contractors, and was highly respected by the architectural community. The School is thankful to all those who contributed to this memorial.

Swiss Magazine

The School was prominently featured in the Swiss architectural magazine DOCU BULLETIN of April 1984. This issue dealt with architectural education in the United States at the following architecture schools: University of New Mexico, Illinois Institute of Technology, Washington University, Arizona State, Oregon School of Design, University of Oregon and the University of California, Berkeley. A lead article by Dominic Marti, Swiss architect, explained the general trend of architectural education in the United States.

Donation of Slides

The Masonry Contractors of New Mexico and their president, Kenneth P. Thompson, have presented the School with an extensive and beautiful slide collection on brickwork in Italy. The slides were taken and organized with appropriate commentary by Ambrose Richardson, professor at the Department of Architecture, the University of Notre Dame, for the National Masonry Contractors organization.

STUDENT NEWS

Awards

The following student awards were made during the 1984-85 academic year:

National AIA Awards

1. The 1984 Henry Adams Medal for the first-ranked graduating graduate student was given to Sven K. Govaars, Jr.

2. The 1984 Certificate of Merit for the second-ranked graduate student was awarded to Romana J. Sanchez.
3. The Alpha Rho Chi medal for a graduating graduate student who has shown leadership and service went to Richard D. Willson.

La Cienega Prize

The 1984 Cienega Prize of \$250 for the outstanding design student went to Peter Wolfe.

Friends of the School of Architecture and Planning Merit Awards

1. For a third-year undergraduate architecture student, \$600 to Curtis Scharfenaker.
2. For a fourth-year undergraduate architecture student entering the graduate school, \$600 to Andy L. Aguilar.
3. For a fifth-year graduate architecture student, \$600 to Patricia Davis.
4. For a graduate planning student, \$600 to T. J. Ferguson.

Scholarship Awards

1. AIA Foundation Scholarship award, \$500 to Midras Hill.
2. Albuquerque Chapter AIA John Heimrich Scholarship for a fifth-year graduate Architecture Student, \$350 to Susan Bejnar.
3. Albuquerque Chapter AIA Scholarship for a third-year undergraduate Architecture Student, \$100 to Nicholar Rossouw.

New Fellowships

The School will participate for the first time in the Graduate Opportunities Program (GPOP) for 1984-85. This program, for minority students and women, is funded through a grant for the National Institute of Education. It will provide the School with two \$4,500 fellowships, plus tuition, for graduate students wishing to study architecture or planning.

Planning Internships

Students in the planning program have interned in the following agencies in 1983-84: City of Albuquerque: City Planning Division, Parks and Recreation Department, and Community and Economic Development; Los Alamos National Laboratory: Facilities Engineering Group; State of New Mexico: Environmental Improvement Division; Village of Corrales: Planning and Zoning Administration; Southwest Research Institute: Neighborhood Renewal Project; and Southwest

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Land Research: Feasibility and Information Section. Opportunities will expand. We are presently working on additional internships with the County of Los Alamos, the State Transportation Division, the State Department of Natural Resources, and the Middle Rio Grande Council of Governments.

Sven K. Govaars, Jr. was awarded a Certificate of Excellence for his submission to the 1984 Reynolds Aluminum Prize for Architectural Students. The jury commented: "An interesting project, which enhances the practical uses of aluminum by means of theoretical pursuit of architecture."

The following students graduated with honors at the May 1984 commencement:

Magna Cum Laude: Kevin Ryan, Bachelor of Arts in Architecture;

Cum Laude: Susan Lopez, Bachelor of Arts in Architecture.

John Hooker, a graduate architecture student, was elected president of the UNM Graduate Student Association for 1984-85. He was also selected as one of the two outstanding students of the semester by the Student Affairs Committee of the UNM Alumni Association.

Daniel B. Dixon, undergraduate architecture student has been elected regional director-elect of the AIA Western Mountain Region ASC/AIA and attended the AIA national convention in Phoenix in May 1984.

FRIENDS

The Friends of the School of Architecture and Planning organization continues to grow. It now includes fourteen corporate members (suggested support for large firms, \$2,000), seven patrons (\$250 and above), twenty sustaining members (\$100), and seventy-nine regular members (\$25). Friends money is used to publish MASS magazine and the Newsletter, to support student activities, to offer student scholarships, to support the School's lecture series and exhibition program, and to buy books for the School's resource center.

Last year a special luncheon was held at the School for all the Friends. It was well attended, and Dean Anselevicius spoke about the School's development and future plans. A group of Friends had the opportunity to meet B. V. Doshi, one of India's most distinguished architects and spend an evening with him.

Professor Richard Anderson has been appointed director of the School's planning program. This past summer he traveled to England and Scotland where he examined social changes and evolving land use patterns in several new British towns. Particular attention was focused on the early planning and design concepts of Ebenezer Howard and Raymond Unwin in Letchworth and Welwyn Garden City. Of special interest to Professor Anderson were the extensive use of greenbelts to control growth, the attraction of research and service industry to the new towns, and how satisfied the inhabitants were with their housing.

Professor Anderson also traveled to Tuxtla, Mexico, where he met with faculty members of the University of Chiapas to initiate a planning exchange program with the College of Architecture there. This visit was made under the auspices of the Partners of the Americas through the UNM Center for International Programs.

Visiting Assistant Professor Joseph Bilello has recently joined the School. He has taught design at Cogswell College, San Francisco. His projects have included Research Video offices/studios and J. C. Penny Store remodeling (Los Angeles, San Francisco), Collins Residence addition (San Francisco), and Buyers Residence addition (Pacifica Calif.). His San Francisco exhibitions have included: "Islamic Vernacular: Real and Imaginary" AIA, a 2-man show; and "Travel Sketches by Architects", Phillippe Bonnafont Gallery. Service Merchandise Store remodeling (Los Angeles/Albuquerque),

Associate Professor Edith Cherry has completed her two-year term as secretary on the National Board of Directors of the Association of Collegiate Schools of Architecture, representing our School on the national level. She was an invited panelist for the ASC/AIA Regional meeting in Salt Lake City in October. She has continued serving as vice-chairperson of the New Mexico Cultural Properties Review Committee and has served as a volunteer to the Committee trying to

develop a Children's Exploratorium for Albuquerque. In August she attended the American Collegiate Schools of Architecture seminar in Boston on Design and Energy.

Adjunct Associate Professor Lou Columbo has become a principal in a new planning and information development firm called Southwest Land Research. Begun one year ago, the firm now employs more than ten people and does work from market studies to sector plans.

Associate Professor Stephen Dent completed manuscript and preliminary drawings for the "Low Cost Passive Solar Home" (tentative title) with co-author Perry Wilkes. The change in editors and ownership at Van Nostrand Reinhold has slowed completion of this contracted book.

His projects included: Major proposal preparation for master plan of Mesa del Sol with Mesa Associates/Moshe Safdie (unsuccessful); King Residence remodel - passive solar greenhouse/entry addition; drawings for Perea Residence - new passive solar adobe residence; feasibility analysis for remodel of Evans Residence; Water Based Recreation Study Proposal - major proposal for recreational uses of Albuquerque's riverbed lands (unsuccessful); Burger Residence - new passive solar residence in Edgewood NM under construction; construction documents completed for Toner residence, Buckner residence, Moen residence/gallery, Ashley remodel, and remodel of McNew residence (construction Summer '85).

He received a funded proposal to NM Energy & Minerals Department for support of two special classes in Energy Emphasis Program and coordination this program at the School. He coordinated the courses taught by PNM staff at the School of Architecture. He was a member of the AIA's National Energy Committee, Education Task Group and attended their San Francisco meeting in June.

He is a member of the Urban Design Committee of the Albuquerque Chapter of the AIA. He has contributed design and graphic work to support Urban Enhancement Trust Fund, and his successful lobbying led

to passage of legislation in the Summer 1983. He attended a one-week seminar on Teaching Energy and Design at MIT, July 1983, and the National Passive Solar Conference, September 1983, at Santa Fe. He organized a meeting of the Society of Building Science Educators at UNM School of Architecture following the Passive Conference, September 1983 (one of founding members).

Assistant Professor Ted Jojola will return this fall from UCLA where he was on a postdoctoral fellowship with the Institute for American Ethnic Studies. He also held a teaching appointment in the Graduate School of Architecture and Urban Planning at UCLA.

Lecturer David Kal will be on leave of absence for the 1984 fall semester. He will be working on two books on architecture education and expects to do some drawing and painting.

Associate Professor Paul Lusk has worked on paper in Proceedings and demonstration exhibit at 8th National Passive Solar Conference, Santa Fe, NM, September, 1983 - Title: "Lens-Guide Viewing Systems: An Innovative Use of Daylighting at the University of New Mexico, School of Architecture and Planning" (with John Taschek, graduate CRP program, and Leslie Thomas, undergraduate Architecture program).

He is a consultant to City of Albuquerque, Municipal Development Department for Southwest Area Plan. Analysis and generation of alternative land use plan for 120 square mile area in southwest quadrant of Albuquerque (ongoing, draft illustrative land use plans developed July-August, 1984).

His research proposal written was Water-Based Recreation Study - (not selected) in response to request for proposals by City of Albuquerque, Parks and Recreation Department (with Richard Nordhaus and Stephen Dent, April-May 1984).

Baker Morrow, Instructor in Landscape Architecture, was appointed by the mayor to a term on Albuquerque's Urban Enhancement Trust Fund

Committee. He is also serving as task force chief for the Rio Grande Valley Botanical Garden, a joint UNM-City of Albuquerque project. He is a partner in the firm of Morrow and Worley, Landscape Architects. The firm is doing new park and urban design work in Las Vegas, New Mexico, as well as a number of landscape design projects in Albuquerque. It also has continued its research into historic landscape for New Mexico, for which the firm received an American Society of Landscape Architects Merit Award in 1982. In 1983 the firm received the Mayor's Civic Beautification Award for the Broad-bent Business Park in Albuquerque and an Orchid Award from the American Institute of Architects and Associated General Contractors, Albuquerque Chapters, for the Journal Center in Albuquerque. He is a director of the Registry of Historical Landscapes and a member of the RHL National Trust Nominations for New Mexico. His book, A Dictionary of Landscape Architecture is projected for publication Spring, 1985. He is a member of the NM State University Horticulture Department's Curriculum Committee. He has been in private practice since 1973.

Associate Professor Richard Nordhaus has submitted to proposals . The first is to develop a Ten-Year Plan for Handicap Accessibility to State-Owned and Operated Fishing Sites in New Mexico for the State Park and Recreation Division of the New Mexico Department of Natural Resources. A signed contract has been awarded and other team members Bill Siembieda, Min Kantrowitz, and Jeffrey Evans are working on the project. The second proposal was to conduct a study of water-based recreation in Albuquerque for the City Parks and Recreation Department. This proposal was not accepted.

Edward B. Norris, Director of the School's Design and Planning Assistance Center, was elected president of the New Mexico Partners of the Americas. He also chairs the exchange program between our School and the Instituto Tecnológico y de Estudios Superiores del Occidente in Guadalajara. He has been involved as an architect with rural housing developments in the States of Chiapas and Michoacan in Mexico and has lectured to the architecture schools in both states.

He authored an article for MASS Magazine 1984: "Rural Self-Help Housing in Michoacan, Mexico" and is developing a Spanish-English Glossary of Building and Construction Terms. He was principal investigator for a \$15,000 grant for Passive Solar Retrofit Program from the New Mexico Department of Energy and Minerals. He is working on the programming and design of a Rural Information and Training Center at Zitacuaro, Michoacan, Mexico through the Partners of the Americas.

He is also working on "Mejoramiento de Vivienda Rural": design of self-help rural housing in the State of Chiapas, Mexico, in collaboration with the School of Architecture of the Universidad Autonoma de Chiapas.

Professor Wolfgang Preiser of the School of Architecture and Planning with coinvestigators James G. Small and Mark Brecht, former members of the Institute for Environmental Education at the University of New Mexico, have won an award in the 31st Annual Progressive Architecture Awards Program for applied research on topic "Combined Tactile/Electronic Guidance System for Visually Impaired Persons"

The news release by the magazine states that the jurors were enthusiastic about the original and much-needed nature of the study. They emphasized that there is little other research of this sort, and they applauded this team's efforts.

In February, he gave a demonstration of first prototype of a talking directional beacon using computer-chip-based language at the UNM Engineering Open House.

He was appointed to and attended meetings of the Program Committee of the Advisory Board for the Built Environment, National Academy of Sciences, Washington, DC, for 1984/85.

He was a guest lecturer at the University of Arizona, Tucson, Department of Psychology, and the College of Architecture, Arizona State

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University, and a Visiting lecturer, Faculty of Architecture, University of Sao Paulo, Brazil, on the topic of Post-Occupancy Evaluation

He was keynoter at the 12th World Congress on Interior Architecture, in Hamburg, West Germany, keynoter at the Tall Buildings Symposium, Sydney, Australia, and was a Session Chairman and Presenter on "Facilities for the Elderly" IAPS-8 Conference, Berlin, West Germany

Michel Pillet is back teaching part-time at the School and pursuing studies for the Ph.D. in American Studies at UNM. After six years as an administrator at USL in Louisiana, he is delighted to be back teaching in the dry and sunny environment of New Mexico, pursuing his interest in pre-Columbian architecture. He will be writing his dissertation on the architectural evaluation of Chaco Canyon during 1985.

His application for a "Dumbarton Oaks Foundation" fellowship grant for pre-Columbian studies was rejected because the subject was not covered by the Foundation's studies.

Richard James Richardson will join the faculty beginning fall 1984. Mr. Richardson holds master's degrees in city planning and in architecture from MIT. His professional planning experience includes being director of planning for South Dakota, team member for town planning of cities in the New Territories of Hong Kong, and senior consultant for energy and environmental planning with the Quadrex Corporation, Fremont, California. Mr. Richardson also practiced architecture on the Rosebud Reservation. He will hold the rank of assistant professor. His main areas of teaching will be environmental planning. He is married to Kate Hildebrand, who has just finished her Master of City and Regional Planning degree at the University of California-Berkeley.

He has written the following articles:

"Incentive Regulation in the Electric Utility Industry", published by the Edison Electric Institute EEI, in Special Issues Survey and Report, May 1984.

Analysis of Electric Utility Management Audits 1973-83, published in the Edison Electric Institute and distributed to all investor-owned electric utilities, December 1983.

"Electric Utility Management Audits, Analysis of Comments and Recommendations", a report prepared for the Corporate Planning Services Division at EEI, Washington DC., January 1983.

"Conflict or Cooperation: The Future of Management Auditing in the Electric Utility Industry," forthcoming in Public Utilities Fortnightly.

Business Plan Development Guide, a guidebook prepared for Quadrex Corp. to assist in preparing business plans for new products and services, July 1983.

His research projects include:

"Analytical Techniques to Measure Efficiency in the Electric utility Industry," a nine-volume report prepared for the Economics and Statistics Committee at EEI, March 1984. A published summary of the work if forthcoming.

"Case Studies and Incentive Regulation," a series of in-depth case studies measuring existing incentive regulatory program procedures and outcomes, initiated February 1984.

"Using Management Audits to Measure Efficiency in Electric Utilities" a seminar prepared for the American Public Power Association bi-annual meeting, December 1984.

His planning projects include:

"Quadrex HPS Business Plan" a strategic and financial planning document written for the corporation's \$15-million hazardous waste decontamination business, November 1983.

"Quadrex Service Corporation, Product and Service Risk Analysis", a report assessing potential liability of the company's hazardous waste decontamination technology, April 1983.

"Market Analysis and Projection of Client Needs, Expectations, and Service Satisfaction," Quadrex Corporation, January 1983.

His research proposals include:

"Resolving and Avoiding Hazardous Waste Facility Siting Disputes" submitted to Batelle Northwest Labs.

"Measuring the Feasibility of a Small-Scale Nuclear Power Program in the U.S." submitted to Los Alamos Labs.

"Measuring the Benefit/Cost of Constructing and Jointly Owning a Simulator Control Room for Training Power Plant Operators" submitted to APS/SMUD/Sierra Pacific Utility Companies.

"Space Needs Program and Design Study for the Control Room and Support Facilities at the Four Corners Power Plant Complex owned by Arizona Public Service Company.

Handbook series for Measuring Efficiency and Increasing Effectiveness of Municipal Utility Systems to the American Public Power Association.

Professor Don Schlegel is president-elect of the New Mexico Society of Architects and will assume office on January 1, 1985. He was a member of the accreditation visit team to the School of Architecture at the University of Hawaii to evaluate the new accreditation cri-

teria developed by the NAAB. In May 1983 he was named a Fellow of the American Institute of Architects. He was chairman of the 1984 Western Mountain Regional Conference of the American Institute of Architects. He attended the AIA Grassroots Conference in Washington DC, in February 1984.

He served on the following committees: UNM's Finance Committee, and the School of Architecture and Planning's Graduate Committee and Library Committee. He directed the NCARB's practice registration examination, both Technical and Design examinations. He served as a grader for the NCARB's Site Planning Exam in San Diego, California, in July and was a member of the NCARB's Accreditation Team to the University of Hawaii. He received the Association of Collegiate Schools of Architecture's 1983 Outstanding Service Award.

His creative work has included the Church of St. Chad (completed construction January 1984) and the Church of the Good Shepherd (under construction August 1984)

Associate Professor William J. Siembieda, who has been Director of the planning program since its inception in 1980, will be on sabbatical leave for the 1984-85 academic year. He will be in residence at MIT where he will have an appointment as a visiting scholar in the Department of Urban Studies and Planning and the Center for Real Estate Development. He will be doing research on the organization and structure of large-scale land development companies with a regional emphasis on the Southwest. He has been awarded a RAC grant in the amount of \$1,435 to conduct field research on large-scale land development companies in the Southwest.

He prepared two planning and design studies for public agencies, and in conjunction with Richard Nordhaus and Min Kantrowitz, completed a Design Manual and a Ten-year Plan to Improve State Park Fishing Facilities for the Handicapped.

Professor Anne Taylor, Co-Director of the Institute for Environmental Education, will be on a leave of absence in 1984-85. She will continue her own retraining in the field of design and architecture and will develop and write about her model for learning, which combines architecture and education into an holistic system for the programming, design, and construction of learning environments for the future.

Her books or articles written: 1983 Guest Editor - Exceptional Education Quarterly issue devoted to "Effects of the Physical Environment on Learning"; 1984 2nd Edition "School Zone, Learning Environments for Children" with George Vlastos, School Zone, Inc., Corrales, Distributed by Horizon Communications, Albuquerque

Her Research Projects include: 1983-84 \$30,000 grant #2839051, National Endowment for the Arts, Architect-in-Residence Mentorship Program; Pena Blanca Headstart Playground Project; Sunset Mesa Schools Playground Project, Albuquerque. Her Architectural or Planning Projects include: 1983 Child Care Center, Providence Hospital, Anchorage, Alaska, Programming, Interiors, Provisioning; 1984 Child Care Center for U.S. Coast Guard, Kodiak, Alaska; Programming, Design Concepts, Review, Provisioning, and Interiors. She wrote the following Research Proposals: 1984 Continuation of Mentorship Program Development of Educational Material for Dissemination of an Architectural Mentorship Model; submitted to National Endowment for the Arts

Associate Professor Robert Walters' entry to the recent Columbus "Landscape" competition has been selected as one of 45 entries to be retained for exhibition and potential publication. The first exhibition was held at the Municipal Art Society of New York Urban Center Gallery II from June 26 - July 18.

He planned the "Genesis of Form" summer workshop. He designed the poster and completed the plans and schedule in collaboration with Dan Anselevicius, and prepared the final script and faculty selec-

tion. He carried out the 10-day workshop (which included 20 architectural students) and a faculty and lectures located in major ruin sites in New Mexico from June 11 thru June 20, 1984.

He has completed several large watercolor and charcoal drawings made from field sketches during the "Genesis of Form." These are planned as possible publication drawings in the future.

He completed design drawings for the national competition "Columbus Carscape." This project was open to registered architects and involved the design solution of urban scale in the well-known mid-American city of Columbus, Indiana. His designs are now being included in a traveling exhibition which first was presented in New York City. The exhibition has the work of 45 architects (out of the 135 projects submitted).

He applied for a Graham Foundation Grant. This foundation, based in Chicago, Illinois, considers monetary grants in the field of architecture for special projects in a "creative expression." of the discipline. He was not awarded a grant at this time, but did make the final cut and a letter of acknowledgement from the Graham Foundation Director citing the high quality of his submittal.

He designed two residential-scaled private commissions and was overseer for their construction.

He is preparing an Essay for a writing competition to the New Mexico Humanities Council. It is an allegory having to do with contemporary architecture. He is also preparing his statement of intent for a sabbatical year beginning January 1985.

ADJUNCT APPOINTMENTS

The following have been appointed adjunct associate professors at the School of Architecture and Planning: Hal Bowers, Paul McHenry, Jr., Richard Marshment, and Robert Wells.

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ALBUQUERQUE ARCHITECTS TEACH AT THE SCHOOL

Lawrence W. Licht of Westwork Architects and Roger B. Lujan/Beltran taught undergraduate design studios at the School during the academic year 83/84.

SPECIAL STUDIO

Santa Fe Architect Edward Mazria taught a special graduate studio in the Spring semester '84. The subject matter was a museum, with special emphasis on lighting and energy conscious design.

THE REPORT OF THE COLLEGE OF ARTS AND SCIENCES

July 1, 1983 - June 30, 1984

F. Chris Garcia, Dean

COLLEGE OF ARTS AND SCIENCES

Annual Report, July 1, 1983 - June 30, 1984

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I. ADMINISTRATION

Assistant Dean Lynette Wilson retired from the university, leaving her position as assistant dean in the College of Arts and Sciences. She previously had served as administrative coordinator since 1970. The administrative coordinator position was filled by Donna Dionne. Our associate deans continued in their positions in the college office. Associate deans included Elinore Barrett (Department of Geography), Richard Metzler (Department of Mathematics and Statistics) and Julian "Bob" White (Department of Modern and Classical Languages).

In American Studies, Sam Girgus stepped down after nine years as chairperson, and he was succeeded by M. Marta Weigle. Linda Cordell agreed to serve additional years as chairperson of the Department of Anthropology after her one-year appointment the previous year. Richard Hood became the chairman of the Department of Communicative Disorders succeeding Lloyd Lamb. Coming to us from Indiana University, Cornelis Klein became the new chairperson of our Department of Geology. Paul L. Hain succeeded James L. Ray as chairperson of the Department of Political Science. Henry Ellis completed nine years as chairperson of the Department of Psychology and was succeeded by Douglas P. Ferraro. Table 1 lists the chairpersons and program directors in the College of Arts and Sciences for 1983-84.

The Arts and Sciences Graduate Committee continued to develop and guide the procedures and responsibilities of the graduate program of the college. The annual report of the A&S Graduate Committee is appended below. The following A&S committees also functioned during the academic year (Table 2): Albuquerque Public Schools Science Advisory Committee; Budget Committee; Computer Literacy Committee and CAI Task Force;

Curriculum and Academic Programs Committee; Task Force on Liberal Arts Core Curriculum; Graduate Committee; Human Subjects Committee; Promotion Committees for the Humanities, Social Sciences and Natural Sciences and Mathematics; Southwest Studies Committee, Tenure Committee; Teaching Resources Committee; A&S Advisory Committee on Latin America.

II. ACADEMIC STANDARDS AND PROGRAMS

A&S Faculty Action During the Year 1983-84

The Arts and Sciences faculty took the following action:

(1) Voted to raise the admission requirements for the College of Arts and Sciences. The required GPA for admission was to be raised over three semesters, from 1.7 to 1.8 effective Fall 1984, to 1.9 in Spring 1985, and to 2.0 for Fall 1985.

(2) Established a new minor in Teaching English to Speakers of Other Languages (TESOL).

(3) Approved a new undergraduate major in biochemistry. A committee of A&S and School of Medicine representatives will monitor the degree program.

(4) Revised the major in the Department of Geography, increasing the hours from 37 to 40 and restructuring the grouping of courses.

The Task Force on Liberal Arts Core Curriculum continued its study of current college policies regarding general liberal arts education. The task force presented its report to the college committee on curriculum and academic programs which is now considering it.

III. RESEARCH AND SCHOLARLY ACTIVITY

Although faced with a continuing shortage of monies available for sponsored research, the faculty of the College of Arts and Sciences

continued its high levels of research and scholarly investigation. The research and publication record of the faculty for 1983-84 is given in detail in the appended departmental reports. New research and training grants for 1983-84 plus funded renewals numbered a total of 146 grants. (Please see Table 14.) Faculty members involved as principal investigators of these grants numbered 84. These grants totaled \$4,190,918 and brought in \$877,322 in overhead. The college's leading departments in descending order of research monies were:

<u>Department</u>	<u>X \$1,000</u>
Physics and Astronomy	\$1,152
Chemistry	862
Biology	752
Anthropology	519
Geology	445

Twelve of our 20 departments plus most of our other operating divisions and offices secured outside research monies.

One of the most important benefits of outside funding is the support given to graduate students plus the acquisition of research equipment and supplies. Table 15 shows the distribution of GAs and TAs among departments as well as graduate trainees, research assistants and project assistants supported by outside funds.

The list of continuing or new A&S related periodicals includes New America: A Journal of American and Southwestern Cultures, Mary Dougherty-Bartlett, Editor; The Journal of Anthropological Research, Philip Bock, Editor; The Auk: A Quarterly Journal of Ornithology, John Wiens, Editor; The Southwestern Review of Management and Economics, Roger Norton and William Peters, Editors; Blake/An Illustrated Quarterly, Morris Eaves, Editor; Journal of American Poetry, Peter White and Lee Bartlett, Editors; Shakespeare Studies, Barry Gaines, Co-editor; The Historian, A Journal.

of History, Gerald Nash, Editor; The New Mexico Historical Review, Richard Etulain, Editor; The Hispanic American Historical Review, John Johnson, Editor; Journal of Chinese Studies, Fred G. Sturm, Editor; Comparative Social Research, Dick Tomasson, Editor; Latin American Research Review, Gilbert Merx, Editor.

In addition, college faculty were closely involved with the operation of two research institutes under the direction of the Office of the Provost. The Latin American Institute (LAI) involved a great many Arts and Sciences faculty. Executive director of the Institute is Professor Gilbert Merx of the Department of Sociology. The associate director and academic coordinator was Jon Tolman of the Department of Modern and Classical Languages. The academic coordinator also serves as chairperson of the combined A&S Deans Advisory Committee on Latin American Studies and the Interdisciplinary Committee on Latin American Studies. Arts and Sciences faculty, staff and students were also closely involved in the activities of the Southwest Hispanic Research Institute (SHRI).

IV. HIGHLIGHTS FROM STATISTICAL TABLES

Table 5 reveals that, contrary to popular impression and the experience of many other colleges of arts and sciences, the number of students enrolling as liberal arts majors continues to increase in our college. The number of A&S majors increased by 11.7% Semester I, by 10.2% Semester II.

Although total student credit hours (Table 6) generated by the College of Arts and Sciences decreased slightly this past year, there still remains a 6.0% increase (15,437 student credit hours) over the 1973-74 level. The college continues to generate well over half (52.3%) of the total student credit hours produced by all units of the University of

New Mexico. The high number of students on probation (Table 11) led to a revision of the admission and probation policies by the College of Arts and Sciences.

V. CONTINUING PROBLEMS AND PROSPECTS

Many of the problems reported in the past few annual reports continue to hinder the quality of our performance in teaching, research and service.

(1) Faculty and Staff Shortages

Based on data provided by our departments, our college continues to be very short of faculty and staff. This past year requests were submitted for an additional 22.67 faculty FTEs, 24.25 graduate assistants and 15.05 staff/clerical positions. This is a minimum number needed. There also continues to be a shortage of full-time faculty in our growing departments. Several of our departments continue to be critically short of secretarial/clerical/technical assistance. This condition imposes serious difficulties on the production and management of instructional and research materials. Paradoxically, even though we continue to secure additional automated and computerized research and office equipment such as mini-computers and word processors, this has compounded the need for additional staff support.

Many more graduate and research teaching assistantships are needed in the college. No additional TAs have been allocated to the College of Arts and Sciences for over a decade.

(2) Equipment Maintenance Funds

Equipment maintenance funds continue to be practically nonexistent. Several expensive and necessary pieces of instructional and research equipment have been obtained over the past few years, largely through

the efforts of our faculty scholars, the assistance and consideration of the associate provost for research and state funding agencies. Yet very little money has been available for the maintenance of this equipment. Because of the inevitable deterioration of mechanical and electronic equipment, some of it either has been rendered useless due to lack of maintenance, or wherever possible, faculty have been taken away from their instructional and research duties to function as maintenance service personnel.

(3) Supplies and Equipment

Financial resources available for purchasing supplies and equipment are critically and increasingly inadequate. Our departments typically run out of money for long distance telephone usage, copying, office supplies and equipment before the school year is over. This situation has been growing progressively worse every year.

(4) Computer Usage

Both the faculty and staff of the college increasingly are employing computers as aids in office management, word processing and research. Although several departments have purchased "stand alone" microcomputers as funds became available, there is still a great deal of dependence upon the university computing facilities. Although in the 1983-84 year, \$686,000 worth of computer usage was expended, this amount was inadequate by at least \$100,000. The situation will continue to become more critical as more faculty and staff use the computer in their work.

(5) Travel Monies

Money for travel to professional conferences continues to be embarrassingly inadequate. Our faculty members are expected to be aware of the latest developments in their profession and to present their latest

research findings to their colleagues. This is particularly important at an emerging but somewhat geographically isolated university such as UNM. Yet, travel support to professional conferences is minimal.

(6) Salaries

We are continuing to have weakened our competitive position on salaries. Beginning salaries remain roughly competitive, but the gap between the salaries we can offer continuing faculty and those available from outside institutions, both in the private and academic sectors, is becoming critically large. The past year we lost faculty in Geology, Psychology and Speech Communication because we were unable to offer competitive salaries. The salary problem is particularly acute among our senior professors, especially in the sciences. The "market compression" of salaries almost has reached the point of being intolerable, as some senior faculty find their salaries close to those offered to new faculty members.

Graduate assistant stipends also remain below those of comparable institutions causing considerable difficulty in attracting the best graduate students. The salaries of our nonfaculty staff are also generally below levels for comparable work off this campus.

A chronic problem is the lack of adequate pay for chairpersons who need to perform administrative duties during the summer. Most other institutions, including our sister institutions in this state, pay administrative stipends of an additional 1/9 or 2/9 annual salary to chairpersons who administer their departments during the summer. A substantial amount of work, especially in our large departments, necessarily must be carried out by chairs at the end of the academic year as well as prior to the new academic year. Prior to 1981 most chairs were not paid at

all for the administrative activities performed during the summer. In the 1980-81 year, a start was made toward remedying this inequity; this practice continued into the past year with chairs being paid a very small and inadequate amount ranging from 2% to 8% for their summer administrative duties. As our enrollments continue to expand, we must make every effort to garner resources for at least one month's administrative pay for chairpersons.

(7) Affirmative Action

The college continues to be committed to the principles of affirmative action. Although in general we remain considerably below our goals in hiring women and ethnic minority faculty, some minimal progress has been made, as a few ethnic minority and women faculty members were hired this past year. Continued efforts in this direction will be made.

(8) Physical Plant Space

We continue to be short of space. Additional office spaces for instructional staff as well as for our teaching and research laboratories are badly needed. Our science departments must be provided with additional laboratory and office space to meet the increased demands upon them. Some of our social science facilities such as those in Economics and Political Science are also inadequate. The lack of space for the Department of Mathematics is critical.

(9) Centers of Technical Excellence

Several departments in our college will be greatly affected by the supplemental appropriations being made available for the development of "centers of technical excellence." Most involved in the Center for Materials Sciences will be our Department of Physics and its Institute of Modern Optics in addition to our departments of Chemistry, Geology

and Mathematics and Statistics. An ad hoc planning committee headed by Chairman Marc Price of our Department of Physics provided the initial input from our college into the developing organization of the centers at UNM. Dean Garcia serves as a member of the Center's steering committee which will have the prime responsibility for supervising our centers of technical excellence at this university.

(10) Reorganization of the College

Our departments of science and mathematics have proposed a reorganization of the college, which includes the formation of a separate college of science and mathematics. The subject has received some initial consideration, and materials on this subject are being gathered from various sources. Discussion is expected to continue during the coming academic year. A proposal for a "Vice Dean for the Sciences" was presented to the administration as a possible first step towards the creation of a separate college of science and mathematics.)

VI. DEPARTMENTAL REPORTS

The reports of our 20 departments and the several divisions and offices of our college (appended) deal with matters of curriculum review and change, space problems, the scholarly activities of members of the faculty, service in professional societies, scholarly meetings held or to be held at UNM, special instructional programs, special research activities, visiting scholars and lectures, activities designed for the general public and the successes and frustrations uppermost in departmental consciousness. These reports are an integral part of the A&S annual report (but they are not reproduced because of their bulk). Interested readers are invited to borrow a copy of any departmental report from the A&S office, the Secretary of the University or the department itself.

ANNUAL REPORT OF THE A&S GRADUATE COMMITTEE
Richard C. Metzler

According to the statement of Policies and Procedures of the Arts and Sciences Graduate Committee, the A&SGC is required to "present an annual report to the A&S faculty summarizing actions taken within the area of its authority." This report follows. Faculty desiring more detailed information are invited to consult the minutes of the A&SGC which are transmitted to the departmental representatives on the A&SGC. Additionally, a file of minutes is maintained in the office of Associate Dean R.C. Metzler, A&SGC chairman.

The A&SGC met six times during the 1983-84 academic year and some of the standing subcommittees met during the year. The A&SGC elects two representatives to the Senate Graduate Committee each year. Our representatives were Professor Barry Gaines from English and Professor Cary Morrow from Chemistry.

Following are summarized minutes of the A&SGC meetings for 1983-84.

Fall Semester

1. August 31, 1983. Dick Metzler was re-elected chairman of the committee. The committee recommended to the Senate Graduate Committee a change in policy regarding "suspension from a department."
2. September 28, 1983. Policy on approval of faculty for graduate instruction was discussed. The committee agreed that such approval should come at the departmental level.
3. November 16, 1983. In response to a request from the Graduate Office the committee began examination of the first draft of the proposed revisions to the graduate bulletin. Several changes in wording were proposed.

4. December 2, 1983. Information regarding present department practice concerning proposals for dissertations was solicited from committee members. Graduate Bulletin revisions were examined further.

5. February 9, 1983. Changes in wording of the credit hour requirement for the Ph.D. were recommended to the graduate office. More recommendations were made concerning the Graduate Bulletin revisions.

6. February 29, 1984. The committee did not support a request to simplify the present policy on undergraduate enrollment in graduate courses for undergraduate credit. Additional suggestions were made concerning Graduate Bulletin revisions.

Subcommittee Activities

The subcommittee on students dealt with several student petitions during the year. The subcommittee on faculty served as the dean's advisory committee on sabbatical leave requests.

ANNUAL REPORT ON SUMMER SESSION
Richard C. Metzler

In November 1983, the departments submitted their summer budget requests to the College of Arts and Sciences. These came to a total of \$575,504 as calculated in terms of 1982 salaries.

In April the college was allocated \$549,900 for the summer. We were able to make up the deficit by paying some of the chairs from the 1983-84 regular year budget. This was made possible by the new policy on summer chair compensation.

Our enrollment was up 7.5% from the "budget crisis" summer of 1983 to 5,763. This represented a decrease of 8.6% from the "normal" summer of 1982.

The International Programs in Mexico and Spain enrolled 24 and 26 students respectively. The German summer language program in Taos had 71 students (including teaching assistants) taking upper-level and graduate courses; in addition, 17 high school teachers were enrolled in a second-half workshop. The French school had 40 students at junior level and above in its new location near Las Vegas.

ANNUAL REPORT ON TRAVEL
Richard C. Metzler

The travel budget for 1983-84 was reduced to zero because of the overall four per cent budget reduction. This was an extreme hardship for those faculty members without grant travel funds. The problem was alleviated slightly by an allocation from the UNM Foundation. The Foundation waived its policy against providing money for travel and allocated some money for travel support, \$10,000 of which went to Arts and Sciences. This money went primarily to nontenured junior faculty, paying 60% of coach fare for one trip, and was much appreciated.

The 1984-85 travel budget is \$36,750, which represents a five per cent increase from the 1982-83 travel budget. Unfortunately, that budget was 16% less than the 1981-82 budget, so we are still 12% below the travel budget of 1981-82. Considering that the allocation that year was much less than adequate, it is clear that the amount for A&S travel is very far under the amount necessary for faculty members to share their research with their professional peers at conferences.

ANNUAL REPORT OF THE A&S ADVISEMENT CENTER
Julian E. White, Jr.

The Arts and Sciences AdviseMENT Center saw approximately 12,250 students between June 1983 and June 1984. Since we do not log telephone calls, this count does not include telephone contacts, which could easily number 20,000 for the same period. These students were seen by three full-time and one part-time (20 hours per week) advisors: Dr. Diane Rawls, Polly Keightley, Monique Denzler and Alan McFarland. Although the number of contacts averages approximately 1,000 students per month, the Center sees 1,000 a week during peak periods; in November, January, April and May. Additionally, continuing students are seen by Julie Bustamante, Raquel Martinez and Donald Weeke; these three advisors are located in the dean's office. These contacts are not logged.

All advisors participated in UNM's Carrer Fair, sponsored by Arts and Sciences, University College, ASM and Career Planning and Placement in March 1984. A&S staffed a table, welcoming students and distributing pamphlets, handouts, evaluation forms, and directing students to representatives of business and industry attending the fair.

All advisors attended the April AdviseMENT Centers' Semi-Annual Update on Academic Affairs, co-sponsored by University College and all adviseMENT centers. Ms. Keightley and Dr. Rawls coordinated and planned the agenda for the conference, contacting all participants and organizing the timetable for the afternoon.

Ms. Denzler attended the annual Pre-Med Day at the Medical School in April.

Ms. Keightley authorized and interpreted 31 Strong-Campbell Interest Inventories for students who requested or indicated a need for such an

evaluation. No advertising of this service is done by A&S; student contact is via word-of-mouth and referral.

Ms. Keightley went to Los Alamos in April to represent A&S at UNM-LA; she advised students there on main-campus programs and provided general information regarding transferring to the main campus. Also in April, she gave a presentation on A&S programs to 15 prospective students from St. Michael's Boarding School in Arizona.

Dr. Rawls continued to serve on various university committees. She is the Advisement Center's representative on the Adult Re-Entry Committee; she also serves on the subcommittees on extended hours, on academic renewal, and on the PACE scholarship committee which screens and selects recipients of this grant. Dr. Rawls also regularly attends all Advisement Centers' monthly meetings, and serves on the College Advisement Centers' planning committee which meets monthly. She edited and revised all A&S sections of any publication printed by the CAC group; i.e., orientation guides for freshmen, transfer students, basic skills program. Dr. Rawls continued to serve as the main pre-professional advisor, responding to requests for Health Science Committee interviews, acting as liaison with professional schools such as UM-Kansas City Dental School, answering any request for pre-professional information from prospective students.

Dr. Rawls went to UNM Valencia and Gallup branches to advise students on main-campus programs and transferability of coursework.

Dr. Rawls acted as co-coordinator for the Adult Re-Entry Committee Open House in May; she was the main liaison for all participants of the Open House and worked on all advertising for the event.

Ms. Keightley, Ms. Denzler and Dr. Rawls participated in Health Science Committee interviews and wrote evaluations for students applying

to medical and dental schools.

Dr. Rawls and Ms. Keightley attended the annual ACT conference in September, designed to acquaint university personnel with issues concerning college students.

Dr. Rawls attended a conference in Portales in January for state-wide university student services personnel.

Dr. Rawls worked with ASM graduate students and the Registrar's Office to design a computer-assisted advisement system to be implemented in the future. She also worked with the Registrar's Office on verification of student athletes' enrollment and degree programs for compliance with new NCAA guidelines and requirements.

Dr. Rawls also gave presentations in June to students in the College Enrichment Program orientation sessions; these presentations are designed to familiarize students with UNM in general, A&S programs and the demands of college-level performance.

TABLE 1

CHAIRPERSONS AND PROGRAM DIRECTORS, 1983-84

Departments

AMERICAN STUDIES
Samuel B. Girgus

ANTHROPOLOGY
Linda Cordell

BIOLOGY
Donald W. Duszynski

CHEMISTRY
Riley O. Schaeffer

COMMUNICATIVE DISORDERS
Lloyd E. Lamb

ECONOMICS
Alfred L. Parker

ENGLISH
Hamlin Hill

GEOGRAPHY
Stanley Morain

GEOLOGY
Rodney C. Ewing

HISTORY
Janet Roebuck

JOURNALISM
Robert H. Lawrence

LINGUISTICS
Alan J. Hudson-Edwards

MATHEMATICS AND STATISTICS
David Sanchez

MODERN AND CLASSICAL LANGUAGES
Tamara Holzapfel

PHILOSOPHY
Fred G. Sturm

PHYSICS AND ASTRONOMY
R. Marcus Price

POLITICAL SCIENCE
James L. Ray

PSYCHOLOGY
Henry C. Ellis

SOCIOLOGY
H. Laurence Ross

SPEECH COMMUNICATION
Kenneth D. Frandsen

Programs

ASIAN STUDIES
Jonathan Porter

COMPARATIVE LITERATURE
Joseph Zavadil

EUROPEAN STUDIES
M. Jane Slaughter

FRESHMAN ENGLISH
Joseph Zavadil, Acting Director

IBERO-AMERICAN STUDIES
Jon M. Tolman

INSTITUTE OF METEORITICS
Klaus Keil

INSTITUTE OF MODERN OPTICS
Marian O. Sully

LATIN AMERICAN STUDIES
Jon M. Tolman

MAXWELL MUSEUM
J.J. Brody

OFFICE OF CONTRACT ARCHEOLOGY
Joseph C. Winter

PALEOECOLOGY
Roger Y. Anderson

RUSSIAN STUDIES
Natasha Kolchevska

TABLE 2

STANDING AND SPECIAL COMMITTEES,
COLLEGE OF ARTS AND SCIENCES, 1983-84

Albuquerque Public Schools Advisory Committee

Douglas Brookins, Geology
Marc Price, Physics
Riley Schaeffer, Chemistry
Rex Cates, Biology

A&S Budget Committee

Jeremy Sabloff, Anthropology, Chairman
Harry P. Stumpf, Political Science
David Remley, English
Daniel Finley, Physics

Computer Literacy Committee and C.A.I. Task Force

Arthur St. George, Sociology, Chairman
Richard Coughlin, Sociology
Jon Tolman, Modern and Classical Languages
Harold Delaney, Psychology
Shaul Ben-David, Economics
Andrew Burgess, Philosophy
Lynn D. Beene, English
Terry Yates, Biology
Jerry Williams, Geography
Miriam Golden, Political Science
Richard Griego, Mathematics and Statistics
Richard Metzler, Arts and Sciences and Mathematics and Statistics
Clark Edwards, Journalism
Gil Woodall, Speech Communication

A&S Committee on Curriculum and Academic Programs

Richard Holder, Chemistry, Chairman
Clifford Crawford, Biology
Paul Davis, English
Gary LaFree, Sociology
George Schueler, Philosophy
Alexander Stone, Mathematics and Statistics
Ferenc Szasz, History

A&S Task Force on Liberal Arts Core Curriculum

Donald Skabelund, History, Chairman
Richard Barrett, Anthropology
Robert Holzappel, Modern and Classical Languages
Robert Sickels, Political Science
Richard Holder, Chemistry

TABLE 2 (contd.)

A&S Graduate Committee

Richard C. Metzler, Arts and Sciences, Chairman
 Sam B. Girgus, American Studies
 Richard Barrett, Anthropology
 Rex Cates, Biology
 Cary Morrow, Chemistry
 Linda Riensche, Communicative Disorders
 Barry Gaines, English
 Bradley Cullen, Geography
 Barry Kues, Geology
 Peter Bakewell, History
 John Oller, Linguistics
 Richard Allen, Mathematics and Statistics
 Alfred Rodriguez, Modern and Classical Languages
 Brian O'Neil, Philosophy
 Charles Beckel, Physics
 Martin Needler, Political Science
 John Rhodes, Psychology
 Philip May, Sociology
 John C. Condon, Speech Communication
 Charlene McDermott, Office of Graduate Studies
 Frank Papsy, Health, PE and Recreation

A&S Human Subjects Committee

Henry Harpending, Anthropology, Chairman
 Harold Delaney, Psychology
 Jay Sorenson, Political Science
 Paul Steele, Sociology
 Priscilla Thompson, Housewife

A&S Promotion Committee for the Humanities

Hugh Witemeyer, English, Chairman
 Charles Coates, Journalism
 Gerald Nash, History
 Alfred Rodriguez, Modern and Classical Languages
 Howard Tuttle, Philosophy

A&S Promotion Committee for the Natural Sciences and Mathematics

James Gosz, Biology, Chairman
 Fritz Allen, Chemistry
 Richard Allen, Mathematics
 Douglas Brookins, Geology
 Howard Bryant, Physics
 Richard Hood, Communicative Disorders
 Peder Johnson, Psychology

TABLE 2 (contd.)

A&S Promotion Committee for the Social Sciences

Gerald J. Boyle, Economics, Chairman
 Iven Bennett, Geography
 Patricia Draper, Anthropology
 George Huaco, Sociology
 Peter Lupsha, Political Science
 Janice Schuetz, Speech Communication
 John Oller, Linguistics

A&S Southwest Studies Committee

Charles Biebel, American Studies, Chairman
 Iven Bennett, Geography
 Tobias Duran, Chicano Studies
 Douglas George, Art
 Ted Jojola, Native American Studies
 John Kessell, History
 Vera Norwood, American Studies
 M. Marta Weigle, Anthropology and English
 Peter White, English
 Jerry Williams, Geography

A&S Tenure Committee

Paul Hain, Political Science, Chairman
 Dolores Butt, Communicative Disorders
 Richard Harris, Psychology
 Claude-Marie Senninger, Modern and Classical Languages
 M. Marta Weigle, Anthropology and English
 Hugh Witemeyer, English
 James Gosz, Biology
 Gerald J. Boyle, Economics

A&S Teaching Resources Committee

Jean M. Civikly, Speech Communication, Chairperson
 Charles Beckel, Physics
 Erlinda Gonzales-Berry, Modern and Classical Languages
 Anthony Hillerman, Journalism
 David Kidd, Biology
 Patrick McNamara, Sociology

A&S Advisory Committee on Latin America

Jon Tolman, Modern and Classical Languages, Chairman
 Peter Gregory, Economics
 Jeremy Sabloff, Anthropology
 Erlinda Gonzales-Berry, Modern and Classical Languages
 Karen Remmer, Political Science
 Peter Bakewell, History

TABLE 3

FACULTY PROMOTIONS, RETIREMENTS, SEPARATIONS, AND APPOINTMENTS,
TENURE AND THIRD-YEAR TERM DECISIONS, 1983-84

PromotionsTo Full Professor:

James L. Thorson	English
Peter K. Pabisch	Modern and Classical Languages
George F. Peters	Modern and Classical Languages
Jon C. Tolman	Modern and Classical Languages
Rodney C. Ewing	Geology
James A. Ellison	Mathematics and Statistics
William C. Gordon	Psychology

To Associate Professor:

Manuel C. Molles	Biology
Terry L. Yates	Biology
James G. Satterlee	Chemistry
Jack O. Burns	Physics
Kevin E. Cahill	Physics
Weng Chow	Physics
Mari Lyn Salvador	Anthropology
Robert S. Santley	Anthropology
Linda Riensche	Communicative Disorders
Jerry L. Williams	Geography

Retirements

James N. Spuhler	Anthropology
William M. Dabney	History
Bernard Epstein	Mathematics & Statistics
Theodore Guinn	Mathematics & Statistics
John M. Rhodes	Psychology

Separations

J.J. Brody	Maxwell Museum
Evelyn P. Ewing	Biology
Guido H. Daub	Chemistry
Robert E. Tapscott	Chemistry
Rick Anthony Eden	English
Peter Page	English
Sharon R. Barba	English
Ronald Swigger	English
Dennis E. Fitzsimons	Geography
Jonathan Callender	Geology
Kenneth D. Mahrer	Geology
Steven L. Strauss	Linguistics

TABLE 3 (contd.)

Separations (contd.)

Gustave A. Efroymsen	Mathematics and Statistics
John Charles Neu	Mathematics and Statistics
James P. Miller	Mathematics and Statistics
Jack E. Tomlins	Modern and Classical Languages
Jose R. Reyna	Modern and Classical Languages
Sam L. Guyler	Modern and Classical Languages
William T. Boos	Philosophy
Eddy M. Zemach	Philosophy
James L. Ray	Political Science
Miriam Golden	Political Science
Martin Sanchez-Jankowski	Political Science
Gwynn Nettler	Sociology
Thomas D. Daniels	Speech Communication
Barry E. Spiker	Speech Communication

New AppointmentsAnthropology:

Charlotte L. Benson	Visiting Assistant Professor
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Biology:

Clifford Dahm	Assistant Professor
William R. Rice	Assistant Professor
Herbert Grover	Visiting Associate Professor

Chemistry:

George D. Brabson	Visiting Professor
Jonathan S. Nimitz	Visiting Assistant Professor
Harry Sveum	Visiting Associate Professor

Economics:

Tim Sass	Assistant Professor
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English:

Anne Dunn	Visiting Assistant Professor
Louis D. Owens	Assistant Professor
Scott P. Sanders	Assistant Professor

Geography:

Susan E. Place	Assistant Professor
Steven Thompson	Assistant Professor

New Appointments (contd.):Geology:

Cornelis Klein	Professor, Chairman
John W. Geissman	Assistant Professor

History:

Anne M. Boylan	Lecturer III
Paul Hutton	Assistant Professor
Melvin M. Yazawa	Assistant Professor

Linguistics:

Charles Ulrich	Visiting Assistant Professor
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Mathematics and Statistics:

Dharmika Amaratunga	Visiting Assistant Professor
Michael A. Buchner	Assistant Professor
Lane Clark	Visiting Assistant Professor
Wojciech Kucharz	Assistant Professor
Thomas S. Angell	Visiting Professor

Modern and Classical Languages:

Rowena Rivera	Visiting Associate Professor
E. Jose de Sa Rego	Assistant Professor
Rosa Fernandez	Assistant Professor
Tey D. Rebolledo	Associate Professor

Physics:

Wendy Hagen	Assistant Professor
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Political Science:

Larry N. George	Visiting Assistant Professor
Thomas M. Konda	Visiting Assistant Professor
Anthony R. Brunello	Visiting Assistant Professor

Psychology:

Jane Ellen Smith	Visiting Assistant Professor
Ronald Yeb	Assistant Professor

Sociology:

Robert A. Fiala	Assistant Professor
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TABLE 3

New Appointments (contd.)

Speech Communication:

John Carl Condon
Ellen M. Murray
Paul J. Traudt
Kathleen J. Krone

Professor
Assistant Professor
Assistant Professor
Visiting Assistant Professor

TABLE 4
FTE BUDGETED FACULTY, 1983-84

<u>Department</u>	<u>Returning Faculty</u>	<u>New Faculty</u>	<u>Part-Time Instruction</u>	<u>GA's/TAs</u>
American Studies	3.94	0.42	--	0.25
Anthropology	19.05	1.67	--	3.00
Biology	29.00	2.00	--	21.00
Chemistry	20.58	2.00	--	15.00
Communicative Disorders	6.87	1.00	--	1.00
Economics	17.30	1.00	1.48	3.50
English	37.42	--	7.39	23.00
Geography	6.50	--	--	1.50
Geology	15.00	0.50	0.43	6.00
History	23.17	0.75	1.90	7.00
Journalism	7.00	--	0.49	--
Linguistics	3.41	--	--	0.25
Mathematics & Statistics	38.17	3.00	4.19	11.00
Modern & Classical Languages	31.92	2.00	0.91	15.50
Philosophy	11.33	--	--	2.00
Physics & Astronomy	19.04	--	1.08	9.50
Political Science	13.18	--	1.48	2.00
Psychology	22.10	1.00	--	6.75
Sociology	14.37	1.50	--	2.50
Speech Communication	10.00	--	--	2.00
<u>A&S Contingency</u>	--	--	1.00	--
<u>TOTAL</u>	<u>349.35</u>	<u>16.84</u>	<u>20.35</u>	<u>132.75</u>

TABLE 5

NUMBER OF STUDENTS ENROLLED
COLLEGE OF ARTS AND SCIENCES

<u>Year</u>	<u>Sem. I</u>	<u>% Inc. Over Prev. Year</u>	<u>Sem. II</u>	<u>% Inc. Over Prev. Year</u>
1973-74	2,857	8.0	2,797	- 1.4
1974-75	2,724	- 4.7	2,746	- 1.8
1975-76	2,684	- 1.5	2,756	0.4
1976-77	2,663	- 0.8	2,737	- 0.7
1977-78	2,582	- 3.0	2,602	- 4.9
1978-79	2,397	- 7.2	2,322	-10.8
1979-80	2,267	- 5.4	2,205	- 5.0
1980-81	2,099	- 7.4	2,350	6.6
1981-82	2,492	18.7	2,580	9.8
1982-83	2,725	9.3	2,896	12.2
1983-84	3,044	11.7	3,192	10.2

TABLE 6

STUDENT CREDIT HOURS TAUGHT, UNM AND A&S

<u>Year</u>	<u>Student Credit Hours</u>		<u>A&S Percent of Total</u>
	<u>UNM</u>	<u>A&S</u>	
1973-74	420,311	256,979	61.1
1974-75	517,455	300,821	58.0
1975-76	461,641	285,551	61.9
1976-77	487,208	279,810	57.4
1977-78	476,229	267,786	56.2
1978-79	473,266	272,829	57.6
1979-80	495,039	279,666	56.5
1980-81	508,267	282,239	55.5
1981-82	516,956	280,455	54.3
1982-83	532,196	288,710	54.2
1983-84	520,439	272,416	52.3
Change			
1983-84	- 11,757	- 16,294	
Over			
1982-83	- 2.2%	- 5.6%	
Increase			
1983-84	100,128	15,437	
Over			
1973-74	23.8%	6.0%	

TABLE 7

STUDENT CREDIT HOURS BY DEPARTMENT

Department	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	% Dif- ference 1983-84
American Studies	3,158	2,302	2,077	1,923	2,063	2,196	1,875	1,685	-10.13
Anthropology	12,225	10,861	9,758	9,611	8,674	8,304	8,129	7,685	- 5.46
Biology	23,278	21,863	20,458	20,690	20,783	19,841	19,355	20,326	+ 5.02
Chemistry	19,397	18,143	18,203	18,414	17,988	17,781	18,311	18,509	+ 1.08
Comm. Disorders	2,928	2,601	3,096	2,949	2,876	3,009	2,649	2,759	+ 4.15
Economics	12,168	13,899	15,369	17,346	18,136	16,784	15,744	16,220	+ 1.10
English	31,370	29,128	30,109	32,813	33,117	34,175	33,980	30,918	- 9.00
Geography	5,545	5,410	6,001	6,296	5,664	5,390	4,972	5,627	+13.17
Geology	8,797	8,154	9,023	10,211	10,212	9,555	8,637	8,838	+ 2.33
History	19,745	19,960	21,192	19,598	17,924	17,344	15,674	15,795	+ 0.08
Journalism	3,425	3,016	3,045	2,846	2,840	3,108	3,123	2,897	- 7.24
Linguistics	1,615	1,304	1,319	1,042	3,176*	1,269	1,235	1,653	+33.85
Math. & Statistics	35,167	35,346	38,414	43,405	46,252	50,344	50,789	53,140	+ 4.63
Mod. & Clas. Lang.	21,491	19,648	19,178	18,901	19,063	17,593	15,583	16,568	+ 6.32
Philosophy	7,926	5,922	14,825	5,933	5,648	5,685	5,498	5,623	+ 2.28
Physics & Astronomy	11,842	11,731	12,278	12,998	14,009	14,812	14,742	14,676	- 0.45
Political Science	10,391	10,621	9,675	9,606	9,450	9,582	9,451	9,748	+ 3.14
Psychology	24,422	24,273	25,358	22,080	20,607	22,447	21,601	22,564	+ 4.46
Sociology	13,778	15,155	14,327	14,483	15,052	14,112	12,995	13,928	+ 7.18
Speech Comm.	11,142	8,328	9,124	8,521	8,705	8,222	8,215	7,840	- 4.57
TOTAL	279,810	267,665	272,829	279,666	282,239	281,553	272,558	276,999	+ 1.63

*Unusual figure due to 1980 Linguistics Institute.

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TABLE 8
DEGREES AWARDED
COLLEGE OF ARTS AND SCIENCES

Year	Bachelor's Degrees		Advanced Degrees					
	No. of	% Inc. Over	Master's (a)		Doctor's		Total	
	Degrees	Previous Yr.	No.	% Inc.	No.	% Inc.	No.	% Inc.
1974	734	18.0	154	-18.5	88	4.7	242	-11.3
1975	816	10.0	128	-16.8	64	-27.2	192	-20.6
1976	707	-13.3	128	0.0	74	15.6	202	4.2
1977	611	-13.6	159	24.2	69	-6.8	228	12.9
1978	662	8.3	167	5.0	68	-1.4	235	3.1
1979	577	-12.8	143	-14.4	55	-19.1	198	-15.7
1980	627	8.7	123	-14.0	58	5.5	181	-8.6
1981	500	-20.3	121	-1.6	73	25.9	194	-7.1
1982	453	-9.4	165	36.4	51	30.1	216	11.3
1983	523	15.5	153	-7.3	55	7.8	208	-3.7
1984	460	-12.0	171	11.8	54	-1.8	225	8.2
10-Year Change	-274	-37.3	-17	-11.0	-34	-38.6	-17	-7.0

(a) These figures do not include Master of Arts in Teaching and Master of Education in Science degrees.

TABLE 9
DEGREES AWARDED, A&S AND UNM, 1974 AND 1984

College	Bachelor's Degrees			Advanced Degrees		
	1974	1984	% Inc.	1974	1984	% Inc.
Arts and Sciences	736	460	-37.5	270	225	-16.7
B.U.S.	470	175	-62.8	--	--	--
Other Colleges*	979	1,116	14.0	597	675	13.1
UNM TOTAL	2,185	1,751	-19.9	867	900	3.8

*Excludes Law and Medicine.

TABLE 10

DEGREES AWARDED, BY DEPARTMENT¹

Department	Bachelor's				Master's				Doctoral			
	1981	1982	1983	1984	1981	1982	1983	1984	1981	1982	1983	1984
American St.	--	4	1	3	1	3	1	5	8	4	8	6
Anthropology	27	19	24	17	12	10	18	19	4	5	5	5
Art ²	6	4	2	2	--	31	15	14	--	--	--	--
Biology	77	55	82	39	7	5	8	10	6	6	5	6
Chemistry	11	15	19	9	11	6	6	3	9	6	8	8
Comm. Disorders	13	13	12	13	14	19	25	20	--	--	--	--
Comp. Lit.	1	1	1	--	3	--	--	--	--	--	--	--
Creative Wrtg.	--	7	4	7	--	--	--	--	--	--	--	--
Economics	45	42	59	32	6	5	4	5	3	1	3	1
English	28	27	30	29	3	7	8	14	2	7	7	1
English-Phil.	2	2	2	2	--	--	--	--	--	--	--	--
Geography	6	9	16	12	2	2	7	2	--	--	--	--
Geology	17	22	22	22	14	10	8	12	3	--	2	--
History	31	24	27	21	3	3	6	9	4	3	7	4
Home Economics ²	--	1	--	3	--	5	2	3	--	--	--	--
Ibero-Amer. St.	--	--	--	--	--	--	--	--	--	--	1	--
Journalism	22	21	27	26	--	--	--	--	--	--	--	--
Linguistics	1	1	3	2	5	1	--	3	--	--	--	--
Lat. Amer. St.	6	5	11	5	5	5	6	5	--	--	--	--
Math & Stat.	14	15	17	12	7	10	8	10	7	2	1	3
M&CL	30	16	32	25	2	12	10	8	10	3	3	7
Philosophy	5	1	4	3	--	2	3	3	--	1	--	2
Physics & Astr.	7	8	7	5	6	4	4	6	5	1	3	6
Pol. Science	34	43	46	55	1	4	1	2	--	--	1	1
Psychology	72	60	66	64	5	5	7	75	12	11	11	14
Religious St.	1	--	4	--	--	--	--	--	--	--	--	--
Russian St.	1	1	--	3	--	--	--	--	--	--	--	--
Sociology	21	23	29	29	--	2	1	11	1	1	--	--
Speech Comm.	22	19	22	28	14	14	5	12	12	--	--	--
TOTAL	500	458 ⁴	569 ⁴	468 ⁴	121	165	153	171	73	51	55	54

¹Includes summer, fall and spring graduates.

²Not a department of the College of Arts and Sciences, but major or minor is allowed.

³Interdisciplinary program at the doctoral level.

⁴Degrees granted with double majors are counted once in each major department, so this total will not agree with Table 9.

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TABLE 11

ACADEMIC PROBATIONS, SUSPENSIONS AND RELEASES
COLLEGE OF ARTS AND SCIENCES

	1979-80		1980-81		1981-82		1982-83		1983-84	
	No.	%	No.	%	No.	%	No.	%	No.	%
Semester I										
On Probation	216	9.5	186	8.9	249	10.0*	465	17.1	628	20.6
Suspended	106	4.7	77	3.7	126	5.1	107	3.9	180	5.9
Released	40	1.8	30	1.4	47	1.9	74	2.7	72	2.4
Semester II										
On Probation	335	15.9	191	8.1	244	9.5*	505	17.4	502	15.7
Suspended	107	4.9	112	4.8	91	3.5	119	4.1	128	4.0
Released	61	2.6	64	2.7	85	3.3	76	2.6	76	2.4

Number of Students Enrolled in Arts and Sciences:

Semester I, 1983-84	3,044
Semester II, 1983-84	3,192

*These figures do not include students admitted on probation.

TABLE 12

DEAN'S LIST, COLLEGE OF ARTS AND SCIENCES
NUMBER OF STUDENTS WITH GPA OF 3.00 AND ABOVE
FOR WORK OF 15 HOURS OR MORE TAKEN IN THE SEMESTER WITH GRADE

Grade Point Average	1980-81				1981-82			
	Sem. I		Sem. II		Sem. I		Sem. II	
	No.	%	No.	%	No.	%	No.	%
4.00	48	2.3	44	1.9	39	1.6	44	1.7
3.50-3.99	103	4.9	130	5.5	132	5.3	147	5.7
3.00-3.49	152	7.2	192	8.2	182	7.3	194	7.5
TOTAL	303	14.4	366	15.6	353	14.2	385	14.9
	1982-83				1983-84			
4.00	51	1.9	47	1.6	43	1.4	47	1.5
3.50-3.99	134	4.9	137	5.0	110	3.6	137	4.3
3.00-3.49	190	7.0	224	7.7	194	6.4	224	7.0
TOTAL	375	13.8	408	14.1	347	11.4	408	12.8

NOTE: % represents the percentage of the total Arts and Sciences enrollment for the semester indicated.

TABLE 13

DEGREES GRANTED WITH HONORS*

Honors in General Studies	
Summa Cum Laude	3
Magna Cum Laude	9
Cum Laude	17
Departmental Honors	
Biology	1
Communicative Disorders	1
Economics	2
English	4
History	4
Political Science	1
Psychology	8
Initiated into Phi Beta Kappa	27
Initiated into Phi Kappa Phi	8

*Requirements completed Semester II, 1982-83; Summer 1983; Semester I, 1983-84.

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TABLE 14

NEW RESEARCH AND TRAINING GRANTS, 1983-84

<u>Department</u>	<u>Dollars</u>	<u>Number of Faculty</u>	<u>Number of Grants</u>
American Studies	7,803	1	1
Anthropology	294,725	6	7
Biology	752,894	14	17
Chemistry	862,243	12	19
Economics	117,317	5	7
English	65,073	2	2
Geology	445,191	10	18
History	122,974	3	5
Mathematics and Statistics	29,806	3	3
Physics and Astronomy	1,152,765	19	24
Political Science	25,946	1	2
Sociology	53,123	2	3
Maxwell Museum	36,645	4	5
Contract Archeology	224,413	2	33
TOTAL	4,190,918	84	146

TABLE 15

BUDGETED GAS/TAs, RESEARCH AND
PROJECT ASSISTANTS AND TRAINING GRANTEES

<u>Department</u>	<u>GAs & TAs</u>	<u>RAs, PAs, & Trainees</u>
American Studies	0.25	--
Anthropology	3.00	2.00
Biology	21.00	2.00
Chemistry	15.00	8.50
Communicative Disorders	1.00	--
Economics	3.50	0.50
English	23.00	--
Geography	1.50	--
Geology	6.00	6.50
History	7.00	0.50
Journalism	--	--
Linguistics	0.25	--
Mathematics and Statistics	11.00	--
Modern and Classical Languages	15.50	--
Philosophy	2.00	--
Physics and Astronomy	9.50	11.00
Political Science	2.00	--
Psychology	6.75	--
Sociology	2.50	--
Speech Communication	2.00	0.50
TOTAL	132.75	31.50

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TABLE 16

SUMMER SESSION DATA, 1983 AND 1984

Department	Final 1983 Figures		Final 1984 Figures	
	Allocation	%	Allocation	%
American Studies	\$ 5,947	1.61	\$ 6,621	1.16
Anthropology	19,212	5.21	27,354	4.81
Biology	17,438	4.73	33,760	5.94
Chemistry	16,375	4.44	32,144	5.65
Communicative Disorders	2,850	0.77	5,096	0.90
Economics	17,130	4.65	22,689	3.99
English	36,573	9.93	76,862	13.52
Geography	6,935	1.88	10,391	1.83
Geology	10,244	2.78	11,940	2.10
History	19,182	5.21	32,098	5.65
Journalism	7,834	2.12	11,449	2.01
Linguistics	4,955	1.34	9,221	1.62
Mathematics and Statistics	53,898	14.63	66,587	11.71
Modern & Classical Languages	69,341	18.82	90,729	15.96
Philosophy	5,131	1.39	11,574	2.04
Physics and Astronomy	13,228	3.59	21,712	3.82
Political Science	7,544	2.05	16,114	2.83
Psychology	15,845	4.30	25,303	4.45
Sociology	10,291	2.79	18,630	3.28
Speech Communication	10,966	2.98	18,813	3.31
Foreign Programs	17,496	4.75	19,353	3.40
Research Stipends	--	--	--	--
Contingency	--	--	--	--
TOTAL	\$368,415	100.00	\$568,440	100.00

The Report of the Department of American Studies
July 1, 1983 to June 30, 1984
Marta Weigle, Chair-Elect

GENERAL INFORMATION

The American Studies Department has undergone a year of intense internal and external evaluation and a change in leadership. Faculty and student-faculty meetings in the fall of 1983 led to various changes in instructional programs and administrative procedures. These discussions helped inform the "Departmental Review, 1983-1984," submitted to the Office of Graduate Studies and the Senate Graduate Committee in January 1984. A four-person outside evaluating team visited in early March and submitted their report on April 16, 1984. A faculty meeting of April 25 addressed the issues raised in that report and initiated a reorganizational process which is still underway.

In January, Dean Garcia appointed Professor Marta Weigle to a three-year term, replacing Professor Sam Girgus as chair of the Department. (Effective in August 1984, Weigle will become a halftime member of the American Studies faculty while continuing to serve one-quarter time in the Anthropology Department and one-quarter time in the English Department.) Professor Girgus left in April to assume a Senior Fulbright Lectureship in Heidelberg, West Germany, for the summer. Since his departure, Professor Peter White has been Acting Chair of the Department.

A. Significant Achievements

The Department has reaffirmed its commitment to four areas of study: American life and thought; Southwest studies and regionalism; American folklore, media and popular culture; and gender, sexuality

and the family in America. Building the Southwest Studies program continues to have priority. Its director, Professor Charles Biebel, has publicized courses from throughout the college on more than 750 flyers distributed to five colleges and some fourteen departments. Professors Biebel and Vera Norwood inaugurated a graduate seminar in Southwest Studies during the spring semester. The subcommittee on the Southwest Institute (to begin in the summer of 1985), headed by Professor Douglas George of the Art Department, has met several times and is preparing a prospectus. The Southwest Studies emphasis will be further strengthened by the addition of Professor J. J. Brody, who has just resigned as Director of the Maxwell Museum of Anthropology, as a one-third Visiting Professor in the Department, effective in the fall of 1984.

Professor Vera Norwood, in the second year of her Rockefeller grant, hosted a very successful conference in Albuquerque in late March under a grant from the State Humanities Council, at which the collaborators on the Visions of Landscape book project presented the initial results of their research. The conference was entitled, "Visions of Landscape: Women Writers and Artists in the Southwest, 1880-1980."

Our undergraduate program has been growing steadily, in large part due to Professor Jane Caputi's introductory, popular culture and film classes, attracting numerous students. Professor Caputi also made it possible for the distinguished feminist scholar Professor Mary Daly of Boston College to lecture on campus in March.

This summer, Professor Edwin Cady, a distinguished scholar of

American literature, Andrew Mellon Professor of the Humanities from Duke University and editor of American Literature, is teaching a course for the Department on "Sports and Aesthetics in American Life."

The Department continues to sponsor New America. Mary Dougherty-Bartlett was appointed general editor in April 1984. At present, the Childhood in America issue is forthcoming. The revised edition of Cuentos Chicanos is in press, while the Health in the Southwest issue is in process.

This year too, Professor Peter White together with Professor Lee Bartlett of the English Department, edited American Poetry. The Conference of Editors of Learned Journals nominated it for best new journal of the year, an award which will not be announced until fall.

B. Significant Plans and Recommendations for the Near Future

The "American Studies Department Evaluation" submitted on April 16, 1984, by Professors Sacvan Bercovitch (Harvard University), Robert Sklar (New York University), Beverly Stoeltje (University of Texas at Austin), and Anne M. Boylan (University of New Mexico) follows in full:

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AMERICAN STUDIES DEPARTMENT EVALUATION
UNIVERSITY OF NEW MEXICO

April 16, 1984

Sacvan Bercovitch / ab
Sacvan Bercovitch
Harvard University

Robert Sklar / ab
Robert Sklar
New York University

Beverly Stoeltje
Beverly Stoeltje
University of Texas at Austin

Anne M. Boylan
Anne M. Boylan
University of New Mexico

AMERICAN STUDIES PROGRAM EVALUATION

I. Program Strengths and Accomplishments

The past decade has been a chaotic period for the field of American Studies, but at the University of New Mexico, the American Studies Department has built a strong program, indeed the best of its kind in the Rocky Mountain West. The Department has added both undergraduate and masters' degree programs to its long-established Ph. D. program, brought in outstanding "visiting scholars" to enhance its course offerings, encouraged scholarly activity through its sponsorship of the journals New America and Journal of American Poetry, issued an important collection of essays (The American Self), and attracted graduate students who have gone on to become known scholars or to serve the state of New Mexico in various capacities. In addition, the Department has proved especially sensitive to community interests and to the needs of minority students.

II. Needs and Future Directions

There is no question in our minds that the American Studies program should retain Departmental status, and that it should accordingly receive the official administrative support it needs to consolidate and continue its work. We strongly endorse such support in all areas, and in particular we call attention to the need for more faculty FTEs in subject areas not covered by current staffing (see our General Recommendations).

Graduate Curriculum:

Overall, the graduate curriculum needs more focus. We recommend: (a) immediate establishment of a two-semester introductory required course for beginning students on the method, theory and practice of American Studies;

(b) a better system of advising, one that would call upon more faculty members to supervise students in selecting courses and planning sequences of courses;

(c) closer liaison with other departments, to identify American-Studies related courses, to encourage the other departments to serve the needs of American Studies students in planning their course offerings, and to establish connections with faculty members in other departments who can guide and help train American Studies students;

(d) establishment of an advanced colloquium for graduate students, designed to foster communication among students working on dissertations and masters' theses, and perhaps also to serve as a forum for new faculty research;

(e) additional support for graduate students, through Graduate Assistantships, Teaching Assistantships, fellowships, and outside grant monies. The faculty might want to consider soliciting outside funds (perhaps from alumni or from local beneficiaries of the Department's programs) to establish a basic endowment from which could come graduate fellowships. We would urge that these funds be used to provide students with experience as research assistants, graders, teachers of sections in large

lecture courses, or editorial assistants. (We do not recommend that graduate students be assigned to teach courses on their own without faculty supervision.)

Undergraduate Curriculum:

The undergraduate curriculum, like the graduate curriculum, needs more planning and focus. It would benefit from the introduction of a broad core course -- perhaps a lecture with sections -- that would attract undergraduates while providing a sound academic introduction to American Studies as a discipline. The course should be developed by the faculty as a whole, although the style of its presentation would naturally vary with the individual (or individuals) who taught it.

The undergraduate curriculum clearly has potential for growth, and at the moment seems to be attracting students because of the Department's new offerings in popular culture. We applaud this development, but would also caution the Department against a too-hasty expansion in the numbers of majors it accepts. Given the small size of the current core faculty, it seems wise to limit the number of majors.

III. General Recommendations

1) The Department needs more full-time faculty, and in particular a new member with training in the theory and methods of the social sciences.

2) The faculty should initiate a process of curricular review to implement some of the recommendations in this document. To do so, individual faculty members should be provided with released time, or the Department should be authorized to hire a temporary administrative assistant to review the current curriculum and coordinate the development of a new curriculum.

3) The Department should strengthen its emphasis on Southwest studies, in coordination with other departments and other interdisciplinary programs.

4) The Department should carefully restrict the number of students it admits, especially at the graduate level, imposing clear selection standards in order to admit both students with the strongest academic qualifications and those whose interests fit the program's emphases. The Department should continue to encourage the applications of students with non-traditional interdisciplinary interests, particularly those who have historically found a home in American Studies.

Should the undergraduate program begin to grow in size, as it shows signs of doing, similar restrictions should be imposed.

5) Collegiality among graduate students should be encouraged by providing them with a place to meet -- some sort of commons, library, or reading room, located near the Department and faculty offices and widely available for student use. In addition, a

a mailbox should be provided for each graduate student to facilitate communication and encourage students to gather for both informal and formal exchanges.

6) We recommend the re-establishment of the American Studies Committee, a group that would include faculty members in other departments who have a distinct identification with and commitment to American Studies.

7) We have already stated our concern about advising procedures in the Department. In particular, we urge the establishment of clearer guidelines for students in choosing courses, and recommend that more faculty members share the responsibility of advising students.

8) The Ph.D. comprehensive exams should be redesigned. In general, they should measure the student's mastery of the history, method, and theory of the field, and in doing so, require him or her to do some of the following: develop a knowledge of the bibliography relevant to the field(s) in which he/she is working; identify specific areas in the curriculum that are his/her major areas of emphasis; and follow a course plan that fits logically into those areas of emphasis.

9) We encourage and see the need for further coordination with other programs in the University. The Department of American

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Studies needs to be strong itself -- as a research and teaching unit -- but it also needs to work closely with related departments and interdisciplinary programs in the University.

The Department had already voted to institute a pro-seminar for graduate students beginning in the fall of 1984. At a lengthy meeting on April 25, 1984, it also agreed to the following:

1. Because of the increasing number of undergraduates declaring majors or minors in American Studies, we instituted a system of undergraduate advising and certain curriculum changes to insure that students can pursue an honors program and a consistent senior seminar.
2. Sections of American Studies 185 and 186 will be assigned only to those doctoral students who have achieved the status of ABD.
3. Because in the past the Department had not obtained the amount of teaching assistance needed to help faculty members and to provide financial assistance to our students, we will solicit additional funding for Teaching Assistants from Dean Garcia. Especially given our recent emphasis on Southwest Studies, which will not necessarily attract the traditional literary students who more easily qualify for aid through the English Department, we need the additional support. We further agreed to press for continuation of our assistantships through the Basic Skills program.
4. Beginning March 1 and ending March 31 of each year, the Department will meet collectively to review applications for admission to the graduate program and to make recommendations regarding assistantships.
5. Because of the size of our graduate program, a better system of evaluation of an individual's graduate work was needed. We therefore resolved to meet once a semester to assess our graduate students' progress.
6. The conditions under which students in the Department take their comprehensive exams will henceforth be formalized and regularized and

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will include general questions to test their knowledge of theory and bibliography. These examinations will be more thoroughly and rigorously evaluated.

7. A written policy regarding the responsibilities of our joint-appointed faculty will be instituted, with faculty members writing to the Department chair to set out the criteria for such appointments. Professor J. J. Brody's recent appointment was discussed, and it was agreed that he would serve as a one-year visiting professor. He will teach a course in the spring semester of 1985, and will be expected to sit on committees of study and examination and to familiarize himself with the Department's students, policies and procedures.

In addition to these concerns, we are also currently addressing the following problems:

1. The ten-year limit on counting coursework for the doctorate. Since many of our graduate students are non-traditional and older, this puts an undue strain on their temporal and fiscal resources when their earlier degrees are discounted.
2. A regularized policy about the hours required to fulfill the Department's requirements for the doctorate.
3. Advising at both the graduate and undergraduate levels. Handbooks are in preparation.
4. How best to formulate, advertise and strengthen the Southwest Studies emphasis.

C. Appointments to Staff

Professor J. J. Brody has been appointed as a one-year Visiting

Professor of American Studies, to begin in the fall of 1984.

D. Separations from Staff

None.

E. Sponsored Research

A. Four American Studies Department faculty members, 44% of the fulltime and associated faculty submitted proposals to outside agencies during this period.

B. One faculty member received an award from an outside agency this year.

F. Student Matters

During this period, three students (Nancy M. Theriot, Dianne Rhea Layden, and Ron Reichel) received Ph.D.s and four students (Alexia M. Jones, Emily Abbink, Steven Fox, and Carleen Lazzell) received Master's degrees.

Doctoral candidate Philip Burnham received a Challenge Assistantship from the Office of Graduate Studies to work with Professor J. J. Brody on a research project in the fall of 1984.

The Report of the Department of Anthropology

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July 1, 1983 - June 30, 1984

Linda S. Cordell, Chairperson

I. General Departmental Information

A. Significant Achievements During 1983 - 1984.

The department continues to excel in research and teaching despite the financial constraints imposed on it this year. The Department was pleased that the University honored internationally known archaeologist, Dr. Gordon R. Willey, with an honorary Doctorate at Commencement. In his speech, Dr. Willey elaborated on the excellence of the UNM Anthropology Department and its history of leadership, especially in archaeology. The financial restrictions had major impacts on our instructional and research programs. These included the resignation of Dr. Jeremy Sabloff from the Chairmanship of the Department, and of Dr. Ben Nelson from the Office of Contract Archaeology; extremely limited faculty attendance at national and regional professional meetings; curtailment of the department's guest lecture program (see Table 1); severe limitations on the use of educational films in classes.

Two faculty members, Drs. Mari Lyn Salvador and Robert Santley, both of whom are highly productive and who contributed significantly to department programs, were awarded tenure and promoted to Associate Professor. Dr. Chad McDaniel, who had joined the department as a Visiting Assistant Professor in 1983, was appointed as Assistant Professor for 1984-85. Dr. Cordell, who had been appointed to a one year term, accepted the chairmanship for an additional two years.

Dr. Karl Schwerin accepted the position of Assistant Chairman replacing Dr. Jeffery Froehich, who had served in that capacity during the year.

Dr. James H. Spuhler, Leslie Spier Distinguished Professor of Anthropology, announced his retirement, effective July, 1984. Dr. Spuhler will hold the title Leslie Spier Distinguished Professor Emeritus. The Department requested that the Leslie Spier Distinguished Professorship be awarded to Lewis R. Binford in recognition of his outstanding contributions to archaeology and anthropology and his exceptional productivity in research and teaching.

Dr. J. J. Brody announced his retirement as Director of the Maxwell Museum of Anthropology, effective July, 1984. Dr. Brody will return to fulltime teaching and research. Dr. Brody, whose areas of expertise include American Indian art and contemporary and prehistoric southwestern art, as well as museology, expects to offer courses in American Studies and Art History in addition to Anthropology. A national search for a new director for the Maxwell Museum has been initiated, and pending budgetary approval, a new director will assume the directorship in January of 1985. Given the high public visibility of Maxwell Museum programs and the major fund raising initiative underway, it is essential that the directorship be filled as soon as possible. It would be a severe hardship for the department as well as for the Maxwell to have an acting director for more than six months.

In another important action related to the Maxwell Museum, the department faculty unanimously approved establishing a formal Board of Management for the Maxwell Museum (see Table 2). The Board clarifies the position of the Maxwell with respect to the department and

university, and insures responsible continuity in management policy. The formation of the Board of Management is also critical for continued accreditation of the Maxwell Museum (see attached Maxwell Annual Report).

Dr. Ben Nelson resigned his position as Assistant Director of the Office of Contract Archaeology in the Fall (see attached OCA Annual Report) in order to accept a tenure line position at the State University of New York, Buffalo. Dr. Nelson had done a superb job at OCA. The Assistant Directorship of OCA was filled with the appointment of Dr. Richard Chapman. Dr. Chapman comes to OCA with a substantial background in contract archaeology in the Southwest.

As has been noted in annual reports of the past several years, the department has been severely hampered by the lack of adequate teaching laboratory facilities and adequate storage space for its unique osteological collection. This year, the department obtained approval to reoccupy and remodel space in the anthropology building that has been occupied by the Geography Department pending its move into Bandelier Hall. The department is working closely with the campus architect's office in order to insure that the allocated space is remodeled to meet our needs. These include providing teaching and research laboratories for the biological anthropology program, adequate ventilation for the departmental archives and other rooms on the northwest corner of the building, and storage space for the osteological collection. Dr. Stanley Rhine, who is primarily responsible for the osteological collection, has submitted grant proposals to outside funding agencies (NEH) for furnishings required for the collection. Particularly since Dr. Erik Trinkaus joined the faculty

In August, 1983, strengthening and broadening our commitment to research and teaching in paleoanthropology, well-equipped laboratory facilities in biological anthropology have become crucial to our program.

The department's graduate program continues to attract exceptionally fine students from a national pool and our degree programs produce excellent scholars (see Table 3 for descriptive summary). Importantly, they have obtained funding from highly competitive sources (NSF, Wenner-Gren, and HEW) to support their doctoral research. Six graduate students have just learned that they have made the "final cut" for Wenner-Gren dissertation support for 1984-1985. Dr. Lisa Sattenspiel, whose degree was awarded in May will join the prestigious faculty at the University of Michigan in the Fall.

The department began an active campaign of fund raising, targeted to our alumni, in cooperation with the Office of Alumni Relations and the UNM Annual Fund. Although only in its inception, the department received an endowment of \$10,000.00 for an undergraduate scholarship, and the program has enabled the purchase of one micro-computer and two printers for student use.

The Journal of Anthropological Research continues to thrive, under the editorship of Dr. Philip K. Bock. The Journal celebrated its 40th anniversary in May with the publication of a special issue and reception. The Anthropology Graduate Student Association also continued publication of its scholarly journal, Halik'sai, which now has a national subscription list.

The summer field program in archaeology continues to build its cooperative relationship with New Mexico State University. Following the successful initiation of this cooperation in 1983, Dr. Cor-

dell, director of the UNM archaeology field program, in cooperation with Drs. Fred Plog and Steadman Upham of NMSU, applied for and was awarded substantial NSF funding for continued field work at Rowe Ruin on the Upper Pecos. The NSF grant augments the field school budget enabling concurrent professional survey in the area of the site, intensive petrographic analysis of ceramics, and chronometric, paleobotanical, and faunal studies. In addition, Dr. Cordell obtained two student scholarships for the archaeology field school from the Southwest Parks and Monuments association in return for assisting Pecos National Monument pursue magnetometer survey. The scholarships enable recruitment of the most outstanding student applicants.

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The field school in paleontology, under the direction of Dr. Jeffery Froehlich, had a successful initial season in 1983 and on that basis, is expanding its program in 1984. We are gratified that both field schools are drawing applicants from schools throughout the United States and Canada.

The Department continues to increase its success in obtaining research funds from outside agencies. It is especially noteworthy that five of the six full-time archaeology faculty have NSF support for their field research and that all seven anthropology submissions to NSF were awarded support (see section E below).

B. Significant Plans and Recommendations

Briefly, there are four areas of concern for the immediate future. First, as noted above, the department must have adequate laboratory facilities for its programs in biological anthropology. The remodeling of parts of the Anthropology building is a crucial aspect, however, as we have mentioned in previous annual reports, we must have adequate support for laboratory equipment and equipment maintenance. Our Supply

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and Equipment budget continues to be about \$12,000 below our basic needs.

Second, Dr. Spuhler's retirement has its greatest impact on our program in biological anthropology. It is essential to the continued excellence of this program that the department be able to fill his position above the level of beginning assistant professor.

Third, as noted above, the Department must be able to hire a Director for the Maxwell Museum within a reasonable length of time. Neither the department or the museum can afford an acting directorship for more than six months.

Fourth, the number of grant submissions and awards has increased substantially over the past four years. This is obviously to the advantage of the department and the university. However, despite the increased activity, the number of departmental support staff remains inadequately low. We have only three and one-half positions to support the activities of 24 full-time faculty, 110 graduate students, and adjunct faculty. It is imperative that in the near future, additional staff support in the areas of bookkeeping, grant management, typing, and office equipment be budgeted.

C. Appointment to Staff

Faculty

Dr. Chad McDaniel (August 1983)

Dr. Erik Trinkaus (August 1983)

Adjunct Faculty

Dr. Victoria Burbank (August 1983)

Dr. Richard Chapman (November 1983)

Dr. Elizabeth Garrett (August 1983)

Dr. Frances Levine (August 1983)
Dr. David Stuart (August 1983)
Dr. Gair Tourtellot (August 1983)
Dr. Kathryn Trinkaus (August 1983)

Appointments to Office Staff

Ms. Barbara Daniels (Sept. 1983), Clerk Specialist V
Ms. Debbie Almarez (November 1983), Clerk Specialist V
Ms. Ann Intram (March 1984), Clerk Specialist V
Ms. Marilyn McCullough (February 1984), Clerk Specialist IV

D. Separations from Staff

Faculty

Dr. James N. Spuhler (effective June 30, 1984)
Dr. Ben K. Nelson (effective August 30, 1983)

Office Staff

Nicola Keptner (August 1983), Clerk Specialist V
Maria Ruiz (December 1983), Clerk Specialist IV
Billie Jean Mesa (April 1984), Staff Secretary
Debbie Almarez (February 1984), Clerk Specialist V
Marilyn McCullough (June 1984), Clerk Specialist IV

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 E. Sponsored Research or Other Projects

<u>Name</u>	<u>Title</u>	<u>Agency</u>	<u>Accepted</u>
Lewis R. Binford	Taphonomic Study of European Faunas	NSF	Yes
Caroline Bledsoe	The Relationship of Child Fosterage to Female Fertility	Rockefeller	Submitted
	The Relationship of Child Fosterage to Child Abuse and Mortality	Guggenheim	Submitted
	The Implications of Child Fosterage for Fertility in Sierra Leone	Univ. of Pa.	Submitted
	The Relationship of Child Fosterage to Social Stratification and Child Mortality in Sierra Leone	Bunting Fellowship	Submitted
Linda S. Cordell	The Anasazi World	NEH	Submitted
	Teypana Pueblo Project	BLM	Yes
	Rowe Ruin Project	NSF	Yes
Elizabeth Dressel (Patricia Draper)	The Relationship Between the Living Arrangements of Retirees and the Development of Old Age Identity	NSF	Continuing
John Fritz	The Royal Center and the Hindu Concept of Kingship	NEH	Yes
	The Archaeological Investigation In The Deccan	NSF	Yes
Lisa Sattenspiel (Henry Harpending)	A Migration Matrix Approach to Day Care Hepatitis	NSF	Continuing
William Murphy	Language and Politics in a West African Chiefdom	NEH	Submitted
	Language and Politics in a West African Chiefdom	NSF	Yes

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Jeremy Sabloff	Ancient Maya Settlement and Community Pattern at the Site of Sayil	NSF	Continuing
Robert S. Santley	Teotihuacan Influence at Maticapan, Veracruz	NSF	Continuing
Karl Schwerin	The Intellectual and Scientific Contributions of Alcides d'Orbigny - The Importance of Anthropological Method in Early Natural Science Research	NSF	Submitted
Lawrence G. Straus	Archaeological Research: A Study of Ecological Adaptation	NSF	Continuing
Erik Trinkaus	Biomechanical Adaptation of the Lower Limb Bones Through Time	NSF	Submitted

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TABLE 1

GUEST LECTURERS

William M. Bass

Jill Neitzel

Gordon Bronitsky

Donald Fowler

Jaimie Litvak-King

BOARD OF MANAGEMENT OF THE MAXWELL MUSEUM

Statement of Purpose

April 5, 1984

The Maxwell Museum of Anthropology, accredited by the American Association of Museums and recognized as being owned and operated by the University of New Mexico by action of the Regents of the University (June 12, 1973), has as its purposes the protection, preservation and management of the anthropological collections of the University of New Mexico, the education of people about anthropology, and the encouragement of public awareness of and responsibility toward anthropological resources.

The Maxwell Museum shall achieve its purposes by:

- A. Maintaining rational and ethical acquisitions and collections management programs with emphasis on the Native American material culture of the American Southwest.
- B. Providing the Anthropology Department and other academic departments of the University of New Mexico with instructional materials and other relevant classroom support.
- C. Encouraging material culture studies and other scholarly research of the collections by visiting scholars as well as those associated with UNM.
- D. Publishing information relating to the collections and exhibitions.
- E. Becoming a point of interaction between academic and public communities through interpretive exhibitions, instruction

of non-university groups and other appropriate activities.

F. Providing instruction in museology.

The Maxwell Museum is administered through the Department of Anthropology of the University of New Mexico and has administrative responsibility to the Department of Anthropology, the College of Arts and Sciences, and to the University.

In recognition of these responsibilities and in order to continue to achieve its purpose, the Maxwell Museum of Anthropology and the Department of Anthropology proposes establishment of the Board of Management, the duties and composition of which are described herein.

Board of Management for the Maxwell Museum

April 5, 1984

I. Scope

- A. To advise the Board of Regents of the University of New Mexico on basic policy matters concerning the Maxwell Museum.
- B. Responsible to oversee the management of the museum and to establish general museum directives regarding:
 - 1. range and forms of museum activities
 - 2. priorities for activities
 - 3. acquisitions and collections management
- C. On its own initiative and when requested to do so by the Department of Anthropology or the Maxwell Museum, formulate policies and criteria of judgement with respect to:
 - 1. the responsibilities, qualifications, and evaluation criteria used to hire and promote key museum staff (museum

director, assistant director, curators)

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2. the employment of students by the museum
3. the role of the museum in instruction
4. the acquisition and administration of anthropological collections
5. access to museum collections and facilities
6. the nature and relative priorities of public programs of the museum
7. the responsibilities of the museum within the university

II. Composition of the Board of Management

A. Members by virtue of position:

Director of the Maxwell Museum

Chairman of the Department of Anthropology

B. Four members, representing the subfields of anthropology, to serve three-year renewable terms. Each appointed by the department chairman in consultation with the subfield faculty and the museum director.

C. The president of the Maxwell Museum Association or his delegated representative for a renewable one-year term.

D. One member appointed by and representing the Regents of the University of New Mexico, for a three-year renewable term.

E. One member representing the general university faculty appointed by the Provost, for a three-year renewable term.

III. Procedures of the Board of Management

A. Each board member shall have one vote, delivered in person or by written proxy to another Board member.

B. The Board will meet at regular intervals, at least four times each academic year.

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- C. The board will establish committees and sub-committees as necessary to consult with museum staff.
- D. Minutes of the board meetings and policy decisions shall be maintained by the director of the museum. The director shall transmit policy decisions to museum staff and department faculty and, when appropriate, to the public.

TABLE 3
GRADUATE PROGRAM INFORMATION
1983-1984

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Registration Data

<u>Semester</u>	<u>Registered</u>	<u>Female</u>	<u>Male</u>
Fall 1983	117	57	60
Spring 1984	110	56	54

Degrees Awarded

	<u>Ethnology</u>	<u>Archaeology</u>	<u>Linguistics</u>	<u>Biological</u>
Summer 1983	1 MS	7 MA	0	0
Fall 1983	5 MA	5 MA 3 PhD	0	1 MA
Spring 1983	1 PhD	0	0	1 PhD

Graduate Students in each Sub-discipline

	<u>Ethnology</u>	<u>Archaeology</u>	<u>Linguistics</u>	<u>Biological</u>
Fall 1983	29	65	3	20
Spring 1984	29	61	3	17

Applicants

	<u>Applicants</u>	<u>Accepted by Us</u>	<u>Enrolled</u>
Fall 1983	58	47	16
Spring 1984	1	1	1

Financial Aid

Graduate Assistantships	7 Full
Work Study	14
OCA or Chaco	4
NSF Fellowship	1
HEW Fellowship	1
Frieda Butler Fellowship	1
Steven Hamann Fellowship	1

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The Report of the Journal of Anthropological Research

July 1, 1983 - June 30, 1984

Philip K. Bock, Editor

General: In the past year, four issues of the Journal of Anthropological Research have appeared, on schedule, with a total of 572 pages. The high number of pages is due in part to the publication of a Special Fortieth Anniversary Issue (Spring, 1984) of 234 pages, containing articles solicited from fourteen eminent contributors. A reception was held on May 17 to celebrate the event.

The flow of manuscripts to the Journal has remained constant, with 108 articles received in the past twelve months. The rejection rate remains at about 75%. Book reviews have increased under review editor Robert Santley, and a new category of "Review Articles" has been instituted with the first such contributions by Santley, Philip Arnold, and Philip Bock.

Personnel: Staff continuity has added to the smoothness of the Journal operation, with Mrs. Colclough as Subscriptions Secretary, Mrs. Day as typesetter, and Mr. Margolin as copy editor. Changes in the Editorial Board will become necessary with the departure of Prof. Spuhler and the leave of Prof. Sabloff; Drs. J.J. Brody and M. Weigle have agreed to serve in the Fall. A replacement will also be found for Dr. Schwerin who has asked not to be continued.

Financial: Once again, the Journal had an unusually profitable year, despite a loss in net subscriptions. The increase in annual charges from \$15 to \$20 for individuals and from \$20 to \$30 for institutions was useful, and income from sales and royalties amounted to \$43,572, more than \$8,500 *over budget*. Other costs remained

stable, though printing and postage rates could increase at any time. The Editor used his small travel and advertising budget to spread information about the Journal and its Special Issue. Twenty-four new individual subscriptions have been received, and 35 former individuals were reinstated, while 49 new institutions subscribed and 40 were reinstated. At the same time, 369 subscriptions were cancelled for nonpayment; some of these were two years in arrears and had disregarded repeated billings. As of June, 1984, we were left with the following:

Institutions (Domestic)	810
Institutions (Foreign)	369
Individuals (Domestic)	424
Individuals (Foreign)	79
Free (on campus and copyright)	47
	<hr/>
TOTAL	1729

Renewed attempts will be made to increase this number.

Prospects: If the number of subscribers can be raised by 200 to 300 persons and institutions, the Journal should be in relatively good financial condition. Further direct-mail advertising will be tried, and displays at national and regional meetings will be used. The only dark cloud on the horizon is the news that IBM will no longer issue service contracts on the model of Composer that we use to set type. Purchased some seven years ago, this machine has greatly contributed to the savings in the Journal budget and has more than paid for itself. However, recent service calls would have cost in the thousands of dollars if we had not had the contract. I believe that we must switch to a high quality word processor that will be compatible with the typesetting equipment now being installed at the U.N.M. Printing Plant. This may raise our costs initially, but in the long run should enable us to minimize any increase.

REPORT OF THE OFFICE OF CONTRACT ARCHEOLOGY
July 1, 1983 - June 15, 1984

Joseph C. Winter, Director

1. Overall Review of Activities

Despite the fact that this was a year of transition (we changed Assistant Directors), this year was very successful, with 23 projects completed and 22 projects in progress. Dr. Ben Nelson resigned as Assistant Director to take a job in New York in August, and he was replaced by Mr. Patrick Hogan of the OCA, who served as Acting Assistant Director until December 1, when Dr. Richard Chapman took over as Assistant Director. Dr. Chapman received his Ph.D. from UNM.

Major completed projects include the survey of the Texas Eastern and Shell pipelines and the excavation of 9 sites near Zuni. All of our other large projects will overlap into next year; they include: the Site 48 mitigation report; the De-Na-Zin Mine ethnographic report; the excavation of 13 sites along the Shell line and monitoring of the line; the final Navajo Mine mitigation report; the survey of the Standard Oil/Bravo pipeline; the reconnaissance of the Dry Cimarron Valley; the test excavation of 5 sites and the excavation of 1 site on the Hopi Reservation; the excavation of 1 site near Alamogordo; and the survey of 8470 acres near Quemado. All 1983-84 projects and their status are listed at the end of this report. The following section describes certain of them in detail.

2. Description of Selected Projects

A major research project carried out by the Office of Contract Archeology (OCA) in 1983 was the final analysis of the excavation data from Sites 48 and 77 at Santa Rosa Lake in eastern New Mexico. Frances Levine served as Project Director, while Joseph Winter and Ben Nelson were Principal Investigators; the project was carried out for the U.S. Army Corps of Engineers. Both sites were excavated between 1977 and 1980 by the Center for Anthropological Studies (CAS). Based on excavation data and preliminary

artifact analysis, CAS defined Site 77 as an Apache tipi ring site and Site 48 as a multicomponent complex with a Spanish rancho and a Spanish/Pueblo comanchero village dating from 1780 to 1820, and a later homestead dating from 1865 to 1909.

The OCA study involved comprehensive artifact, architectural, chronological, paleoeconomic, and historical analyses of data from the two sites. Our research at Site 77 determined that it represents a seventeenth and possibly nineteenth century Indian campsite, but we were unable to verify the existence of tipi rings, nor were we able to identify the ethnic group(s) that used it.

Our research at Site 48 tested expectations generated by two models: the CAS model of a multicomponent, multicultural occupation sequence; and an alternative model which proposed that all of the materials at the site were generated by the late nineteenth - early twentieth century occupation. Our research determined that the CAS sequence must be rejected, and that the alternative model adequately explains the presence of the majority of the artifacts and certain architectural features. However, we also determined that there are the remains of a late prehistoric/early historic (seventeenth-century) Indian occupation at the site, and that very few of the approximately 150 adobe rooms and more than 90 adobe hornos at the site can be attributed to either a colonial or a late nineteenth - early twentieth century occupation. We believe that many of these features are the result of the delineation and interpretation of natural soil phenomena and recent cultural phenomena.

Another major project carried out by the Office of Contract Archeology (OCA) of the University of New Mexico in 1983 was the analysis of data gathered from the excavation of 12 sites within the Shell Pipeline Company's Cortez CO₂ pipeline corridor running from the mouth of Largo Canyon on the San Juan River south to the vicinity of Torreon Mission near the Rio Puerco of the East in northwestern NM. This project, directed by Michael P. Marshall, with Joseph C. Winter and Richard C. Chapman as Principal Investigators, has resulted in significant new information concerning Archaic, developmental Anasazi, and early historic Navajo occupation on the eastern fringe of the San Juan Basin. It was carried out for Woodward-Clyde Consultants, Inc.

Six sites with primary Archaic period occupation were excavated. Sites ranged from small, apparently single occupation campsites, to extensive localities characterized by repetitive reoccupation through several thousand years. New radiocarbon dates were obtained from hearths at three site locations. The earliest date was 1720 ± 155 B.C. from LA 38950, a small single occupation campsite. Other late Archaic manifestations included LA 44530, a small single occupation site with a hearth which yielded a date of 940 ± 70 B.C.; and one hearth at LA 44532 which yielded a date of 1610 ± 140 B.C. This latter site was an extensively reoccupied locality containing over 30 hearth features within the pipeline corridor alone. Other Archaic era radiocarbon dates from the hearths at the site were 750 ± 95 B.C., 210 ± 55 B.C., and A.D. 160 ± 50 . One hearth at the site dated to A.D. 1670 ± 50 , reflecting an early Navajo occupation. All of the Archaic sites seem to reflect sets of short-term occupations by small residential groups. Some variation in seasonality of occupation and specific subsistence pursuits among different sites is indicated through ongoing analysis of lithic artifact assemblages, hearth function, and flotation samples.

Los Pinos phase (Basketmaker II) occupation was evident at one site (LA 38944) as a number of cylindrical and bell-shaped storage pits, some containing shelled and carbonized maize kernels. Radiocarbon dates from these pits were 50 ± 55 B.C., A.D. 110 ± 85 and A.D. 320 ± 85 . Superimposed over these storage pits were two circular Rosa phase surface rooms constructed from jacal, and remnants of a stockade which apparently encircled the rooms.

A second site with ceramics indicating a Rosa phase occupation consisted of several jacal structures, two of which were located within the pipeline corridor. These were large rectangular surface structures (one measuring 9.0×4.5 m) constructed with three central roof supports apparently supporting a ridgepole, and were either open-sided or constructed with walls of some perishable material. One radiocarbon date of A.D. 790 ± 50 was obtained from a storage pit associated with the occupation.

Early Navajo occupations were identified at four site locations, including important new radiocarbon dates for Dinetah phase ceramics. A radiocarbon

date of A.D. 1550±55 was recovered from a construction timber in a ramada structure at LA 38946, while dates of A.D. 1590±55 and A.D. 1600±55 were recovered from hearth and hearth fill discard areas at LA 38951, a reoccupied open campsite locale. This latter site also yielded radiocarbon dates of A.D. 1700±50 and A.D. 1740±55 from two other proveniences with Gobernador phase ceramics. Two other dates were derived from open campsite occupations with Gobernador phase ceramics, including dates of A.D. 1650±70 at LA 38949, and A.D. 1780±45 from a hearth at LA 44533. These results clearly indicate a sustained seasonal use of the eastern edge of the San Juan Basin by early Navajo populations for a nearly 250 year period beginning at ca. A.D. 1550.

Information on the early Navajo occupation of the San Juan Basin was also obtained by OCA's survey of the 224 km long Continental Divide Pipeline route, with Marcia Donaldson as Project Director and Joseph Winter as Principal Investigator. The line ran from Ignacio, Colorado on the Florida River, to Borrego Pass in west central New Mexico. One hundred and eight sites were recorded, with 15 of them representing Dinetah and Gobernador Navajo. Most were open campsites, although a few forked-stick hogan sites in protected locations were also noted. The extent of the Dinetah occupation along the route is unknown, although one of the sites was excavated by the adjacent Cortez CO₂ pipeline project (see preceding summary) with C14 dates of A.D. 1590±55, A.D. 1600±55, A.D. 1700±50, and A.D. 1740±55.

The survey revealed a much more extensive Gobernador occupation than previously expected, with an especially heavy concentration of sites with Jemez and Rio Grande Pueblo pottery in Horse Canyon and the Animas Valley to the north of the San Juan River. Gobernador sites in the Largo-Blanco areas were slightly later, while the early Navajo sites on Chacra Mesa were still later, with an interesting mixture of masonry and wood architecture. Twenty-nine recent and unknown Navajo sites were also recorded.

Other sites recorded in the survey included 27 aceramic lithic scatters, 15 Basketmaker III-Pueblo I sites, and 20 Pueblo II-III sites. The lithic scatters included two possible Ute sites near Ignacio, and numerous apparent Archaic sites on dune ridges overlooking the lower Largo and Blanco washes.

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The Rosa Phase Basketmaker III-Pueblo I sites were all in the San Juan River area, with the heaviest concentration in Horse Canyon on the north side of the river and in the Largo/Blanco area on the south side. Only one Pueblo II-III site was in the San Juan area; all 19 others were clustered on Chacra Mesa and at its south side. A few of these were Pueblo II-early Pueblo III sites, but most were late Pueblo residential sites which appear to have had a mixed Mesa Verde-Chacoan population.

Another OCA project involved the excavations and monitoring of sites along the Cortez CO₂ pipeline in the Las Huertas Valley area in the central Rio Grande Valley. Joseph Winter was Principal Investigator, while Michael Marshall was Project Director. A total of 65 sites was examined in the 7 km long pipeline right-of-way; 31 of these were close enough to the right-of-way so that construction activities were monitored, and 24 of the 31 were affected by the construction.

The excavation and other data recovery approaches revealed information concerning the approximately 10,000 years of human use of the area. These data include one Folsom find, several Archaic sites (including one with radiocarbon dates of 2630±55 B.C., and 900±75 B.C.), one Basketmaker III-Pueblo I pithouse with a radiocarbon date of A.D. 750±40, numerous Pueblo II-Pueblo IV farmsteads, several Pre-Revolt Hispanic sites, and a number of Post-Revolt Hispanic sites, including the San Jose de las Huertas village complex and its acequias.

The OCA also carried out an initial ethnohistoric investigation of 27 historic Navajo and Euro-American sites around Tanner Lake on the De-na-zin Wash in northwestern New Mexico for the Sunbelt Corporation. Fred York was the Project Director, while Joseph Winter was the Principal Investigator. Many of the sites were associated with the Tanner Lake Trading Post. However, we also determined that there are a large number of ritually significant Navajo sites in the area, including a Medicine Seep, a Battlefield, a Yei Bicheii site, the De-na-zin Crane Petroglyph site, and several grave sites.

Joseph Winter and Richard Chapman (Principal Investigators) and Frank Wozniak (Project Director) completed an OCA survey of a 205 km pipeline route for Bravo Pipeline Company in eastern New Mexico which ran from the vicinity of Rosebud, NM south to the Texas border near Texico, NM. Twenty sites were recorded, including late 19th/early 20th century homesteads and lithic scatters, along with a number of isolated artifacts and historic features. Lithic scatters ranged from residential campsites reflecting late Archaic through Plains Village and Plains Nomad occupations, to concentrations of manufacturing debris near outcrops of raw materials which could not be assigned to particular phases of prehistoric or historic occupation. The majority of EuroAmerican homesteads consisted of single dugout structures and a few outlying features. Data from this project are being used to complement previous corridor surveys in the eastern plains region to develop models of prehistoric and historic land use patterns for this relatively undocumented portion of the state.

Test excavations at six sites near Ramah were directed by Roger Anyon, Project Director, with Joseph Winter Principal Investigator. Each of these sites has ceramic assemblages which include both Saint Johns Polychrome and Tularosa Black-on-white, indicating an occupation date somewhere between A.D. 1175 and 1300. The architecture associated with these ceramics is, however, not the expected masonry pueblos. Instead, architecture consists of jacals, pitstructures, and extramural ramadas. While trash deposits were located at some of the sites, none could be found at others, despite the temporal and architectural similarities between them. Testing identified a total of eight pitstructures at two of the sites, and jacals at all of them. The lack of pitstructures at the other sites may be a result of the limited extent of the testing. Burned structures were common on most of the sites generating potential for tree-ring dating, however this was not consistent throughout each site indicating differential abandonment sequences. Analyses of the recovered materials, and a report on the testing results are in progress.

Since July 1982, the OCA has also conducted a number of surveys in the Quemado region of west-central New Mexico as part of the Fence Lake Coal Exploration Program. Joseph Winter served as Principal Investigator for the project, with

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Patrick Hogan, David C. Eck, and Janette Elyea acting as Project Directors for individual surveys. The project area encompasses approximately 21 sections. To date, 59 sites have been recorded reflecting prehistoric use of the area during the Late PaleoIndian, Archaic, Pueblo, and Historic periods.

Based on the information now available it appears the PaleoIndian use of the area was limited to occasional groups passing through the survey area. The Archaic occupation also reflects intermittent, seasonal utilization, with only one site exhibiting clear evidence of repeated use. The earliest Anasazi occupation of the area dates to the Pueblo II period and is characterized by small, dispersed settlements that might have been occupied seasonally. Substantial habitation sites first appear during the Pueblo II-Pueblo III period, and the number of sites increases sharply. During the early Pueblo III period the number of sites decreases, although an increase in site size suggests that the population level remained stable. Rather, it appears that settlements were aggregated, a sharp contrast to the dispersed settlement pattern that characterizes the previous periods.

In October of 1983 the OCA completed a survey of portions of a proposed railroad spur in the Red Mesa Valley, in McKinley County, New Mexico. Joseph Winter and Patrick Hogan were co-Principal Investigators for the project, with Hogan also acting as Project Director. The survey is noteworthy in that a portion of the right-of-way passed in the proximity of the Andrews Chacoan Outlier community. Twelve sites and three localities were recorded in this area dating from the late Pueblo I through the early Pueblo III periods. Although it had been recognized that an Anasazi community was well established at Andrews by A.D. 800, the sites recorded during this survey document the suspected existence of small, dispersed farmsteads surrounding the nuclear community. The survey further indicates that during the Chacoan period a number of farmsteads and habitations were situated on the gentle colluvial slopes to the west of the outlier community. Thus the results of this survey provide additional evidence that the Andrews outlier was built in the midst of a pre-existing and still viable Anasazi agricultural community.

3. Financial Statement

1983-84 was a very good year financially. Between 7/1/82 and 6/15/84 we signed contracts worth \$404,717.00 in direct costs and \$96,337.00 in indirect costs (see attached). We also generated \$15,516.00 in salary credits which were charged to various accounts (see attached). Since our FY83-84 operating budget was \$86,300.00, the net gain to the University was \$25,553.00. This does not include several contracts we hope to sign in late June, and our May and June salary charges.

4. Other Activities

Two of our long term goals are starting to bear fruit. We are becoming more and more involved in local Albuquerque-area archeology, and in fact we have been awarded a \$6,000.00 matching grant from the state to help develop a model local cultural resource management ordinance. Our search for grants has also resulted in a \$30,000.00 matching grant from the state for a reconnaissance of the Dry Cimarron Valley.

SUMMARY OF OCA ACTIVITIES
7/1/83 - 6/15/84

<u>Project</u>	<u>Sponsor</u>	<u>Brief Description</u>	<u>Status</u>
185-107c	Texas Eastern Trans- mission Corporation	Survey of 162 miles of pipeline	Completed
185-161	Woodward-Clyde Consultants	Survey of 150 mile pipeline	Completed
185-168a/b	U.S. Army Corps of Engineers	Mapping Site 77	Completed
185-176	Bureau of Indian Affairs	Survey of 100 acres	Completed
185-177	Salt River Project	10% Survey of 7000 acres	Completed
185-181a	Federal Highway Admin- istration	Survey of 1500'	Completed
185-183	Broce Construction Co.	Survey of borrow pit	Completed
185-188b/c	U.S. Forest Service/ Michael's Ranch	Excavation of 9 sites	Completed
185-189	Broce Construction Co.	Survey of 15 acres	Completed
185-190	Mountain Bell	Survey of 4 miles	Completed
185-192	Santa Fe Mine	Survey of 4 miles	Completed
185-195	Broce Construction Co.	Excavation of 1 site	Completed
185-196	Salt River Project	Survey of 3 wells	Completed
185-198	Herzog Construction	Survey of 6 acres	Completed
185-199	Native American Lamb Association	Survey of 70 acres	Completed
185-201	Federal Highway Administration	Test excavate 1 site	Completed
185-202	Salt River Project	Survey of 36 drill holes	Completed
185-203	Mountain Bell	Survey of 5 miles	Completed
185-205	Herzog Construction	Survey of 15 acres	Completed
185-206a	Corps of Engineers	Survey of 14 drill holes	Completed

<u>Project</u>	<u>Sponsor</u>	<u>Brief Description</u>	<u>Status</u>
185-210	Salt River Project	Survey of 18 drill holes	Completed
185-215	Broce Construction Co.	Survey of 6 acres	Completed
185-216	TVI	Cemetery Reconnaissance	Completed
185-94	UII	Mitigation Program for 35 sites	Final Report in press
185-123	U.S. Army, Fort Bliss	Monitoring Fort Bliss' Historic Preservation Program	In progress
185-147	Sunbelt Mining Co.	Ethnographic study of 11,000 acres	Final Report at press
185-161a/c	Woodward-Clyde Consultants	Excavation of 12 sites	Draft Report in preparation
185-161d	Woodward-Clyde Consultants	Monitoring of 36 locations in pipeline	Draft Report under review
185-161i/j	Woodward-Clyde Consultants	Monitoring of pipeline	Draft Report under review
185-161k	Woodward-Clyde Consultants	Data recovery in Las Huertas Valley	Draft Report under review
185-161m	Woodward-Clyde Consultants	Excavation of 1 site	Report in preparation
185-168	U.S. Army Corps of Engineers	Completion of Mitigation Program at Site 48	Draft Report under review
185-188d	U.S. Forest Service	Preparation of report for 1 excavated site	In preparation
185-191	Standard Oil Co.	Survey of 101 miles	Report in preparation
185-191a	Standard Oil Co.	Survey of 4 miles	Report in preparation
185-191d	Bravo Pipeline Co.	Survey of 40 miles	In the field
185-193	Corps of Engineers	Test Excavations of 5 sites	Draft Report under review
185-208	Historic Preservation Bureau	Reconnaissance of Dry Cimarron Valley	In the field

<u>Project</u>	<u>Sponsor</u>	<u>Brief Description</u>	<u>Status</u>
185-209	State of New Mexico	Preparation of Ordinance	In progress
185-210b	Salt River Project	Survey of 20 drill holes	Report in preparation
185-211	Salt River Project	Survey of 8480 acres	In the field
185-211a	Corps of Engineers	Excavation of 1 site	In the field
185-217	Mountain Bell	Survey of 4 miles of phone line	In the field
185-218	Qu-Max Limited	Survey of 5 acres	Report in preparation
185-219	Carbon Coal	Survey of haul road	Report in preparation

CONTRACTS GENERATED
7/1/83 - 6/15/84

<u>Proposal Date</u>	<u>Proposal #</u>	<u>Award Amount</u>	<u>Overhead Amount</u>
7/14/83	185-190	\$ 977.00	\$ 289.00
7/7/83	185-191	22,401.00	6,626.00
7/8/83	185-192	3,404.00	1,007.00
7/15/83	185-195	2,498.00	739.00
7/18/83	185-161k	2,521.00	746.00
7/25/83	185-196	1,680.00	497.00
8/8/83	185-181a	673.00	199.00
8/15/83	185-192a	797.00	236.00
8/30/83	185-188b/c	20,000.00	4,127.00
9/7/83	185-198	1,069.00	316.00
9/9/83	185-191a	2,025.00	599.00
9/9/83	185-123d	60,730.19	5,520.97
9/12/83	185-199	912.00	270.00
9/30/83	185-161m	17,222.00	4,651.00
9/27/83	185-201	3,928.00	1,162.00
10/13/83	185-202	9,910.00	2,931.00
10/21/83	185-203	790.00	234.00
12/9/83	185-147b	1,551.00	419.00
12/9/83	185-188d	3,993.00	824.00
1/16/84	185-205	1,251.00	370.00
2/6/84	185-206a	1,192.00	363.00
2/23/84	185-191b	6,075.00	1,797.00
2/24/84	185-208	15,000.00	2,637.00
1/18/84	185-209	2,954.00	874.00

<u>Proposal Date</u>	<u>Proposal #</u>	<u>Award Amount</u>	<u>Overhead Amount</u>
3/26/84	185-193d	\$46,605.00	\$11,253.00
3/26/84	185-210	3,135.00	927.00
4/6/84	185-211	122,255.00	33,202.00
4/23/84	185-214a	33,514.00	9,202.00
4/20/84	185-123e	569.00	52.00
5/9/84	185-215	781.00	231.00
5/10/84	185-216	280.00	58.00
5/25/84	185-218	879.00	273.00
5/30/84	185-219	950.00	304.00
6/6/84	185-210b	2,491.00	737.00
6/13/84	185-191d	4,807.00	1,537.00
5/17/84	185-217	1,057.00	338.00
5/4/84	185-94d	2,864.00	789.00
		<hr/>	<hr/>
		404,717.00	\$96,337.00

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SALARY CREDITS FOR JULY 83 - APRIL 84
(May and June yet to be charged)

<u>Date</u>	<u>Amount</u>
8/22/83	\$5745.00
9/30/83	2250.00
11/21/83	2295.00
1/9/84	1470.00
1/27/84	996.00
3/5/84	756.00
4/3/84	608.00
6/1/84	1396.00
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TOTAL	\$15,516.00
<u>Total 033-036-0 budget:</u>	-86,300.00
<u>Total Salary Credits:</u>	+15,516.00
<u>Total Overhead generated:</u>	+96,337.00
	<hr/>
Total difference between expenses and credit	+\$25,553.00

ANNUAL REPORT

W. James Judge

Division of Cultural Research and Branch of Remote Sensing

National Park Service

July 1, 1983 - June 30, 1984

The Division of Cultural Research and the Branch of Remote Sensing, a National Park Service research facility working in cooperation with the University of New Mexico, began the year with a combined total of twelve permanent and five temporary employees. During the year there were several personnel changes: Dwight L. Drager was named Chief of the Branch of Remote Sensing; Stephanie Sonnleitner resigned in March as programmer and was not replaced; the temporary archivist position formerly filled by Catherine Ross became a permanent position now held by Bernard Wainright; and the resignation of James I. Ebert in January allowed this position to be filled by a former temporary employee, Arthur K. Ireland. Therefore, the year ended with thirteen permanent and two temporary employees. In addition, there were a number of volunteers who assisted the staff with photography, cataloging, etc.

Activities of the Division centered around completion of analyses and syntheses of data obtained during previous years' excavations in Chaco Canyon. The only fieldwork underway was completion of the excavation of site 29SJ 626 by Thomas C. Windes and other NPS regional office personnel, and the continued survey of new Park additions under the direction of Robert P. Powers.

Continued updating of the Chaco data base was made possible through cooperation with the Laboratory of Anthropology of the Museum of New Mexico. Personnel at the Lab coded and entered data into their system; these data are then transferred to the NPS computer facility in Santa Fe and will be available on the SANJUAN and PARKMAN data base programs. The PARKMAN program is in the process of being rewritten so that its generic form can be used by all Parks in the Southwest region. This is a cooperative venture by both cultural and natural resource divisions of NPS. One other computer project that gathers data on Chaco is the solstice marker at Fajada Butte project that is still ongoing.

The Branch of Remote Sensing has been examining ways to use environmental maps generated from remote sensing data to predict the levels of archeological site concentrations within a specified area. A sample case was chosen on the Navajo Indian Irrigation Project immediately south of Farmington, New Mexico. Using a computer program written by Andrew Drager, Dwight Drager, and Phil Rice, maps of the project area were digitized, gridded, and integrated. Site concentration values developed from surveys of other portions of the project area were used to produce a final map which, when compared with actual site locations discovered by field surveyors, was able to approximately specify areas of higher and lower site concentrations. The method will be tested on other Division projects in the southwest and other areas of the country.

The Branch of Remote Sensing also worked on a remote sensing assessment in conjunction with a Class I literature search and a Class II sample survey of the Seedskafee National Wildlife Area in southwestern Wyoming. The project was contracted to an Albuquerque firm and was directed by two graduate students from the UNM Department of Anthropology. Three Ph.D. dissertations in the Anthropology Department are currently being prepared using data collected by this project.

Preparation of a research proposal for the forthcoming survey at Bandelier National Monument is underway. This survey is scheduled to begin in 1985 and continue for four years. Among the methods to be evaluated using data gathered will be predictive modeling. In addition, the survey will answer questions about prehistoric adaptations to the Pajarito Plateau, including development of complex society, especially with regard to reliance on agriculture, aggregation and abandonment.

As part of the Division's training program, a proposal to participate in the training of NPS personnel as cultural resource managers has been written and is being evaluated by regional and national managers. Trainees will be placed in cultural parks throughout the nation.

The Division continues to cooperate with teaching programs of various faculty, staff, and students. During the fall of 1983, five staff members (Thomas C. Windes, H. Wolcott Toll, Robert P. Powers, Stephen H. Lekson, and Frances Joan Mathien) participated in a

continuing education course entitled "The Chaco Phenomenon" sponsored by the Maxwell Museum of Anthropology. In connection with this, Windes and Mathien conducted field trips to Chaco Canyon on May 12-13 and June 16-17. Over 90 people registered and attended these field sessions which included a slide lecture, as well as lectures at a number of sites in the Canyon.

Other cooperative programs with the University of New Mexico, Departments of Anthropology, Astronomy, Biology, Education, Geology, Photo Service, Office of Contract Archaeology, and Technical Applications Center continued. Dr. Judge and the staff offered both formal and informal training in Southwestern archaeology and remote sensing techniques to University students. Stephen Lekson was an instructor at the UNM archaeology field school. Dr. Judge continues to serve as Chairman or member of numerous M.A. and Ph.D. graduate committees and to teach graduate and undergraduate courses in the Department.

Joint programs were also conducted with other NPS Divisions, the Interagency Archaeological Committee, the Bureau of Land Management, the Bureau of Indian Affairs, the Archaeological Society of New Mexico, and several private research foundations. In addition, Dr. Judge served on the Research Committee of the Center for American Archaeology and the Executive Committee of the Crow Canyon Center for Southwestern Archaeology. Dr. Mathien is a member of the NPS National Computerized Cultural Resource data Base Working Group and served as co-Chair of the Program Committee for the Annual Meeting of the American Society for Ethnohistory held in Albuquerque November 3-6.

As a result of the Division's research, 13 reports or articles were published and 26 are in press. Several preliminary reports were added to the Division's library, and 12 papers were presented at 4 different meetings by various members of the staff or by colleagues working on cooperative projects. A list of these is attached. The Division is continuing to edit analytic unpublished reports and these will appear in the next several years.

Publications

- Camilli, Eileen L. and Linda S. Cordell
 1983 Remote Sensing: Applications to Cultural Resources in Southwestern North America. Supplement No. 8 to Thomas R. Lyons and Thomas Eugene Avery Remote Sensing: A Handbook for Archeologists and Cultural Resource Managers. Washington: Cultural Resources Management Division, National Park Service.
- Drager, Dwight L. and Thomas R. Lyons, editors
 1983 Remote Sensing in Cultural Resource Management: The San Juan Basin Project. Albuquerque: Branch of Remote Sensing, National Park Service.
- Ebert, James I., Bruce Bevan, Eileen Camilli, Dwight L. Drager, Rosalie Fanale, Nicholas Hartmann, Thomas R. Lyons and Irwin Scollar
 1983 Archaeology, Anthropology and Cultural Resource Management. Chapter 26 in Manual of Remote Sensing, 2nd edition. Falls Church, VA.: American Society of Photogrammetry.
- Judge, W. James
 1984 PARKMAN: A Computer Graphics Program for Cultural Resource Management. CRM Bulletin 7(1):14-16.
- Lekson, Stephen H.
 1983 Chacoan Architecture in a Continental Context. In Proceedings of the Anasazi Symposium 1981, compiled and edited by J. E. Smith, pp. 183-194. Mesa Verde National Park: Mesa Verde Museum Association, Inc.
 1983 Dating the Hubbard Tri-Wall and Other Tri-Wall Structures. Southwestern Lore 49(4):15-23.
- Lekson, Stephen H. (editor) with contributions by Jeffrey S. Dean, Peter J. McKenna, Richard L. Warren, and foreword by Florence Hawley Ellis
 1983 The Achitecture and Dendrochronology of Chetro Ketl, Chaco Canyon, New Mexico. Reports of the Chaco Center No. 6. Albuquerque: National Park Service.
- Mathien, Frances Joan
 1983 The Mobile Trader and the Chacoan Anasazi. In Proceedings of the Anasazi Symposium 1981, compiled and edited by J. E. Smith, pp. 197-206. Mesa Verde National Park: Mesa Verde Museum Association, Inc.
 1984 Travertine Versus Shell: A Problem in Identification of Materials Found in Archaeological Sites. In Collected Papers in Honor of Harry L. Hadlock, edited by N. L. Fox, pp. 93-112. Papers of the Archeological Society of New Mexico: 9. Albuquerque Archaeological Society Press.

- Mathien, Frances Joan
1984 Archeological Application of Historic Structure Reports. CRM Bulletin 7(1):11,19.
- Mathien, Frances Joan and W. James Judge
1983 A Data Base Management System for Cultural Resource Managers. The George Wright FORUM Summer, pp. 2-17.
- Windes, Thomas, C.
1984 A View of the Cibola Whitewares from Chaco Canyon. In Regional Analysis of Prehistoric Ceramic Variation: Contemporary Studies of the Cibola Whitewares, edited by A.P. Sullivan and J.L. Hantman, pp. 94-119. Arizona State University, Anthropological Research Papers, No. 31.
- Wood, W. Raymond, Robert K. Nickel and David E. Griffin
1984 Remote Sensing: The American Great Plains. Supplement No. 9 to Thomas R. Lyons and Thomas Eugene Avery Remote Sensing: A Handbook for Archeologists and Cultural Resource Managers. Washington: Cultural Resources Management Division, National Park Service.

In Press

- Akins, Nancy J.
Temporal Variations in Faunal Assemblages from Chaco Canyon. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.
- Akins, Nancy J. and John D. Schelberg
Evidence of Organizational Complexity as Seen from the Mortuary Practices in Chaco Canyon. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.
- Brugge, David M.
Tsegai: Archeological Ethnohistory of the Chaco Region. Washington: National Park Service Publications in Archeology.
- Cameron, Catherine M.
A Regional View of Chipped Stone Raw Material Use in Chaco Canyon, New Mexico. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.
- Clary, Karen Husum
Anasazi Diet and Subsistence as Revealed by Coprolites from Chaco Canyon. In Recent Research on Chacoan Prehistory,

edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

Cully, Anne

The Distribution of Corn Pollen at Three Sites in Chaco Canyon, New Mexico. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

Cully, Jack F.

Diversity, Stability, and the Deer Mouse: Implications for the Vegetative Diversity Model. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

Doyel, David E., Cory D. Breternitz and Michael P. Marshall
Chacoan Community Structure, Bis sa'ani Pueblo and the Chaco Halo. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

Judge, W. James

Chaco Canyon-San Juan Basin. In Dynamics of Southwestern Prehistory, edited by D. Schwartz. Santa Fe: School of American Research.

Introduction to Research of the Chaco Center: An Interim Report. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

New Light on Chaco Canyon. In Chaco Canyon, edited by D. Noble. Santa Fe: School of American Research.

Lagasse, Peter, William B. Gillespie and Kenneth G. Eggert
Hydraulic Engineering Analysis of Prehistoric Water Control Systems at Chaco Canyon, New Mexico. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

Lekson, Stephen H.

Great Pueblo Architecture of Chaco Canyon. Albuquerque: National Park Service Publications in Archeology.

Prehistoric Settlement Along the Palomas Drainage, Southern New Mexico. In Prehistoric Use of Eastern Slope of the Black Range, New Mexico, edited by M. Nelson. Maxwell Museum Occasional Papers.

Lekson, Stephen H.
 Standing Architecture at Chaco Canyon and the Interpretation of Local and Regional Organization. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

The Dating of Casas Grandes. The Kiva

Mathien, Frances Joan
 Jewelry Items of the Chaco Anasazi. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

McKenna, Peter J. with a contribution by H. Wolcott Toll
The Architecture and Material Culture of 29SJ1360, Chaco Canyon, New Mexico. Reports of the Chaco Center No. 7. Albuquerque: National Park Service.

Palkovich, Ann M.
 Disease and Mortality Patterns in the Burial Rooms of Pueblo Bonito: Preliminary Considerations. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco center No. 8. Albuquerque: National Park Service.

Powers, Robert P.
 Regional Interaction in the San Juan Basin: The Chacoan Outlier System. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

Sappington, Robert and Catherine M. Cameron
 Obsidian Procurement at Chaco Canyon, New Mexico, A.D. 500-1200. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

Schelberg, John D.
 Analogy, Complexity, and Regionally-Based Perspectives. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

Toll, H. Wolcott III
 Trends in Ceramic Import and Distribution in Chaco Canyon. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

Toll, Mollie S.

Report on Macrobotanical Evidence. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

Warren, A. Helene and Frances Joan Mathien

Prehistoric and Historic Turquoise Mining in the Cerrillos District. In Collected Papers in Honor of Albert H. Schroeder, edited by C. Lange. Papers of the Archaeological Society of New Mexico No. 10.

Windes, Thomas C.

A New Look at Population in Chaco Canyon. In Recent Research on Chacoan Prehistory, edited by W.J. Judge and J.D. Schelberg. Reports of the Chaco Center No. 8. Albuquerque: National Park Service.

Presentations

Doyel, David

1983 Chacoan Community Structure: Bis sa'ani and the Chaco Halo. Paper presented at the Annual Meeting of the American Anthropological Association, Chicago, Nov.

Drager, Dwight L.

1983 Environmental Integration in Archeology. Paper presented at the Pecos Conference, Bluff, August.

1984 Environmental Integration in Archeology. Paper presented at the Annual Meeting of the Society for American Archaeology, Portland, April 10-15.

Irwin-Williams, Cynthia

1983 Socio-economic Order and Social Structure at the Salmon Ruin. Paper presented at the Annual Meeting of the American Anthropological Association, Chicago, Nov.

Judge, W. James

1983 Results of the Chaco Project: 1972-1983. Paper presented at the Annual Meeting of the American Anthropological Association, Chicago, Nov.

Lekson, Stephen H.

1983 Archeology of the Rio Grande Valley, Sierra County, New Mexico. Paper presented at the Third Jornada Mogollon Conference, El Paso, Oct. 28-30.

1984 Maximum Settlement Size as an Index of Sociopolitical Complexity. Paper presented at the Annual Meeting of the Society for American Archaeology, Portland, April 10-15.

- Lekson, Stephen H.
1984 Standing Architecture of Chaco: Local and Regional Organization. Paper presented at the Annual Meeting of the Society for American Archaeology, Portland, April 10-15.
- Lekson, Stephen H. and Barbara Mills
1983 The Ladder Ranch Surveys: An Evaluation of Method. Paper presented at the meeting of The Society of Independent Anthropologists, Albuquerque, December.
- Mathien, Frances Joan and Thomas C. Windes
1983 Preliminary Report on the 1983 Excavations at Kin Nahasbas, Chaco Canyon. Paper presented at the Pecos Conference, Bluff, August.
- Powers, Robert P.
1984 Regional Settlement Change and Past Environment in the San Juan Basin. Paper presented at the Annual Meeting of the American Anthropological Association, Chicago, Nov.
- Toll, H. Wolcott III
1984 The Ethnography and Archeology of Large Gatherings with Regard to Chaco Canyon. Paper presented at the Annual Meeting of the Society for American Archaeology, Portland, April 10-15.

Report of the Maxwell Museum of Anthropology

July 1, 1983 - June 30, 1984

J. J. Brody, Director

I. Significant Developments During 1983-1984

Among significant developments of 1983-84 were solution to the long-standing problem of providing new quarters for the osteological collections, development of a corporate management system for the museum, and preparation for its reaccreditation by the American Association of Museums (AAM). Though treated independently, the three events proved to be closely related.

Notification of the need for reaccreditation came from AAM early in the fiscal year. Preparation for review and site visit made it clear that three potential problems could threaten reaccreditation. These were: overcrowding of the bulk storage repository; badly ventilated and overcrowded osteological storage and laboratory areas; and inadequate corporate procedures for creating and reviewing basic museum policies. Both physical plant problems had been noted in several earlier annual reports and a variety of solutions had been noted in several earlier annual reports and a variety of solutions had been proposed for them during the last decade.

An ad hoc Maxwell Museum/Department of Anthropology committee worked through most of the year to create a corporate Management Board designed to represent the major constituencies of the museum and to oversee its management. The Board Charter has been approved by the Regents and is now University policy. During the first half of 1984 new quarters for the osteology laboratory and collections were approved in a plan to create

new space for all biological anthropology activities. However, little progress is to be reported on solution of the archaeological and general bulk storage and repository problems.

We are informed by AAM that our reaccreditation has been tabled pending evidence that the corporate management and osteology storage problems have been satisfactorily resolved. That evidence should be available to AAM within a month and we can expect accreditation to proceed. We can also expect that if the bulk storage problem remains unresolved it will be a severe threat to reaccreditation when the next scheduled review takes place.

"The Chaco Phenomenon" exhibition was on view through most of the fiscal year and was a great popular success; see Section II below for a more sober evaluation of that success. (Attendance figures were 95,000.) Another measure of its popularity were Gift Shop receipts which reached record totals (gross shop income was \$106,516.47). The exhibition begins a national tour in June 1984 which will continue through 1987; a schedule of contracted exhibitors is attached.

Two other exhibitions, numerous teaching cases, and off-site displays were also installed during the year. Twenty-six lectures and other public programs at the museum were attended by about 3000 students, faculty and townspeople. In addition, over 18,000 people were taught in the museum and the schools by our museum docents. About 300 researchers and numerous UNM classes used the museum collections during the year.

II. Significant Plans and Recommendations for the Near Future

Planning for extensive renovations of long-term exhibition areas continues. Now that the new Management Board is official we can anticipate that an extensive review of basic museum policies will take place and some re-ordering of priorities will begin during the coming year. It is recommended that in the future far less energy be spent on production of expensive and difficult temporary exhibitions and proportionately more on longer-lasting classroom oriented ones.

In recent years production of elaborate temporary exhibitions has consumed an increasing proportion of the total resources of the museum. These large interpretive exhibitions have been prestigious popular successes and have been supported by large Federal grants. But these have been matching grants requiring the museum to commit as much as 40% of its resources to production of a single one-year exhibition. These exhibitions exhaust the staff and can impact negatively on more basic museum programs including care of collections and their documentation, and collections oriented research. It is not too soon to shift priorities and resources away from the development of expensive exhibitions and toward more long-lasting and basic museological goals. The incoming Management Board is urged to consider policies that would simplify production of exhibitions and limit the degree of commitment made to match grant funds for exhibition production.

III. Appointments to Staff:

Bernadette Cotten	Clerical Sp. V	9/6/83
Janet F. Hevey	Mimbres Archivist	3/1/84
Joseph Traugott	Exhibits Director	3/15/84
Billie Jean Mesa	Clerical Sp. IV	4/30/84
Bruce Bernstein	Preparator	5/1/84

IV. Separations from Staff

Donna L. Klichenn	Clerical Specialist V	8/10/84
Ida Marcotte	Graphics Designer I	10/31/83
Vincent J. Yannie	Exhibits Director	1/17/84

V. Publications

Linda Bahm Fiestas of San Juan Nuevo: Michoagan Mexico (with Mari Lyn Salvador).

Bruce Bernstein Fiberarts Magazine - Listing and commentary on Basketry Collections in United States and Canada.
Journal of California and Great Basin Anthropology - "Regional Variations in Maiduian Coiled Basketry"
Journal of Museum Studies - American Anthropologists Collecting Ethnography (in press).

Marsha Bol "Lakota Women's Art from the Reservation Era," Phoebus: A Journal of Art History. Tempe: Arizona State University, May 1984.

J. J. Brody Yazz: Navajo Painter, (with Sallie Wagher, Beatian Yazz), Northland Press and School of American Research.
Mimbres Pottery: Ancient Art of the American Southwest, (with Steven LeBlanc and Catherine Scott), American Federation of Arts and Hudson Hills Press.
The Chaco Phenomenon, UNM Press.
"The Chaco Phenomenon", Archaeology, July/Aug '83.

Janet Hevey Southwestern Indian Affairs/Art Marketing Research, Austin, TX: Article on Pueblo Feast Day Etiquette Workshop.

J. Stanley Rhine Review: "Ancient Disease: The Elements of Paleopathology" by Srboljub Zivanovic. Journal of Anthropological Research V39#1.

Marian Rodea Visions of the Landscape, chapter included in UNM women's studies book.
Review: Pueblo Indian Textiles by Kate Kent.
"N.M. Historical Review".

Mari Lyn Salvador Fiestas of San Juan Nuevo: Michoagan, Mexico (with L. Bahm).
"Flowers, Food and Fireworks: Ephemeral Art and Ritual Performance in an Azorean American community in California." Submitted to Western Folklore.
"Informa Sobre o novo Museo de BAliero, Pico Acores." Report written for the Secretaria de Educacao e Cultura, Azores, Portugal.

VI. Outside Professional Activities of Staff Members

00411

- Linda Bahm Attended New Mexico Museums Association meetings,
Farmington, April 5-6.
- Bruce Bernstein Basket Weavers Symposium, Museum of New Mexico.
Participant and Speaker.
Southwest Indian Market Association, Santa Fe, NM.
Evaluator.
Indian Art Identification Day. Indian Pueblo
Cultural Center.
Native American Art Studies Association Meetings,
Seattle, WA. Symposium organizer and paper
presentation.
Ethnic Art Course. UNM Art Department. Lecture.
American Indian Art Course. UNM Art Department.
Lecture.
- Marsha Bol "Lakota Ghost Dance Costume." Paper delivered at
4th Annual Symposium American Indian Art Studies
Association, Seattle: University of Washington,
September 1983.
- J. J. Brody Mimbres Pottery exhibition, Heard Museum, Phoenix AZ.
Bandalier Lecture, New Mexico Arch. Soc.
Trustee, New Mexico Arch. Soc.
Mimbres Art, Roswell Museum of Art and Science.
Lecture.
Board Member: Florence Ellis Museum, Ghost Ranch.
- Sophie Collaros Ethics Committee Chairman Museum Store Association.
New Mexico Association of Museum Meetings. Speaker.
- J. Stanley Rhine American Academy of Forensic Sciences Meetings.
Paper delivered.
New Mexico Archaeological Council. Paper on
Evolving Burial Policies in New Mexico.
Mountain, Desert & Coastal Forensic Anthropologists.
Organized meetings, selected topics for discus-
sion.
Elected Vice President, American Board of Forensic An-
thropologists.
Appointed to Examination Committee of American Board
of Forensic Anthropologists.
Consulted by law enforcement agencies in San Antonio,
Texas and Kansas City, Kansas
- Marian Rodee Attended Native American Art Studies Association
meeting in Sept, 1983.
Lecture: Maxwell Museum, Ceremonial pattern weaving.
Rockefeller Foundation grant for month off to write
a chapter for women's studies book Visions of
the Landscape.

VI. Outside Professional Activities of Staff Members (cont.)

- Marian Rodee
(Cont.) Attended Visions of the Landscape Symposium and gave a lecture.
- Mari Lyn Salvador "Azorean Style Bullfights as Performance. Paper sent to the American Folklore Society meeting.
"Portuguese Family Photographs: An analysis of Vernacular Photography". Paper read at the annual meeting of the AAA, Chicago.
"Kuna Visual and Verbal Art". Invited paper given at the Native American Art symposium, Denver, CO.

APPENDIX

00413

July 1 - October 31 1984

Denver Museum of Natural History

October 1, 1985 - January 30, 1986

Fort Worth Museum of Science and
History

March 1 - June 30, 1986

L.A. County Museum of Natural
History

August 1 - November 30, 1986

Boston Museum of Science

March 1 - May 30, 1987

American Museum of Natural History

ANNUAL REPORT
OF THE
DEPARTMENT OF BIOLOGY
JULY 1, 1983 - JUNE 30, 1984

Donald W. Duszynski
Professor and Chairman

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Annual Report of the Department of Biology

July 1, 1983 - June 30, 1984

Donald W. Duszynski, Chairman

I. General Information

During this time period I completed my second year as chair and was supported by Bill Johnson, Assistant Chair and, especially, by Mary Alice Root, Academic Support Aid.

A. Significant Achievements

1. General Departmental Administration

(a) Annual data-reporting forms and Biology Newscasts. Biology is a large and highly professionally-active department. Because of this, it is nearly a full-time (if not impossible) job keeping abreast of the numerous activities and accomplishments of our faculty, students, and staff. One mechanism which has helped to record and organize the myriad of things our people do is an Annual Data-Reporting Form that faculty are required to complete each January to summarize their activities for the previous year. These forms (Appendix I) become part of each person's working file and the information therein is invaluable in helping make contract-renewal, tenure, promotion, and salary-increase decisions (just for the record, the comprehensive information provided by these forms, along with regular teaching evaluations, help me to evaluate the contributions of each faculty member, relative to others in the department, in a fair and non-biased manner. Further, such comprehensive evaluations allow me to allocate salary increases strictly on merit. This has stimulated, I believe, a healthy, competitive spirit among the faculty in which they try to excel to the best of their ability, and beyond.). With

information at hand on the accomplishments of people in our program, I have been able to select high-prestige items to share with the Regents, the President, the Provost, the Dean, UNM and Biology Alumni, and the UNM Information Bureau by issuing a "Biology Newscast" (see "II. Selected Highlights") weekly throughout each fall and spring semester. In this way, Biology has gained some share of (deserved) local visibility over the last FY and this visibility, in turn, has helped various administrators to make more informed decisions when allocating limited resources to programs, such as Biology, with the potential for excellence.

(b) Laboratory/building renovations. With support from the Dean and the Provost and through negotiation with the Comptroller, \$62,500 was earmarked to completely renovate research laboratories (rooms 203, 203A, 204, and 205) for Drs. Baca, Kogoma, and Natvig. At this date, the work on Dr. Baca's lab (203, 203A) is complete and we are anxiously waiting for work to begin on the other two labs. Finally, negotiations--began long before I became chairman--have finally been completed to redo the leaking roof on the west wing of the building. The bid has been let and construction should begin soon.

(c) Annual written evaluations for non-tenured faculty. The last faculty meeting of each FY is now used as a forum in which the tenured faculty discuss the progress of their non-tenured colleagues. The discussions are tape-recorded and I review the tape to write a detailed annual evaluation (teaching, research, service, personal characteristics, summary and recommendation sections) for each non-tenured colleague. After the non-tenured faculty member has reviewed the written evaluation he/she

is encouraged to meet with me for at least an hour to discuss their progress and plan the future.

(d) Computer additions. The Department continued to become more computer proficient. For the record, the following is a list of the equipment we had prior to FY 1983-84:

5 Decwriters	1 Intergral Data printer
4 CRT terminals	1 Digital plotter
2 Televideo terminals	3 CPT word-processing terminals
1 Apple PC	2 CPT printers
1 Osbourne PC	1 Diablo printer
1 Digital Retrographics terminal	1 Dot-matrix printer

During FY 1983-84 we acquired the additional equipment listed below:

1 Televideo CRT terminal	2 Smart modems
3 IBM PCs (2 with color minitors)	2 Kapro PCs
2 Toshiba printers	2 Okidata printers

(e) The Biological Society of New Mexico. The Society was established in 1984 as a tax-exempt organization under the New Mexico Nonprofit Corporation Act and the United States Internal Revenue Code. The object of the Society is to establish and maintain endowments, trusts, and foundations and to administer grants and other funds, all for the purposes of encouraging, fostering, and pursuing the greatest degree of excellence in education in the Department of Biology at UNM. Such purposes shall be pursued directly through sponsorship of educational programs, through support of education-related research, and any other activities, academic processes or programs to benefit the primary goal of excellence of biological science at UNM. The Society is authorized to receive, disburse, and administer funds, grants, stipends, honoraria, property, or any other interests for educational purposes. Tax-exempt gifts may be given with designation to be used for specific purposes, e.g., student fellowships,

research support, or whatever, as long as the purpose fits the objectives of pursuing excellence in biological education and research at UNM. The funds will be administered by the Board of Directors under the laws of New Mexico governing non-profit corporations and the federal laws governing tax-exempt educational organizations, the status of which is currently under consideration by the U.S. Internal Revenue Service.

(f) Graduate student recruitment. One of the first activities supported by the Society was the recruitment of "blue chip" graduate students. This year, two outstanding prospective students, Ted Nusbaum from Yale University and Tom Valone, from the University of Rochester, were actively recruited and brought to UNM to visit our program. Both had been recruited and offered assistantships at three or four other universities. Valone decided to accept an offer from Berkeley, but Nusbaum will be entering our Ph.D. program this fall.

2. Professional and Technical Support Staff.

One of the most important components of our very active Department is our dedicated support staff, all of whom continue to strive for excellence by always contributing much more than what is expected of them by their job descriptions. Once again, for the record, I list the 19 support staff of this Department:

- 1/2-time Clerical Specialist IV, Receptionist (S. Mitchell)
- 1 1/2-time Clerical Specialist VI, Technical Typists (L. Bennett, L. DeVries)
- 1 full-time Office Manager (M. West)
- 1 full-time Clerical Specialist VI, Bookkeeper (M. Bealmear, K. Montoya)
- 1/2-time Staff Assistant, Bookkeeper (M. Bealmear)
- 1/2-time Graphics Technician (Y. Ramsey)
- 1 full-time Lab Tech III, Assistant to the Academic Support Aide (D. Opasic)
- 1 full-time Storekeeper II (W. Joyce)
- 1/2-time Lab Tech IV, Museum Manager (W. Barber)

Support Staff of this Department (continued)

1 full-time Lab Tech II, Media Prep (E. Arguello)
 1 full-time Lab Assistant III, Media Prep (J. Donahoe)
 1 full-time Lab Tech II (K. Campbell, Vogel's lab)
 1 full-time Lab Animal Tech III (M. Altenbach)
 3/4-time Lab Animal Tech II (R. Ricci)
 1 full-time Greenhouse Technician (J. Chavez)
 1/2-time Horticulturist (F. Feather)
 1/3-time Experimental Lab Tech (E. George)
 1 full-time Research Associate Staff I (D. Malka, Kogoma's lab)
 1 full-time Academic Support Aide (M.A. Root). This is the most important position in the department. Ms. Root is the Department Manager and is responsible for direct supervision of the first seven positions (above). She is also responsible for the building and its properties, our six field vehicles, and all other laboratory and field equipment involved in our teaching and research programs.

3. Undergraduate Curriculum.

During the FY there was only one new course added to our undergraduate curriculum, Biology 461F - Tropical Biology, to be taught by Drs. Findley and Scott during Spring Semester 1985 and in alternate years thereafter. Also during FY 1983-84, we awarded 42 B.S. degrees (two in the summer, ten in the fall, 30 in the spring) and 17 minors.

The emphasis of our Department at the undergraduate level remains teaching Biology as a liberal art and our faculty and teaching assistants are dedicated to providing our students with a broad selection of high-quality courses that can be meaningful and useful, not only toward the completion of their degrees, but after they finish their program as well.

In Biology we now have a standing committee, the Undergraduate Policy Committee (UGP), which is chaired by Bill Johnson and charged with the broad responsibility of best meeting the present needs of our undergraduates and trying to anticipate their future needs. FY 1983-84 marked the first year of a structured advisement program for Biology majors. During the summer of 1983, majors and perspective majors received

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a letter from me (see 1982-83 Annual Report) announcing that beginning on 16 August 1983, an advisement service would be available for their benefit. Three faculty advisors (Drs. G. Johnson, Martin, Molles) were prepared to provide information on career opportunities in applied biology and to make suggestions regarding advanced work in particular biological specialities. Possibly due to a very positive article that appeared in the DAILY LOBO the response was extremely gratifying. To date, a total of 106 majors and minors have availed themselves of our departmental program.

During Semester II, 1984, the UPC finally presented to the Biology Faculty for their preliminary consideration, a proposal to revise B.S. degree major requirements. In two open meetings, members of the faculty made suggested changes in the proposal which the UPC accepted. The Committee is convinced this latest version has certain strengths that the current program does not; the proposed program not only increases the number of elective credits built into the requirements, but also provides those students with well-defined interests in particular areas of biology to be guided along specialty tracks (a maximum of six tracks would be available) suited to their interests and professional goals. (No student would be forced to follow any of the tracks if he or she did not wish to do so.)

The UPC began a discussion of the need for reinstating a Bachelor of Arts major in Biology. This discussion was suspended pending the outcome of a faculty vote on the proposal for changing requirements for the B.S. degree. The form of a B.A. program should depend, in part, on how well the structure of the B.S. requirements meets the needs of Biology Majors who intend to pursue specialized training in applied biology or go on to

graduate-level studies in one of the biological sciences. The B.A. program could then be designed for those students who wished to major in Biology primarily for its intrinsic appeal and fundamental significance as part of a liberal education.

The UPC reviewed the FINAL REPORT OF THE A & S TASK FORCE ON GENERAL EDUCATION. The Committee was seriously concerned that the Task Force recommendations would, to some degree, discriminate against Biology Majors and would force the Department of Biology to weaken its program for majors. Bill Johnson was requested to make these concerns known to the A & S Curriculum Committee, which he did during an appearance before the group late in Spring Semester.

4. Graduate Curriculum.

Three courses were added to our graduate curriculum: Biology 547 - Transmission Electron Microscopy, to be taught each Fall by Dr. Chiovetti; Biology 548 - Scanning Electron Microscopy, to be taught each Spring by Dr. Chiovetti; and Biology 644 - Mechanisms of Gene Expression (cross-listed as Medical Science 644) to be taught by Dr. Bear (Cell Biology Department) during Spring 1984 and alternate years thereafter. During the FY we awarded 7 Ph.D. degrees (E. Akporiaye, R. Bradley, F. Fisher, E. Louderbough, K. Peterson, B. Reduker, C. Reith), 8 M.S. I degrees (C. Barnard, C. Dean, T. Dunbar, T. Edwards, N. Joste, G. Pickett, J. Horner, G. Houston) and 4 M.S. II degrees (T. Andrews, S. Cross, J. Laughy, R. Van Pelt).

The major strength of our Department at the graduate level continues to be in the area of ecology and evolutionary biology. This is a strong program that continues to receive national and international recognition in

the form of grants awarded (see I.E., Sponsored Research), invited symposia talks, election to office in national/international scientific societies, and the like (see I.A.1, Faculty Accomplishments). This past fall semester we began a series of CORE courses (Biol. 512, 513, 514) which all students in the broad area of ecology-evolutionary-whole animal biology are required to take. These courses are intended to comprise the heart of our graduate instructional program in this area and to provide our students with the fundamental framework upon which to build their individual program. As in any new program, there were some minor problems associated with one or two of the courses, but overall, the first year of the CORE was well received by the 50 graduate students who participated in the three courses. Candidates for the M.S. degree must take at least two of the three courses during their first two years of graduate work, while Ph.D. candidates must take all three during the first year of their studies. For Ph.D. students, satisfactory performance (B or better in each course) will substitute for the current Graduate Qualifying Exam.

A great deal of effort was expended in FY 1983-84 to strengthen the other, but no less important, major area of study in our Department, that of molecular-cellular-microbiology. Unfortunately, the efforts of the chair are sometimes sabotaged by some of the very faculty members who would receive benefit from those efforts. Nonetheless, some progress was made. Ten of our 30 professors (Baca, Barton, Bourne, Chioveti, W. Johnson, Kerkof, Kogoma, Natvig, Trujillo, Vogel) can be categorized strictly as molecular, cellular or microbiologists although many others (e.g., Dahm, Duszynski, Cates, Crawford, Rice, Riedesel, Yates) have interests that overlap this broad area of biology. During the last two fiscal years

nearly \$100,000 was earmarked for renovating research labs in Biology (all in the molecular-cell-micro area) through my negotiations with the higher administration. Last year, three labs were renovated for Chiovetti and this past year two labs were renovated for Baca. Renovation/construction will soon begin on the research labs of Drs. Kogoma and Natvig as money has already been approved for these jobs. Three of the faculty in this area, Baca, Kogoma and Vogel were recommended and approved for joint appointments in departments within our Medical School (Microbiology, Cell Biology, Anatomy, respectively). Teaching loads for all active (and some potentially active) faculty in this area have been reduced. I will continue to support the expansion of cooperative programs with the Medical School to include additional joint appointments, joint grant proposals and publications, cooperative teaching arrangements, cooperative supervision of graduate students, and the like.

5. Graduate Students.

(a) Teaching excellence/awards. During the FY 13 of our graduate teaching assistants were rated "Excellent" by their students in the campuswide ICES teacher evaluation program one or more times in one or more semesters. These were:

<u>Summer 1983</u>	<u>Fall 1983</u>	<u>Spring 1984</u>
L. Marshall	S. George	J. Hastings
S. Sain	D. Germano	T. Hill
	J. Hastings	L. Janecek
	(2 lab sections)	D. Moore
	G. Houston	A. O'Rourke
	K. Johnson	(3 lab sections)
	D. Moore	R. Petruszka
	A. O'Rourke	
	(2 lab sections)	
	R. Petruszka	
	R. Richards	

Starting in the Fall 1982, I began a graduate student Teaching Award program in which the TA rated by his/her students as the Best Teacher, when compared to all other TAs that semester, would receive a small monetary award from the Biological Society of New Mexico. This year's winners of the Graduate Student Teaching Award were: Steve Sain (Summer 1983), Sarah George and Anne O'Rourke (Fall 1983) and Jon Hastings and Laura Janecek (Spring 1984).

(b) Departmental committee service. A number of graduate students also serve our department by membership on important faculty and other committees. During FY 1983-84 these included the following:

Graduate Policy Committee: Sarah George, Larry Marshall
Graduate Student Representatives to Faculty Meetings: Gary Graham, Kris Johnson
Graduate Student Representatives to GSA Council: Shawn Crowley, Kerry Kilburn
Graduate Student Research Allocation Committee: Jane Gillespie, Grafton Houston, Dwight Klemm, Dwight Moore
Graduate Student Selection Committee: Jim Bednarz
Seminar Committee: Nelda Subia, Steve Zack
Teaching Evaluation/ICES Coordinators: Dave Valentine
Undergraduate Policy Committee: Brent Parker

(c) Grants, publications, papers presented. See subsection "14, Graduate student honors/accomplishments" under section "I.A.7(c), Faculty 1983 accomplishments" (below).

(d) Jobs/appointments of our graduates. Of those who received advanced degrees in Biology during FY 1983-84 (sec. I.A.4, above) we have information in their progress, as listed below:

Ph.D.s

Akporiaye. Postdoctoral fellow, Biophysics Section, Los Alamos National Labs.
 Bradley. Lecturer, University of Sydney, NSW, Australia.
 Fisher. Postdoctoral fellow, Biology Department, NMSU, Las Cruces, NM.
 Louderbough. Environmental Consultant (privately employed).

Ph.D.s (continued)

Peterson. Lab Tech III, Biology Department, UNM.
 Reduker. Postdoctoral fellow, Department of Veterinary Science,
 Montana State University, Bozeman, MT.
 Reith. Environmental Scientist, IT Corporation, Albuquerque.

M.S. I

Bernard. Working on NM teaching certificate, UNM.
 Dean. Employed by NM Scientific Laboratories, Albuquerque.
 Dunbar. Teacher, Rio Grande High School, Albuquerque.
 Edwards. Ph.D. candidate, Math and Statistics Department, University
 of Florida, Gainesville, FL.
 Joste. Technician, Biochemistry Department, UNM.
 Pickett. Technician, Cell Biology Department, UNM.
 Horner. Ph.D. candidate, Biology Department, UNM.
 Houston. Ph.D. candidate, Biology Department, UNM.

M.S. II

Andrews. Environmental Consultant, Boulder, CO.
 Cross. Teacher, Del Norte High School, Albuquerque.
 Laughy. No information available.
 Van Pelt. Employed by the Experimental Group, NMSU, Las Cruces, NM.

6. Adjunct Professors, Joint Appointments, etc.

Several of our faculty hold honorary joint appointments in other departments and a number of professionals in other academic units, the private sector, industry and in governmental labs hold appointments in Biology and, as such, help lend breadth and strength to our overall program. These include at least the following for FY 1983-84:

Adjunct Professors: Troy Best (Assistant); Roger Conant (Full); Tom Fritts (Associate); Herb Grover (Assistant); Eugene Rypka (Full); Norman Scott (Associate); Peter Stacey (Assistant). "

Joint Appointments (with us): Robert Kelley (Full), Anatomy Department, UNM Medical School and Robert Waterman (Full), Anatomy Department, UNM Medical School.

Joint Appointments (with other departments): Oz Baca with Microbiology Department, UNM Medical School; Tokio Kogoma with Cell Biology Department, UNM Medical School; William Martin with Los Angeles County Museum and Arbotatum; Kathryn Vogel with Anatomy Department, UNM Medical School.

Visiting Scholars: David Hafner (NM Museum of Natural History);
Elsa Taylor (C.S. Crawford: research lab).

Visiting Research Professor: Beatrice Van Horne (J.A. Wiens' research lab).

7. Biology Faculty.

(a) Teaching excellence. Twelve of our faculty were rated as "Excellent" by their students in the campuswide ICES teacher evaluation program one or more times in one or more semesters last year. These were:

Fall 1983

S. Altenbach (2 courses)
H. Grover
P. Kerkof (2 courses)
D. Ligon
W. Martin
M. Molles
L. Potter
J. Wiens
T. Yates

Spring 1984

S. Altenbach
E. Bourne
P. Kerkof (2 courses)
W. Martin (2 courses)
R. Thornhill
E. Toolson
J. Wiens
T. Yates

(b) Committee membership/departmental service. Most of our faculty serve the Department through membership in standing and ad/hoc committees. This past year, committee memberships were as follows (* indicates Committee Chairperson):

Biological Society of New Mexico Committee: Don Duszynski*, Jim Findley,
Loren Potter

"Committee of Elders" Advisory Committee: Cliff Crawford, Don
Duszynski*, Jim Findley, Loren Potter, John Wiens

Computer Use Liaison: Fritz Taylor

Department Representative, A & S Graduate Policy Committee: Rex Cates

Department Undergraduate Advisers: Gordon Johnson, Bill Martin,
Manuel Molles

Graduate Policy Committee: Rex Cates*, Jim Findley, Tok Kogoma,
Eric Toolson, Terry Yates

Graduate Student Selection Committee: Donald Natvig, Loren Potter*,
Randy Thornhill

Library Liaison: Cliff Crawford

Seminar Committee: Scott Altenbach, Bob Chiovetti, Cliff Crawford,
Paul Kerkof, Tok Kogoma, S. Ligon*

Sevilleta National Wildlife Refuge Study Committee: Cliff Crawford*,
Jim Gosz, Bill Martin, Norm Scott, John Wiens

Special Advisers: Forestry, wildlife - Bill Martin; Health sciences,
pre-med - Earl Bourne; Pre-vet - Don Duszynski

Teaching Evaluation/ICES Coordinators: Bill Johnson, Dave Ligon*

Undergraduate Policy Committee: Scott Altenbach, Oz Baca, Earl Bourne,
Jim Gosz, Bill Johnson*, Sandy Ligon

(c) Professional activities of Biology faculty, 1983.

1. BOOKS AND TEXTBOOKS

GOSZ

Water Resources in the Southern Rockies and High Plains. UNM Press,
330 p. (with L.D. Potter and C. Carlson).

KIDD

A Notebook for University Skills Students-The General College Series.
Burgess Pub. Co., 137 p.

POTTER

New Mexico Grasses: A Vegetative Key. UNM Press, 160 p. (with
C. Barnard).

Water Resources in the Southern Rockies and High Plains: Forest
Recreation Use and Aquatic Interactions. UNM Press, 330 p. (and
J.R. Gosz and C. Carlson).

THORNHILL

The Evolution of Insect Mating Systems. Harvard Univ. Press, 576 p.
(and J. Alcock).

2. EDITED VOLUMES

None

3. CHAPTERS/MAJOR REVIEWS

ALTENBACH

High-speed motion picture film of fishing-bats, Noctilio leporinus and long-nosed bats, Leptonycteris nivalis. In, Life on Earth, Part 10, British Broadcasting Corporation.

High-speed motion picture film The Bat, the Blossom, and the Biologist, a QED series presentation. British Broadcasting Corporation, Aired December in Europe.

High-speed motion picture footage and still photographs of Tadarida brasiliensis in flight for use in Carlsbad Caverns Nat. Park video presentation. Filmed for National Park Service. Shown in October.

BACA

Q-fever and Coxiella burnetii: a model for host-parasite interactions. Microbiological Reviews 47:127-149 (and D. Paretsky).

BARTON

The role of sulfate-reducing bacteria on mineralization of elemental selenium. In, Environmental Biogeochemistry (J.A. Brierley, ed.). Van Nostrand Reinhold Co., New York. (with L.M. Gervais and M.A. Tafuya).

CATES

Patterns in defensive natural product chemistry: Douglas-fir and western spruce budworm interactions. In, Plant Resistance to Insects (P. Hedin, ed.). American Chemical Society, Washington, D.C. 3-19 pp. (and R. Redak and C. Henderson).

GOSZ

Interactions of Biogeochemical Cycles in Forest Ecosystems. In, The Major Biogeochemicals and Their Interactions. SCOPE Report No. 21. (B. Bolin and R.B. Cook, eds.). John Wiley & Sons, England. pp. 175-220 (with J.M. Melillo).

KIDD

History of Water Pollution. In, Bulletin of Science, Technology and Society, Vol. 3. Pergamon Press, NY. pp. 121-126.

KOGOMA

polA⁺-independent replication of Concatemeric pBR322 in sdrA mutants of Escherichia coli K-12. In, Mechanisms of DNA Replication and Recombination, UCLA Symposia on Molecular and Cellular Biology, New Series Vol. X, (Cazzarelli, N.R., ed.). Alan R. Liss, Inc., NY pp. 337-349 (and N.L. Subia).

LIGON, J.D.

Commentary on cooperative breeding strategies in birds. In, Perspectives in Ornithology. American Ornithologists' Union. (A.H. Brush and G.A. Clark, Jr., eds.). Cambridge Univ. Press, Cambridge. pp. 120-127.

LIGON, S.H.

Trichechus manatus (Manati, West Indian Manatee). In, Costa Rican Natural History (D.H. Janzen, ed.). University of Chicago Press. pp. 498-500.

THORNHILL

Human rape: an evolutionary analysis. Ethology and Sociobiology 4:137-173 (and N. Thornhill).

Biology of the Mecoptera. Annual Review of Entomology 28:203-228 (with G.W. Byers).

WIENS

Avian community ecology: an iconoclastic view. In, Perspectives in Ornithology (A.H. Brush and G.A. Clark, eds.). Cambridge Univ. Press, Cambridge. pp. 355-403.

Competition or peaceful coexistence? Natural History 92:30-34.

YATES

The mole that keeps its nose clean. Natural History 92:54-61.

4. SCHOLARLY ARTICLES

ALTENBACH

The functional anatomy of the shoulder of the pallid bat, Antrozons pallidus. J. Mammalogy, 64:62-75 (and J.H. Hermanson).

BACA

Superoxide anion production and superoxide dismutase and catalase activities in Coxiella burnetii. J. Bacteriology 154:520-523 (with E. Akporiaye).

Lysosomal response of a murine macrophage-like cell line persistently infected with Coxiella burnetii. Infection & Immunity 40:1155-1162 (with E.T. Akporiaye, J.D. Rowatt, and A.A. Aragon).

BARTON

Energy coupling to nitrite respiration in the sulfate-reducing bacterium Desulfovibrio gigas. J. Bacteriology 153:867-871 (and J. LeGall, J.M. Odom and J.D. Peck).

CATES

Natural product defensive chemistry of Douglas-fir, western spruce budworm success, and forest management practices. Zeit. and. Ent. 96:173-182 (and R. Redak and C. Henderson).

CRAWFORD

A new species of thelastomatid (Nematoda: Thelastomatidae) from the desert millipede, Orthoporus ornatus (Diplopoda: Spirostreptidae). Proc. Helminth. Soc. Wash. 50:69-82 (with S.J. Upton and R.L. Hoffman).

DUSZYNSKI

Coccidia from kangaroo rats (Diposomys spp.) in the western United States, Baja California, and Northern Mexico with descriptions of Eimeria merriama sp. n. and Isospora sp. J. Parasitology 69:209-214 (with C.A. Stout).

FINDLEY

Morphological and dietary structuring of a Zambian insectivorous bat community. Ecology 64:625-630 (and H. Black).

GOSZ

Using Strontium isotope ratios to estimate inputs to ecosystems. BioScience 33:23-30 (and D.G. Brookins and D.I. Moore).

Sediment chemistry as influenced by vegetation and bedrock in the southwestern United States. Water Res. Bull. 19:829-835 (with C. White).

Nitrate losses from disturbed ecosystems in New Zealand--A comparative analysis. New Zealand J. Forest Res. 13:14-22 (with W.J. Dyck and P.D. Hodgkiss).

KOGOMA

The origin of replication, oriC, and the dnaA protein are dispensable in stable DNA replication (sdra) mutants of Escherichia coli K-12. EMBO Jour. 2:463-468 (and K. von Meyenburg).

LIGON, J.D.

Cooperation and reciprocity in avian social systems. American Naturalist 121:366-384.

Reciprocity in the green woodhoopoe (Phoeniculus purpureus). Animal Behavior 31:480-489 (and S.H. Ligon).

LIGON, S.H.

Reciprocity in the green woodhoopoe (Phoeniculus purpureus). Animal Behavior 31:480-489 (with J.D. Ligon).

MOLLES

Mechanisms of prey selection by predaceous stoneflies: roles of prey morphology, behavior, and predator hunger. Oecologia 57:25-31 (and R.D. Pietruszka).

NATVIG

Oxygen uptake by obligately-fermentative aquatic fungi: absence of a cyanide-sensitive component. Arch. Microbiol. 134:5-8 (and F.H. Gleason).

POTTER

Indicator plants and archeological sites, Chaco Canyon National Monument. COAS: New Mexico Archaeology and History 1:19-37 (and R. Young).

POTTER (cont.)

Geographic variation among soil-based models of reclamation success. J. Arid Environ. (with C.C. Reith).

RIEDESEL

Diurnal ventilatory patterns in the garter snake, Thamnophis elegans. J. Comp. Physiology 149:503-510 (with J.W. Hicks).

Body composition of oligo/amenorrheic athletes. Med. Sci. Sports Exerc. 15:215-217 (with K.A. Carlberg, M.T. Buckman, and G.T. Peake).

A survey of menstrual function in athletes. Eur. J. Appl. Physiology 51:211-222 (with K.A. Carlberg, M.T. Buckman and G.T. Peake).

THORNHILL

Cryptic female choice and its implications in the scorpionfly Harpobittacus nigriceps. American Naturalist 122:765-788.

Sexual selection and insect mating behavior. Am. Biol. Teacher 45:310-319 (and G. Dodson and L. Marshall).

WIENS

Information needs and priorities for assessing the sensitivity of marine birds to oil spills. Biol. Conserv. 27 (and R.G. Ford and D. Heinemann).

Word processing versus writing. Auk 100:758.

YATES

Review of the white-footed mice, genus Peromyscus, of Nicaragua. Occ. Papers Mus. Texas Tech. Univ., 82:1-26 (with J.K. Jones).

Systematic status of the mohave ground squirrel, Spermophilus mohavensis subgenus Xerospermophilus. J. Mammalogy 64:397-404 (with D.J. Hafner).

Evolutionary affinities among southwestern long-eared Myotis (Chiroptera: Vespertilionidae). J. Mammalogy 64:666-677 (with D.W. Reuker and I.F. Greenbaum).

Rate of enzyme degradation in selected mammals following death. J. Mammalogy 47:1166-1169 (with D.W. Moore).

5. ABSTRACTS, NOTES, BOOK REVIEWS, AGENCY TECHNICAL REPORTS

BACA

Antibody-dependent cellular cytotoxicity (ADCC) against mouse macrophage tumor cells infected with Coxiella burnetii. Abstracts of the Annual Meeting of the American Society for Microbiology. Abstr. No. E80, p. 89 (with F. Koster, T. Kirkpatrick, and J. Rowatt).

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BARTON

Iron transport by mycorrhizal fungi. Abstracts of Second International Symposium on Iron Nutrition and Interactions in Plants. Utah State University, Logan, UT (with R. Rodriguez and D. Klemm).

The role of sulfate-reducing bacteria on mineralization of elemental selenium. Abstracts of 6th International Symposium on Environmental Biogeochemistry. New Mexico Institute of Mining and Technology. Socorro, NM (with L.M. Gervais, and M.A. Tafoya).

Mineralization of selenium by anaerobic bacteria. Abstracts of 3rd International Symposium on Microbial Ecology. Michigan State University. East Lansing, MI (with L. Gervais and C. Dean).

Transport of molybdate by sulfate-reducing bacteria. Abstract of meetings of 83rd National Meeting of American Society for Microbiology, New Orleans, LA (and M.T. Tafoya).

Physiological activities of mycorrhizal fungi. Technical Report on Research in Year Book of the American Physiological Society. Philadelphia, PA.

CATES

A determination of the effects of nitrogen and terpenes on spruce budworm growth and survival. Forest Service, USDA. CANUSA Spruce Budworms Program, Portland, OR, 25 pp. (and C. Henderson and R. Redak).

Effects of recreation (trampling) on the forest floor and associated streams of aspen and conifer forests. USDA Forest Service, Eisenhower Consortium, Fort Collins, CO, 57 pp. (with M.C. Molles and J. Gosz).

The identification of dissolved organic chemicals released in wildland streams due to disturbance. USDA Forest Service. Eisenhower Consortium, Fort Collins, CO, 17 pp. (and H. Gambliel and J. Horner).

CRAWFORD

(book review) Mountain Islands and Desert Seas: A Natural History of the U.S.-Mexican Borderlands, by Frederick R. Gelbach. Review in New Mexico Historical Review 5:180-181.

DUSZYNSKI

A survey of Coccidia from sandhill cranes (Grus canadensis) wintering in New Mexico. 16th Annual Meet., SWAP, Lake Texoma, OK, 21-24 April and at 15th Annual Meet., RMCP, Grand Junction, CO, 28 Apr-1 May. (with B.P. Parker).

Evidence for local and systemic effects on inflammation during Eimeria nieschulzi infection in rats. 15th Annual Meet., RMCP, Grand Junction, CO, 28 Apr-1 May.

Local and systemic effects on inflammation during Eimeria nieschulzi infection. 58th Annual Meet., ASP, San Antonio, TX. 4-8 Dec. (with G.A. Castro).

GOSZ

Effect of recreation (trampling) on the forest floor and associated streams of aspen and conifer forests. Final Report. US Forest Service, 57 pp. (with M. Molles and R. Cates).

Conceptual models of the effects of plant roots on the mineralization of nitrogen. 6th International Symposium on Environmental Biogeochemistry. Santa Fe, NM. (with F. Fisher).

JOHNSON, G.V.

Nitrogen fixation by Russian olive (Elaeagnus angustifolia L.), a nodulated non-leguminous plant. Proc. 64th Ann. Meeting Pac. Div. Amer. Assoc. Adv. Sci. and 59th Ann. Meeting Southwestern & Rocky Mt. Div., AAAS. p. 39.

Iron utilization by iron efficient and inefficient soybean cultivars in cell suspension culture. Plant Physiol. 72S:5.

KOGOMA.

DasF mutants of Escherichia coli are stable DNA replication mutants. J. Cell. Biochem. Suppl. 7B:104 (and T.A. Torrey and T. Atlung).

MOLLES

Mechanisms of prey selection by predaceous stoneflies: roles of prey morphology, behavior and predator hunger. Proc. 31st Ann. Meet. N. American Benthological Soc., 27-29 April, 1983 (and R.D. Pietruszka).

Patterns of case building by caddisflies in the southern Rocky Mountains. Abstracts 4th International Symposium on Trichoptera, 11-16 July 1983.

NATVIG

Homology among mitochondrial plasmids of Neurospora tetrasperma and Neurospora intermedia. Mycol. Soc. Am. Newsl. 34:37 (with J.W. Taylor and G. May).

POTTER

An ecological analysis of vegetational reclamation at five surface coal mines in New Mexico. Final Report. Office of Surface Mining, Dept. of Interior, Denver, CO, 78 pp. (with C.C. Reith).

Vegetation along Green and Yampa rivers and response to fluctuating water levels, Dinosaur National Monument. Final Report, National Park Service, Denver, CO, 179 pp. (with N.T. Fischer, M.S. Toll, and A.C. Cully).

THORNHILL

Published Abstract: Cryptic Female Choice. Anim. Behav. Soc. Mtg. Bucknell Univ., Lancaster, PA, 19-21 June.

TRUJILLO

Structural comparison of the cytosolic phosphoenolpyruvate carboxykinase (GTP) genes from rat, chicken and human. Presented at the Annual National Meeting for Association of American Biological Chemists. San Francisco, CA, April (and H. Yoc-Warren, Y. Hod, J. Short and R.W. Hanson).

VOGEL

Proteoglycans of Bovine Fibrous Tendon and their Interaction with Tendon Collagen in vitro. Proc. of the 7th International Symp. on Glycoconjugates, pp. 830-831 (and D. Heinegard).

A low molecular weight proteoglycan from bovine tendon specifically inhibits collagen fibrillogenesis in vitro. J. Cell Biol. 97:3a (and D. Heinegard).

WIENS

Ecosystem fragmentation in the Pinelands of New Jersey, Pp. 5-10 In, Ecological solutions to environmental management concerns in the Pinelands National Reserve. Proceedings of a conference (R.E. Good, ed.). Center for coastal and environmental studies, Division of Pinelands Research, Rutgers Univ. (with P.G. Risser, R.L. Burgess, R.T.T. Foxman, J. Terborgh and R. Zampella).

International Evaluations of Research Projects supported by the Swedish Natural Science Research Council. Swedish Natural Science Research Council, Stockholm.

The response of shrubsteppe birds to rangeland alterations: implications for assessing habitat occupancy. Abstracts 100th Stated Meeting American Ornithologists' Union, Chicago, Ill.

Book Review: Bird Problems in Agriculture (E.N. Wright, et. al., eds). Auk 99:174-175.

Book Review: Montana Bird Distribution, 2nd edition by P.D. Skaar. Auk 99:179-180.

Book Review: Allan Brooks: artist naturalist by H.M. Laing. Auk 99:180.

Book Review: The descent of man, and selection in relation to' sex by C. Darwin. Auk 99:399.

Book Review: Edward Wilson's birds of the Antarctic by B. Roberts, ed.). Auk 99:401.

Book Review: Bird island in Antarctic waters by D.F. Parmelee. Auk 100:248-249.

Book Review: African handbook of birds, vols. 1-4 by C.W. Mackworth-Praed and C.H.B. Grant. Auk 100:263.

WIENS (cont.)

- Book Review: Birds of Tarrant County, Texas by W.M. Pulich. Auk 100:264-265.
- Book Review: Das grosse Buch vom Vogelzug by K. Curry-Lindahl. Auk 100:265.
- Book Review: Birds in medieval manuscripts by B. Yapp. Auk 100:265.
- Book Review: Handbook of the birds of India and Pakistan by S. Ali and S.D. Ripley. Auk 100:266.
- Book Review: Bird of the week by J. Flegg. Auk 100:267.
- Book Review: Yellowlegs by J. Janovy, Jr. Auk 100:516-517.
- Book Review: Resource competition and community structure by D. Tilman. Auk 100:761-763.
- Book Review: CRC Handbook of census methods for terrestrial vertebrates by D.E. Davis, ed. Auk 100:770-771.
- Book Review: Lemicoles. Gangas et Pigeons d'Europe by P. Geroudet. Auk 100:794.
- Book Review: Handbuch der Vogel Mitteleuropas. Vol. 8 by U.N. Glutz von Boltzheim and K.M. Bauer. Auk 100:794.
- Book Review: Index to illustrations of living things outside of North America by L. Thompson Munz and N.G. Slauson. Auk 100:794.
- Editorial. Forum: Avian subspecies in the 1980's. Auk 99:593.
- Interspecific competition (letter to the editor). Amer. Sci. 71:234-235.

YATES

Immunodistance analysis of the evolutionary relationships among the Talpinae (Order: Insectivora). National Meeting, American Society of Mammalogists. Gainesville, Florida. Abstr. (with D.W. Moore and J.M. Sarich).

Systematics and evolution of the genus Scapanus (Insectivora: Talpidae). National Meeting, American Society of Mammalogists. Gainesville, Florida. Abstr. (and D.W. Moore).

Evolutionary relationships in the family Zapodidae. National Meeting, American Society of Mammalogists. Gainesville, Florida. Abstr. (with K.E. Petersen, D.J. Hafner and H.H. Genoways).

YATES (cont.)

Genic relationships of southwestern populations of Sorex monticolus and Sorex cinereus. National Meeting, American Society of Mammalogists. Gainesville, Florida. Abstr. (with S.B. George).

Genetic variation in the Rio Grande Cutthroat trout, Salmo clarki virginalis. Annual Meeting, Southwestern Association of Naturalists. Little Rock Arkansas. Abstr. (and D.J. Hafner).

Genetics and species survival programs. American association of Zoological Parks and Aquariums, Central Regional Conference. Albuquerque, New Mexico. Abstr.

Geographic and nongeographic variation in the New Mexican bobcat, Felis rufus. New Mexico Game and Fish. Technical Report. (with J. Sleeter).

Systematic status of the Penasco chipmunk (Eutamias minimus atristriatus), with comments on the relationships between allopatric populations of least chipmunks in New Mexico and adjacent states. Endangered Species Program, New Mexico Department of Game and Fish. Technical Report (R.M. Sullivan and K.E. Petersen).

Premanagement laboratory analyses of New Mexico vertebrates I. New Mexico Department of Game and Fish. Technical Report (and D.J. Hafner).

Cataloging, curating and computerizing skulls of felis rufus. New Mexico Department of Game and Fish. Technical Report.

Evolution of the family Talpidae. National Science Foundation. Technical Report.

Premanagement laboratory analyses of New Mexico vertebrates II. New Mexico Department of Game and Fish. Technical Report, October.

Premanagement laboratory analyses of New Mexico vertebrates III. New Mexico Department of Game and Fish. Technical Report, November.

6. GRANT PROPOSALS SUBMITTED

BACA

Phase variation in an obligate intracellular parasite. To: The National Science Foundation. 1983-1986. \$221,210. Not funded.

Phase variation in the Q-fever agent. To: The National Institutes of Health, Public Health Service. 1983-1986. \$160,338. Not funded.

Phase variation in Coxiella burnetii. To: the NIH's MBRS program. \$54,539. Funded for four years at the amount indicated. \$13,615 year one (1984).

BARTON

Characterization of the high affinity Fe(11) transport system in bacteria. To: NIH through A. Atencio for support of Minority Biomedical Research Support. A 4 year grant at \$70,000.

CATES

Induced chemistry of loblolly pine with regard to phenology, host resistance, and suitability. To: SPB-fungal complex. Integrated Pest Management Program, USDA, Forest Service. (pending as of 1983). \$46,474.

CHIOVETTI

Purchase of a Transmission Electron Microscope, A Scanning Electron Microscope and Ancillary Equipment. To: National Science Foundation. 1983-1984. \$258,295. Not funded.

DUSZYNSKI

Host genetic factors affecting specificity of the Coccidia of small mammals. To: NIH-MBRS. 1984-1988. \$99,769 (and T.L. Yates).

Purchase of a transmission electron microscope, a scanning electron microscope, and ancillary equipment. To: NSF. 1984. \$258,295 (with R. Chiovetti, Jr.).

The incidence of *Eimeria* spp. in sandhill cranes wintering in New Mexico. To: NM Game and Fish. 1984. \$5,250.

FINDLEY

Relationships between species density, abundance, and niche parameters of butterflyfishes and certain other coral reef fishes. To: UNM Research Allocations Committee. 1983-1984. \$2,000.

GOSZ

Spatial patterning in ecological landscapes: Transfer processes and boundary dynamics in a semi-arid ecosystem. To: NSF. 1983. \$1,767,410.

KERKOF

Action of TSH on Thyroid Gland Cells in Culture. To: NIH-MBRS. 1984-1987. \$62,431.

Purchase of a Transmission Electron Microscope, a Scanning Electron Microscope and Ancillary Equipment. To: National Science Foundation. 1983. \$258,295. (and 4 other members of the Biology faculty). (not awarded).

Instrumentation grant proposal for an Oligonucleotide (DNA) Synthesizer. To: National Institutes of Health. 1983. \$45,000 (and 8 other members of University Faculty).

KIDD

Learning Skills Through Content. To: Office of Postsecondary Education. 1983.

KOGOMA

Stable DNA Replication Mutants of E. coli. To: ATO. 1983.
\$7,350.00.

Structure and Function Studies of Tetracycline Resistance. To: NIH.
3 years. \$308,289.00.

Plasmid-Host Interactions in Tetracycline Resistance. To: NIH and NSF.
5 years. \$563,442 (NIH). \$780,026 (NSF).

Regulation of chromosome replication in E. coli. To: NIH. 3 years.
\$200,413.00.

Stable Isotopes National Resource. To: NIH. 5 years. \$160,574.

Purchase of a Transmission EM, a Scanning EM and Ancillary Equipment.
To: NSF. 1 year. \$258,295. Not funded.

LIGON

AN ecological study of the cooperatively breeding Harris Hawk. To:
NSF. \$8,696 (with J. Bednarz).

Population structure and dynamics in the green woodhoopoe. To:
National Geographic Society. 1983-1984. \$3,237.

MARTIN

Field survey of the plants of the Dragoon Mts. To: USDA Forest
Service. 1983. \$800.

Centrifuge for Herbarium and Ethnobotanical Research. To: Research
Allocations Committee. 1983. \$367.

MOLLES

Changes in organic matter turnover, resistance, and resilience during
stream development. To: National Science Foundation. \$277,449.

Studies of population limiting factors of the Socorro Isopod,
Thermosphaeroma thermophilum. To: New Mexico Department of Game and
Fish. \$12,836.

Development of a culture system for the Socorro isopod,
Thermosphaeroma thermophilum, an endangered species. To: New Mexico
Department of Game and Fish. \$4,686.

NATVIG

Analysis of nuclear DNA applied to the biosystematics of the genus
Neurospora. To: National Science Foundation. 1983. \$265,704.

Cloning superoxide dismutase genes for evolutionary analysis. To:
DHHS, Public Health Service. 1983. \$271,114.

NATVIG (cont.)

Molecular evolution in the fungal genus Neurospora. To: Research Allocations Committee. 1983. \$2,326.

POTTER

The interaction of structural changes in streams and riparian plant communities in aspen and conifer forests. U.S. Forest Service, Rocky Mtn. Stn. Ft. Collins. 1983-1986. \$11,982 (with M. Molles). Not awarded.

The suspension and transportation of particulates from dried-up drill-mud settling ponds at the WIPP site in southeastern New Mexico. To: Westinghouse Electric Corp. 1983-1984. \$10,390 (with C. Reith).

Reassessment of understory and ponderosa pine growth seven years after the La Mesa fire, Bandelier National Monument. To: National Park Service. 1983. \$20,862.

Vegetational analysis of burro exclosures, Bandelier National Monument. To: National Park Service. 1983-1985. \$5,273.

Permanent line transects and clip-plots of the Cerro Grande Accession, Bandelier National Monument. To: National Park Service. 1983-1985. \$8,051.

RIEDEL

MBS Continuation Grant. Not awarded.

TAYLOR

Evolution of diapause induction in the Indian meal moth: Experimental tests of a theory. To: NSF. 1983-1984. \$143,356.

THORNHILL

Ecological Determinants and Evolution of Behavior. To: NSF. 1984-1985. \$75,000.

Sexual Selection and Heritability of Its Associated Traits. To: NSF. 1984-1985. \$77,000.

Human Rape: an Evolutionary Analysis. To: NIH. 1984-1986. \$300,000.

TRUJILLO

Ligand Binding Sites of Phosphofructokinase. To: The National Institute of Health. 1983-1986. \$280,499.

Oligonucleotide Synthesis Gene Machine. To: The National Institute of Health. 1983. \$45,000.

VOGEL

Fibroblast Proteoglycans and Connective Tissue Matrix. To: NIH. 1984-1987. \$181,022.

VOGEL (cont.)

Fibroblast Proteoglycans and Collagen in Extracellular Matrix. To: NIH, DRR. \$43,400.

Glycosaminoglycans of the Aging Cell. To: NIH. 1983. \$37,908.

WIENS

Patch Dynamics in Shrubsteppe Ecosystems: Plant Chemistry, Arthropod Distributions, and the Role of Avian Predators. To: NSF. 1983-1984. \$110,784.

Bird Population and Community Patterns in Shrub Desert Habitats: Testing Hypotheses of Intercontinental Convergences. To: NSF. 1983-1985. \$110,784.

Density Compensation and Niche Relationships on Baja California Islands: Process and Pattern. To: NSF. 1983-1984. \$7,110. Not awarded.

Density Compensation and Niche Relationships on Baja California Islands: Process and Pattern. To: NSF. 1983-1985. \$10,110.

Spatial Patterning in Ecological Landscapes: Transfer Processes and Boundary Dynamics in a Semi-arid Ecosystem. To: NSF. 1984-1988. \$1,767,410.

Bird Communities in Australian and North American Arid Zones: Toward a Resolution of the "Competition Controversy". To: Fulbright Commission. 1984-1985. Amount not specified.

Bird Communities in Australian and North American Arid Zones: Toward a Resolution of the "Competition Controversy". To: John Simon Guggenheim Memorial Foundation. 1984-1985. Amount not specified.

YATES

Survey of the mammals of Bolivia--Genetics. To: National Science Foundation. 1983-1986. \$102,083.

Premangement laboratory analyses of New Mexican vertebrates. To: New Mexico Department of Game and Fish. 1983. \$16,500.

Alan T. Waterman Award. To: National Science Foundation. 1983-1986. \$150,000.

Presidential Young Investigators Career Development Awards. To: National Science Foundation. 1983-1988. \$100,000.

Host genetic factors affecting specificity of the coccidia of small mammals. To: National Institutes of Health, MBRS Program. 1983-1987. \$90,047 (with D.W. Duszynski).

YATES (cont.)

Biochemical genetics of southwestern mammals. To: Denver Wildlife Research Center. 1983. \$750.

7. GRANT PROPOSALS FUNDED

BACA

National Science Foundation Research grant (PCM8010633). 1980-84. \$149,434 (plus \$11,000 matching funds from UNM).

Public Health Service, National Institutes of Health Minority Biomedical Research Grant. 1980-83. \$47,744.

BARTON

Regulation of anaerobic respiration in sulfate-reducing bacteria. NIH (RR 08139-09). 1984-1987. \$60,000.

Characteristics of the high affinity Fe(II) transport system in bacteria. NIH. 1984-88. \$67,000.

CATES

Role of plant secondary chemistry in ecosystem processes. NSF. 1983. \$591,989.

Patch dynamics in shrubsteppe ecosystems and the role of avian predators. NSF. 1984-88. \$116,088 (with J. Wiens).

CHIOVETTI

Establishment of a low-temperature embedding facility for electron microscopy. NIH. 1982-83. \$2,996.

DUSZYNSKI

Studies on genetic and other factors affecting host and site specificity by coccidians (Protozoa: Eimeriidae) of small mammals. NIH-MBRS. 1982-83. \$28,569.

Extension of above grant. NIH-MBRS. 1983. \$3,243.

The incidence of *Eimeria* spp. in sandhill cranes wintering in New Mexico. New Mexico Game and Fish. \$1,000 (with B.P. Parker).

FINDLEY

Evaluation of line transects as a means of estimating populations of reef fishes. UNM Research Allocations Committee. 1983. \$885.

GOSZ

Evaluation of Sr isotopes for quantifying organics and nutrients. NSF. 1980-83. \$98,453.

Role of plant secondary chemistry in ecosystem processes. NSF. 1983-86. \$592,005.

GOSZ (cont.)

Predocctoral Dissertation Grant. NSF. 1983. \$1,770 (with Carl White).

KERKOF

Action of Thyroid-Stimulating Hormone on Thyroid Gland Cells in Culture. NIH (2-S06-RR 08139-09). 1981-83. \$66,754.

Interim continuation funding of original grant. NIH (2-S06-RR 08139-09 S2). 1983. \$32,461.00.

KOGOMA

DNA replication in E. coli: regulatory mutants. NIH. 1983-84. \$92,228.

Application of genetic engineering to non-invasive diagnosis. New Mexico Governor's Council for High Technology. 1983-84. \$45,400.

Stable DNA replication mutants of E. coli. NATO Grants for Internationsl Collaboration in Research. 1983-84.

LIGON

Adaptive significance of avian polyandry. NSF. 1981-84. \$88,411.

UNM Research Allocations Committee Grant. 1983. \$2,000.

MARTIN

Field Survey of the Plants of the Dragoon Mts. USDA-Forest Service. 1983. \$800.00.

Centrifuge for Herbarium and Ethnobotanical Research. Research Allocations Committee. 1983. \$367.00.

MOLLES

Development of a culture system for the Socorro isopod, Thermosphaeroma thermophilum, an endangered species. New Mexico Department of Game and Fish. \$4,686.

Comparison of the aquatic and semiaquatic invertebrates of Los Lunas Pond and Isleta Marsh. Department of the Army, Army Corps of Engineers-Contract. \$1,500.

NATVIG

Cloning superoxide dismutase genes for evolutionary analysis. Biomedical Research Support Group, UNM. 1983. \$4,000.

Molecular evolution in the fungal genus Neurospora. Research Allocations Committee, UNM. 1983. \$2,000.

POTTER

An evaluation of the vegetational reclamation of five coal strip mines in New Mexico. Office of Surface Mining (105-276A). 1981-83. \$45,413.

Vegetation along Green and Yampa rivers and response to fluctuating water levels, Dinosaur National Monument. National Park Service (105-326). 1982-83. \$37,339.

RIEDEL

Respiration during hibernation and hypothermia. MBS Grant (RR 08139-09). 1980-83. \$10,000.

TAYLOR

Prediction of diapause induction under conditions of changing photoperiod and temperature in the Mexican bean beetle. NSF (DEB 8104698). 1981-83. \$66,816.

Theoretical analysis of the evolution of gibernational diapause induction in insects. NSF (DEB 8208998). 1982-85. \$66,449.

THORNHILL

Ecological Determinants and Evolution of Behavior. NSF. 1983-85. \$75,000.

Sexual Selection and Heritability of Its Associated Traits. NSF. 1984-85. \$77,000.

TOOLSON

Water relations and epicuticular lipid composition in Drosophila pseudoobscura. NSF (DEB81-10857). 1983-84. \$33,000.

TRUJILLO

Carbohydrate Metabolism in Liver. MBS. 1984-87. \$87,000.

VOGEL

Glycosaminoglycans of the Aging Cell. NIH (AG 00114-03). 1983. \$37,908.

MBS Continuing Support for one student. 1982-83. \$2,500.

WIENS

Patch Dynamics in Shrubsteppe Ecosystems and the Role of Avian Predators. NSF (BSR-8017445). 1983-84. \$116,088.

Patch Dynamics in Shrubsteppe Ecosystems: Plant Chemistry, Arthropod Distributions, and the Role of Avian Predators. NSF (BSR-8307583). 1983-85. \$110,784.

Wildlife Habitat Modeling and Nitrogen Availability to Herbivores in Southeast Alaskan Forests. USDA Forest Service (PNW-82-197). 1982-83. \$20,000 (with B. Van Horne).

YATES

Premanagement laboratory analyses of New Mexico vertebrates. New Mexico Department of Game and Fish. 1983. \$16,500.

Biochemical genetics of southwestern mammals. Denver Wildlife Research Center. 1983. \$750.

8. PAPERS/POSTERS PRESENTED

ALTENBACH

Comparison of activity of the primary down-stroke muscles of three bats. Amer. Soc. Microbiol., Gainesville, FL, June 19, 1983.

Flight and morphology of Artibens jamaicensis (phyllostomidae). Amer. Soc. Microbiol., Gainesville, FL, June 19, 1983.

BACA

Antibody-dependent cellular cytotoxicity (ADCC) against mouse macrophage tumor cells infected with Coxiella burnetii. Abs. Ann. Mtg. Amer. Soc. Microbiol. (No. E80), New Orleans, LA, March 6-11 (with F. Koster, T. Kirkpatrick, J. Rowatt).

Flow cytometry of Coxiella burnetii infected 1929 mouse fibroblasts. Mtg. N. Mex. Br. Amer. Soc. Microbiol., Los Alamos, Oct. 14-15 (and T. Scott, H. Crissman).

Restriction endonuclease analysis of phase I and phase II Coxiella burnetii. Ann. Mtg. N. Mex. Br. Amer. Soc. Microbiol., Los Alamos, Oct. 14-15 (with A.T. O'Rourke, D. Natvig).

BARTON

Transport of molybdate by sulfate-reducing bacteria. Ann. Mtg. of Amer. Soc. for Microbiol., New Orleans, LA, March 6-11 (with M. Tafoya).

Iron metabolism by Cenococcum graniforme. N. Mex. Br. Amer. Soc. Microbiol., Los Alamos, Oct. 15 (with R. Rodriguez, D. Klemm).

The role of chelator in molybdate transport by sulfate-reducing bacteria. N. Mex. Br. Amer. Soc. Microbiol., Los Alamos, Oct. 15 (with M. Tafoya, K. Lane).

Metabolism of elemental selenium by sulfate-reducing bacteria. Internat. Symp. Env. Biogeo., Santa Fe, NM, Oct. 10-14 (with L. Gervais, M. Tafoya).

Iron transport by mycorrhizal fungi. 2nd Inter. Symp. Iron Nutrit. Interact. in Plants, Provo, UT, Aug. 1-4 (with D. Klemm, R. Rodriguez).

Mineralization of selenium by anaerobic bacteria. 3rd Internat. Symp. Microbial Ecol. Michigan State Univ., East Lansing, MI, Aug. 7-12 (with L. Gervais, C. Dean).

CATES

The evolution of plant defenses. U. of Uppsala, Uppsala, Sweden, Aug. 29.

Host/Insect Interactions. S. Forest Insect Work Conf., Biloxi, MS. Aug. 8-11.

Natural product defensive chemistry of Douglas-fir, western spruce budworm success, and forest pest management practices. 3rd Internat. Ecol. Congress West Germany, March 29-31 (with B. Freiburg).

The role of natural plant products in community and ecosystem processes, and Patterns in the production of defensive natural plant products. Lund, Sweden, Aug. 22-26.

Stress physiology in Douglas-fir and western spruce budworm success. Ecol. Soc. Amer., Grand Forks, ND, Aug. 7-11.

Patterns in the defensive chemistry of Douglas-fir and western spruce budworm success. Entom. Soc. Amer., St. Louis, MO, March 16.

CRAWFORD

Aspects of decomposition in arid environments. Dept. of Zoology, Univ. of Witwatersrand, Johannesburg, South Africa, Aug. 10, 1983.

DUSZYNSKI

A survey of Coccidia from sandhill cranes (Grus canadensis) wintering in New Mexico. 16th Ann. Mt., SWAP, Lake Texoma, OK April 21-24, and at 15th Ann. Mt., RMCP, Grand Junction, CO, April 28-May 1 (with B.P. Parker).

Evidence for local and systemic effects on inflammation during Eimeria nieschulzi infection in rats. 15th Ann. Mt., RMCP, Grand Junction, CO, Apr. 28-May 1 (with G.A. Castro).

Local and systemic effects on inflammation during Eimeria nieschulzi infection. 58th Ann. Mt., ASP, San Antonio, TX, Dec. 4-8 (with G.A. Castro).

FINDLEY

Pacific butterflyfish communities: are they interactive assemblages? Ann Mt. Ecol. Soc. Amer., Grand Forks, ND, Aug. 1983.

JOHNSON, G.

Nitrogen fixation by Russian olive (Elaeagnus angustifolia L.), a nodulated non-leguminous plant. Ann. Mt. Pacific Div. & Rocky Mt. Div. Amer. Assoc. Adv. Sci., Logan, UT, June 19-23.

Iron utilization characteristics of iron efficient and inefficient soybean cell lines. 2nd Internat. Symp. Iron Nutrit. & Interact. in Plants, Logan, UT, Aug. 2-5 (with S.L. Sain).

JOHNSON, G. (cont.)

Iron utilization by iron efficient and inefficient soybean cultivars in cell suspension culture. Ann. Mt. Amer. soc. Plant Physiologists, Ft. Collins, CO, Aug. 7-11 (with S.L. Sain).

KOGOMA

DASF mutants of escherichia coli are stable DNA replication mutants. UCLA Symp. Mole. & Cell. Biol., Keystone, CO, April (and T.A. Torrey, T. Atlung).

recA-dependent concatemeric pBR322 in a stable DNA replication mutant of E. coli. USLC Symp. on Mole. & Cell. Biol., Keystone, CO, April (with N.L. Subia, D. Bear).

Host mutations affecting expresison of plasmid tetracycline determinants. N. Mex. ASM Br. Mtg., Los Alamos, October (with J.K. Griffith).

Induced stable DNA replication in E. coli is not mediated by ribonuclease H. N. Mex. ASM Br. Mtg. (with H. Bialy).

recA⁺-dependent, polA⁺-independent replication of concatemeric pBR322 in sdrA (rnh) mutants of E. coli K-12. ASM Br. Mtg. (with N.L. Subia, D. Bear).

Transposon Tn5 insertion analysis of collateral cadmium sensitivity conferred by pBR322 tet gene. ASM Br. Mtg. (with J. Malone, H. Snyder, J. Griffith).

MOLLES

Mechanisms of prey selection by predaceous stoneflies: roles of prey morphology, behavior and predator hunger. N. Amer. Bentholo. Soc., La Crosse, WI, April.

Species survival: The Socorro isopod. Share with Wildlife Symp., N. Mex. Dept. of Game and Fish, July 1983.

NATVIG

Restriction endonuclease analysis of phase I and phase II Coxiella burnetii. Ann. Mtg. N. Mex. Br. Amer. Soc. Microbiol., Los Alamos, Oct. (with A.T. O'Rourke, O. Baca).

POTTER

Riparian plant ecology, Yampa and Green rivers. Dinosaur National Monument. SW Div. AAAS and Pacific Sec. Ecol. Soc., Logan, UT, June 22.

Ecological analysis of vegetational reclamation at four coal mines in New Mexico. SW Div. AAAS and Pacific Sec. of Ecol. Soc., Logan, UT, June 22 (with C. Reith).

POTTER (cont.)

In Memorium - Henry Chandler Cowles, at Henry Chandler Cowles Mem. Symp., A IBS nat. mtg., Grand Forks, ND, Aug. 11 (with P.B. Sears).

Use of indicator plants to locate archeological sites. Nat. field trip of Amer. Geomorphol. Field Group, Chaco Canyon, Oct. 10

RIEDESEL

Respiratory responses of hibernating Spermophilus lateralis to 100% nitrogen and 4% CO₂. Nat. Mtg. Amer. Physiol. Soc, April 10-15, (with J.E. Griego).

TAYLOR

A new method for estimating the ends of the sensitive stage for diapause induction using the Mexican bean beetle. Entomol. Soc. Amer., Detroit, MI, Nov.

THORNHILL

Cryptic female choice. Animal Behav. Soc. Mtg., Bucknell Univ., PA, June 19-24.

Female choice. Florida Entomol. Soc. Mtg., Clearwater, FL, Aug. 10-13.

TRUJILLO

Structural comparison of the cytosolic phosphoenolpyruvate carboxykinase (GTP) genes from rat, chicken, and human. Ann. Nat. Mtg. Assoc. Amer. Biol. Chem., San Francisco, CA, April (and H. Yoo-Warren, Y. Hod, J. Short, R.W. Hanson).

VOGEL

Proteoglycans of Bovine Fibrous Tendon and their Interaction with Tendon Collagen in vitro. Proc. of 7th Internat. Symp. on Glycoconjugates, pp. 830-831, Ronneby, Sweden, July 17-23 (and D. Heinegard).

A Low Molecular Weight Proteoglycans from Bovine Tendon Specifically Inhibits Collagen Fibrillogenesis in vitro, J. Cell Biol., 97:3a. Minisymposium. Struct. & Funct. Extracell. Matrix Ann. Mtg. Amer. Soc. Cell Biol., Nov. 29-Dec. 3, San Antonio, TX (and D. Heinegard).

Unilever Corp., Bedford, England, April.

Kennedy Inst. Rheumatology, London, England, April.

Dept. of Medical Physiol., Univ. Lund Hospital, Lund, Sweden, May.

Dept. of Anatomy, Univ. New Mexico, Nov.

Spring Mtg. of British Connective Tissue Soc., London, England, April.

WIENS

Two papers, one on modelling spatial patterns, another on spatial patterns of landscapes and population processes. Landscape Ecol. Workshop, Allerton Park, IL.

The Competition Controversy: Can Community Ecology Become a Rigorous Science? External Examiner, Dept. of Biol., Carleton Univ., Ottawa, Ontario, Canada.

Energy Requirements of Seabird Populations. Symp. on Seabird Energetics, Amer. Physiol. Soc., Honolulu, August.

The Competition Controversy: Can Community Ecology Become a Rigorous Science? Arizona State Univ., Dec.

YATES

Immunodistance analysis of the evolutionary relationships among the Talpinae (Order: Insectivora). Nat. Mtg., Amer. Soc. Mammalo., Gainesville, FL (with D.W. Moore, J.M. Sarich).

Systematics and evolution of the genus Scapanus (Insectivora: Talpidae). Nat. Mtg., Amer. Soc. Mammalo., Gainesville, FL (and D.W. Moore).

Evolutionary relationships in the family Zapodidae. Nat. Mtg., Amer. Soc. Mammalo., Gainesville, FL (with K.E. Petersen, D.J. Hafner, H.H. Genoways).

Genic relationships of wouthwestern populations of Sorex monticolus and Sorex cinereus. Nat. Mtg., Amer. Soc. Mammalo., Gainesville, FL (with S.B. George).

Genetic variation in the Rio Grande cutthroat trout, Salmo clarki virginalis. Ann. Mtg., SW Assoc. Natur., Little Rock, AR (and D.J. Hafner).

Genetics and species survival programs. Amer. Assoc. Zool. Frks. & Aquar., Cent. Region. Conf., Albuquerque.

Electrophoretic and karyological data--what are they? Share with Wildlife Symp., Albuquerque.

Genic divergence in Ictalurid catfish as it relates to the headwater catfish, Ictalurus lupus. Share with Wildlife Symp., Albuquerque.

Geographic patterns of protein variation in Rio Grande cutthroat trout--implications to management. Share with Wildlife Symp., Albuquerque.

YATES (cont.)

Reproductive variation and enzyme degradation in Pronghorn Antelope--
scientific advancement by chance. Share with Wildlife Symp.,
Albuquerque.

Moles of the World. Central New Mexico Audubon Soc., Albuquerque.

9. JOURNAL EDITOR

WIENS

Editor, The Auk (American Ornithologists' Union), 1977-

YATES

Managing Editor, MSB Publication Series, Jan. 1982-present.

Advertising Editor, southwestern Naturalist.

10. MEMBER OF EDITORIAL BOARD

CRAWFORD

Editorial board service:

Journal of Arid Environments, Scientific Reviews on Arid Zone Research.

GOSZ

Biogeochemistry

VOGEL

Co-Editor, European Journal of Cell Biology.

WIENS

Member Editorial Board, Publication Series, Museum of Southwestern
Biology, University of New Mexico.

Editorial Consultant, BIOSIS (Biological Abstracts).

11. OFFICER/BOARD MEMBER, MAJOR PROFESSIONAL SOCIETY/GRANTING AGENCY

BACA

Elected President (through July) of the New Mexico Branch of the
American Society for Microbiology.

Elected Treasurer and board member (elected to both) of the Society
for the Advancement of Chicanos and Native Americans in Science.

CATES

CANUSA Western Spruce Budworm Program. Member of Review Panel for
three Budworm Compendium Books. USDA Forest Service.

DEGENHARDT

Elected Parliamentarian - New Mexico Herpetological Society.

DUSZYNSKI

Executive Council Member-at-Large (elected), American Society of Parasitologists (1982-85).

Regional Representative for SWAP to Executive Council for ASP (elected).

FINDLEY

American Society of Mammalogists. Board of Directors.

GOSZ

NSF, Review Panel Member, Ecosystem Studies Program.

TRUJILLO

Ad Hoc Member of NIH Study Section: Supplementary Grants.

VOGEL

Ad Hoc member of NIH Study Section: Cellular Physiology - meeting in February 1984.

WIENS

American Ornithologists' Union (Member of Governing Council).

Ecological Society of America (Council Member-at-large, 1983).

YATES

Member, Board of Governors. Southwestern Association of Naturalists.

12. SERVICE

ALTENBACH

Grants in Aid Committee. American Society of Mammalogists. 1981 until present.

Guest lecture to National Zoo Conference on Bats and Bat Flight.
March 1983.

Guest speaker to Nature Conservancy Fifth Annual Membership meeting, Oct. 29, 1983. Talk entitled, "The Bats of the Jornada del Muerto".

Talk on Bats to Jefferson Middle School, March, 1983.

BACA

Undergraduate Policy Committee - Biology (member).

Department of Biology Seminar Committee (Spring 1983).

BACA (cont.)

Chairman of the Policy Board of the Southwest Hispanic Research Institute (Vice-Chair as of Sept. 1983).

UNM Institutional Biosafety Committee (member).

Hispanic Engineers Advisory Council.

Minority Biomedical Research Support Program Advisory Board (member).

UNM/SURP Review Committee (member).

Biomedical Reserch Support Grant review committee (member).

UNM/Albuquerque School Liasion Committee (appointed to Vice Pres. Johnson).

Recruitment trip for the UNM Graduate School to the San Antonio, TX area (April).

Minority Biomedical Research Support Program student selection committee.

Served on the selection committee for the position currently occupied by D. Natvig.

Appointed by Archbishop Robert Sanchez to the Santa Fe Archdiocese's Family Life Committee (secretary of the committee).

President and member of the board of directors of the Santa Fe Archdiocese's Beginning Experience program for the divorced/widowed/separated (counseling).

Member of Our Lady of Fatima's Spanish choir (music ministry).

Participant in the New Mexico Academy of Science's 24th Visiting Scientist Program (presentations in Hatch and Grady, NM High Schools in 1983).

Judge at the International Science and Engineering Fair - Chairman of the judges representing the American Society for Microbiology (appointed by the National Office).

BARTON

Supplied a research culture of Aspergillus niger F-4 upon their request to American Typoe Culture Collection. Rockville, Maryland.

Served as a judge for International Science and Engineering Fair. May 11, 1983 at Albuquerque, NM.

I give supervisory support to the microbiology culture collection.

00455

BARTON (cont.)

I was a member of the Education Division at Faith Lutheran Church.

I was President of Aid Association for Lutherans. An organization which serves about 300 Lutheran families.

I served as assistant in Boy Scouts Troop 409.

BOURNE

UNM Student Standards Committee.

Member, Undergraduate Policy Committee, Department of Biology.

Premed Advisor, Department of Biology.

CATES

Member, Ecological Society Committee for 1984. MacArthur Award. Award for an eminent ecologist in mid-career, to be selected from any subdiscipline in the area of ecology.

Chairman, Departmental Graduate Policy Committee.

Member, University Arts and Science Graduate Committee.

Elected to the Society of Sigma XI.

Participant in the preparation of "High Technology Development and Monitoring Center", Department of Biology.

Volunteered to work with gifted students in the "Career Exploration, Special Education Department, Gifted Program" for students in the Albuquerque High School system.

Served as a judge in the botanical division of the International Science and Engineering Fair, May, 1983.

Reviewer of research papers developed by high school students in Contemporary Issues in Science (CIIS) in the Albuquerque Public School system.

Participated in Klondike Derby for Boy Scouts of America.

High School Science Fair. Directed Fausto Espinosa in his Science Fair project.

Directed Jim Colton, a high school student, in the Career Enrichment Program, Albuquerque Public Schools, for 2 semesters.

CHIOVETTI

Seminar Committee, Department of Biology, UNM.

Planning Committee, Wellness, New Mexico/Association.

CHIOVETTI (cont.)

Education Committee, Association for Research and Enlightenment
(Edgar Cayce Foundation, Inc.), New Mexico area.

Senior Vice Commander, American Legion Post 80, Albuquerque, NM.

Sergeant-at-Arms, American Legion, Ninth District, New Mexico.

Program Committee, Host Lions Club, Albuquerque, NM.

Chairman, Coordinating Committee, Elisabeth Kubler-Ross Public
Lecture.

Director, Electron Microscopy Facility, Department of Biology, UNM.

CRAWFORD

Review of National Science Foundation Grant Proposals.

Member, Committee on Desert and Arid Zone Research SWARM/AAAS.

DEGENHARDT

Reviewed one NSF Proposal (Environmental Biology).

Herpetology Museum Curator - direction of museum activities (with Drs.
Fritts and Scott).

1983 International Science Fair - Co-chairman of judging team (with G.
Johnson).

Member of NM Union Board.

DUSZYNSKI

Chairman, Department of Biology.

Ad hoc Member, Executive Council, Society of Protozoologists.

Pre-vet adviser, Department of Biology.

Member, Public Responsibilities Committee, ASP (appointed).

UNM Alumni Association Host and Speaker.

Legislator's Day Host and Speaker.

Biological Society of New Mexico: Charter Member, President, and
Board of Directors.

FINDLEY

American Society of Mammalogists: Committee on honorary memberships.

Advisory Committee, New Mexico Museum of Natural History.

Biological Society of New Mexico: Charter Member and Board of
Directors.

FINDLEY (cont.)
Reviewed 3 proposals for NSF.

Identified collection of small mammals for Arizona Natural Heritage Foundation.

Identified collection of shrews for Mark Gruebele, Brookings, S.D.

1/10 time Curator of Mammals, M.S.B.

Director, Museum of Southwestern Biology.

Graduate Policy Committee.

2 Hall Exhibits.

Village of Corrales, Bosque Advisory Commission.

GOSZ

Organizing Committee: 6th International Symposium on Environmental Biogeochemistry.

Seminar: University of Wyoming (2): "Strontium Isotopes: an ecological tool" and "Nitrogen Cycling in Forest Systems".

Seminar: New Mexico State University: "Are Plants Energy Limited?"

Chairman, Arts and Sciences Promotion Committee.

Arts and Sciences Tenure Committee.

Undergraduate Policy Committee, Biology Department.

Sevilleta National Wildlife Refuge Study Committee.

Ad Hoc Graduate Ecology Core Curriculum Committee.

Chairman, Safety Committee.

G. JOHNSON

Chairman Committee on Desert and Arid Zone Research (CODAZR), "Southwestern and Rocky Mountain Division of American Association for Advancement of Science.

Chairman of Judges for Botany Division, International Science Fair, Albuquerque, May, 1983.

Judge State Science Fair (Chairman Jr. Div. Botany), April 16, 1983.

Presented seminar UNM Biology Department: "Plant nutrition in arid environments: acquisition of iron and nitrogen", March 1, 1983.

G. JOHNSON (cont.)
4-H Club project leader (conservation).

Consultant for Science Fair Projects for Gifted Students, Taylor Middle School.

University Committee: Radiation Control Committee.

Presented four hours of lectures to UNM Radiation Safety Departments course.

Introduction to Radiation Safety (topic: biological effects of radiation).

Attended 28th Annual New Mexico Water Conference, Albuquerque, April 5-6, 1983.

Undergraduate Advisor, Department of Biology.

W. JOHNSON
Faculty Senator (semester 1, 1983).

Transfer Student Advisor.

Biology Teaching Evaluation Committee (member).

Biology Undergraduate Policy Committee (chair).

Assistant Chairman, Biology Department.

Student Stand and Grievance (member).

Senior Day and Academic Mart.

Biology Contact Person, B.E.F. Articulation Matrix Development.

KERKOF
Member, UNM Admissions and Registration Committee.

Member, UNM Radiation Protection Subcommittee.

Member, Credentials Component of the Health Science Advisory Committee.

Member, MBRS Grant Review Committee.

Member, MBRS Advisory Committee.

Member, MBRS Selection Committee.

The Graduate Selection Committee, Department of Biology, Spring 1983.

KERKOF (cont.)

Member, Seminar Committee, Department of Biology, 1983.

Member of Albuquerque High School Parent Advisory Council.

KIDD

National Association of Biology Teachers - Director of the Outstanding Biology Teacher Award program in the State of New Mexico.

National Science Teacher Association - member of the steering committee in charge of planning the 1984 regional conference to be held in Albuquerque.

3/4 time administration in General College.

Judge at the International Science and Engineering Fair.

Chair, Academic Senate Curriculum Committee.

Member, Arts and Science Teaching Resource Committee.

Member, Search Committee for Dean of General College.

Member, Faculty/Student Services Liaison Committee.

Member, Committee to prepare materials for incoming students and their parents.

Attended Teleconference on "Learning Styles and the Adult Learner" at KNME, Albuquerque.

Reviewed two grant proposals for the Southwest Resource Center for science and engineering.

Reviewed grant proposal for the University of Missouri's Research Assistance Program - toxicology.

KOGOMA

Reviewed two NSF proposals.

Member, UNM Research Allocation Committee.

Member, Biology Graduate Policy Committee.

Judge, International Science Fair.

D. LIGON

Host (Local Chairman), 1983 meeting of The Cooper Ornithological Society.

Chairman, Biology Department Teaching Evaluation Committee.

D. LIGON (cont.)

Member, American Ornithologists' Union Committee on Bibliography.

S. LIGON

Undergraduate Policy Committee, member.

Departmental Seminar Committee, chairperson.

Biology Department Newscast "writer".

Teaching Evaluation Committee, member.

MARTIN

Research Associate, The Los Angeles County Museum of Natural History. My activities here include the continuation of the field work and manuscript preparation for the "Flora of Los Angeles County (both native and introduced and cultivated taxa). I am the Senior Investigator for this project which is sponsored by the Museum (Department of Botany).

Member, State of New Mexico Committee on Threatened and Endangered Species, Department of Natural Resources.

Member, Botanical Advisory Committee, The New Mexico Natural History Museum (primarily in regard to the development of the exhibits).

Member, Advisory Committee The Rio Grande Valley Botanical Garden. This project is jointly sponsored by the University of New Mexico and the City of Albuquerque.

Undergraduate Advisor, Department of Biology.

Preforestry Advisor, Department of Biology.

Member of the University of New Mexico Press Committee on Publication, Semester I, 1983-84.

Chairman of the University of New Mexico Library Committee, Semester I, 1983-84.

Member of the Sevilleta Study Committee.

Chairman of the Department of Biology Graduate Selection Committee, Semester II, 1982-83.

Member of the UNM - Sandia Colloquium Committee.

MARTIN (cont.)

Curator of the Herbarium and Museum of Botany, a division of the Southwestern Museum of Biology. The Herbarium includes the sections on Collections, Taxonomic studies (floristic, monographic, biochemical, cytological), Ethnobotany (archaeological analyses and palynology), and Seed germination laboratory.

Consultant (non-paid) for plant identification and other information for the Poison Control Center and the community at large.

Reviewer of renovation and equipment proposal (NSF) for the Department of Botany, Los Angeles Museum of Natural History. This proposal was for the purpose of complete renovation of the Botany Department and the purchase of equipment for research in flowering plants and fungi, including a compactor system.

During the summer, I was a member of a botanical field expedition to Hawaii, Molokai, and Oahu in continuation of long-term studies of the threatened and endangered species of the Hawaiian Islands. This was the latest of a series of extended field trips that I have been a part of during the last seven years. This expedition was sponsored by the L. A. County Museum of Natural History.

Sponsor of the Castetter Ethnobotanical Laboratory (attached to the Herbarium) and the Research Associates (Mollie Toll, Ann Cully, Karen Clarey, and Marcia Donaldson). This group has recently produced their 100th research report (ranging from 12-125 pages); they continue to be very active in attending national and regional meetings and symposia and present papers regularly at these meetings.

Sponsor of three Research Associates (Reggie Fletcher, Bob Hutchins, and Paul Knight) for research in floristics, threatened and endangered species, and plant distribution. All Research Associates sponsored in

Senior Day - served as one of the advisors at the Biology desk at the Student Union Building.

International Science Fair - served as a judge in the Botanical Division.

Prepared and presented the Memorial Minute for C. Clayton Hoff to the Faculty Senate in the Kiva, 8/23/83.

Conducted Herbarium and Greenhouse tours for several groups including Local school classes, primary and secondary, Santa Fe Prep School, and New Mexico Wildflower Society.

MARTIN (cont.)

Gave several off-campus talks, mostly dealing with wildflowers of New Mexico including:

Old Town Optimists Club - 7/6/83
East Mesa Civitan Club - 9/12/83
Statesman's Club - 5/13/83
Ballut Abyan Shrine - 5/30/83

Presented seven one-hour talks for the Campus Ministries - a series of discussions dealing with the philosophy of the relationships between science and religion.

Sponsor of three Research Associates (Reggie Fletcher, Bob Hutchins, and Paul Knight) for research in floristics, threatened and endangered species, and plant distribution. All Research Associates sponsored in both ethnobotany and the herbarium have advanced degrees, both M.S. and Ph.D.

Sponsor of two workshops for the updating of training of U.S. Forest Service personnel in the identification of flowering plants in the field. These sponsorships are of considerable importance to the Department of Biology and the University in that our close ties with the Forest Service not only enhances our professional image in their eyes but also adds greatly to our potential repository of information pertaining to distribution and habitat relationships of the more than 4,000 flowering plant taxa in New Mexico.

Cooperated closely with the Soil Conservation Service and the Bureau of Land Management relative to plant identifications and distribution, especially Laird McIntosh of the Socorro Office.

Instrumental in obtaining for the Herbarium library an excellent collection of books, journals, individual papers, and specimens from field collections - pertaining to lichens, probably the best museum library holding on lichens in the southwest. This acquisition will result in the addition of a new division of study in the Herbarium and should spark interest in studies of lichens in the future.

Cooperated with numerous investigators from other institutions, etc. to allow them to study specimens in the Herbarium. This also assists out personnel greatly in confirmation of I.D.s of various taxa and providing annotations of same.

Provided hundreds of plant identifications and professional botanical advice to the general public.

Reviewed the manuscript dealing with plants of Bandelier National Monument by Terry Foxx, 111 pages.

MOLLES

Undergraduate Advisor, Department of Biology.

Curator, Museum of Southwestern Biology, Fish Museum.

Judge for International Science Fair, May 1983.

NATVIG

Consultant, Summa Medical Corporation, Albuquerque, NM.

Served as dissertation committee member for Ann O'Rourke and Nelda Subia. Provided assistance and facilities to these and other students and personnel from the laboratories of Professors Baca and Kogoma.

Judge, International Science Fair.

Member, Department of Biology Graduate Student Selection Committee, Fall, 1983.

Three research presentations given to Molecular Biology Discussion Group, UNM.

Provided training for two undergraduate students, Kathryn Graham and Cecelia DeBlasi, who volunteered as research assistants in my laboratory.

POTTER

Chairman of Environmental Science Section, SW Div. AAAS and Pacific Sec. of Ecological Society, Logan, Utah, June 21-22, 1983.

Two long interviews and video tape with personal appearance for NBC national Monitor program, June 4, 1983. Topic was allergy history and problems in Albuquerque and Tucson.

Provided interview and material for article on reclamation of coal mines in New Mexico which appeared in New Mexico Business Journal.

University delegate and member of board of Eisenhower Consortium for Western Environmental Forestry Research, two meetings a year.

UNM Combined Fund Drive, Semester 1, 1983-84.

Chairman, Department Graduate Student Selection Committee.

Department committee of two on survey of Biology graduates, Department newsletter, and setting up Foundation for Biology Department.

Two talks on ecology as a profession to Freedom High School, Albuquerque.

POTTER (cont.)

One-half day as an evaluator of Science Content on national ETS tests used in New Mexico for Science Teachers, March 7, 1983.

RIEDEL

UNM Research Policy Committee, member.

UNM RPB, subcommittee on Interdisciplinary research, chairman.

UNM Humane Care and Treatment of Laboratory animals, member.

NM Regional Science Fair, judge.

International Science Fair, co-chairman, Zoology section.

High Frontier, Fort Davis, TX, 3 lectures to High School science classes.

TAYLOR

Department of Biology Computer Use Committee.

Library Liason, Biology Department.

Faculty Senate Library Committee, UNM.

THORNHILL

Department Committee - Graduate Selection Committee.

Off-campus research lectures: Univ. California, Santa Cruz, Department of Biology, March 1983 and Michigan State University, Kellogg Biological Station, July 1983.

Radio appearance: I discussed aspects of my research in a 30 min. interview broadcast on KUNM's Cross Talk program, Nov. 29, 1983. The emphasis of this program is research at UNM.

Biology Graduate Student Association sponsor.

4-H Project Leader to Entomology in Valencia County.

TOOLSON

Reviewed four NSF proposals.

VOGEL

Member - Research Policy Committee and Overhead and Budget Review Sub-Committee, UNM.

Co-Organizer, Women in Cell Biology Lunch and Forum held on Dec. 2, 1983, in conjunction with Annual Meeting of Amer. Soc. for Cell Biology.

Moderator, Forum on "The Future for Women in Cell Biology" see above.

VOGEL (cont.)

Organizer/Moderator (with E. Ewing) of Cell and Molecular Biology Seminars for Graduate Students and Faculty - Biol. 502-10.

WIENS

Chairman, Program Committee, Cooper Ornithological Society.

Member, Local Committee, Cooper Ornithological Society Annual Meeting (held in Albuquerque).

Reviewer, Promotion and/or tenure nominations for (a) Lynn Carpenter, University of California, Irvine, and (b) Edward Connor, University of Virginia.

Reviewer, Fulbright Commission (Application of Thomas Grubb).

Reviewer, grant applications: NSF, Ecosystems Program (3), Biotic Systems and Resources Program (2), Ecology Program (1); The Research Corporation, Atlanta (1); National Geographic Society (1); Queen Elizabeth II Fellowships (Australia), (2).

Member, Scientific Advisory Committee, Southern California Bight Marine Mammal and Seabird Risk Analysis (MMS, Woodward-Clyde).

Delivered informal "brown-bag" seminar, UNM Ecology Group, April.

Sponsored ad hoc Friday ecology discussion group.

Attended Cooper Ornithological Society annual meeting, Albuquerque, May.

Member, A & S Graduate Committee (spring).

Chairman, Population Biology/Genetics Search Committee, Department of Biology.

Chairman, Seminar Committee, Department of Biology (spring).

Basketball coach, YBA (YMCA).

YATES

Chairman, American Society of Mammalogists, Systematic Collections Committee.

Led outside reviews at the Florida State Museum, Gainesville, Florida and the Carnegie Institute, Pittsburgh, Pennsylvania.

YATES (cont.)

The following students from other institutions worked in my laboratory during 1983: Brett Riddle - Fort Hays State University, Hays, Kansas.
Cathy Blount - National Museum, Washington, D.C.
John Shultz - University of Michigan, Ann Arbor, Michigan.

Participated in the Summer Science Research Assistantship Program of the Career Enrichment Center of APS.

Reviewed 11 proposals for the National Science Foundation in 1983.

Conducted numerous tours of the mammal collection for outside groups, including a personal tour to Senator Joe Grant after attending a luncheon on Legislators' Day.

Represented the MSB at the opening of the Great Ape Exhibit at the Rio Grande Zoo.

Granted several interviews with the press about activities of the MSB and Department which were published in local and state newspapers and magazines.

Departmental committees: Graduate Policy Committee and Population Genetics Search Committee.

13. SPECIAL CATEGORY

ALTENBACH

Invited seminar. The use of electromyographic data in interpretation of bat flight functional morphology, presented to Department of Anatomy/Pharmacology, UNM School of Medicine, February 22, 1983.

Invited seminar. Bat Flight and Echolocation. Biologues Seminar Program, UNM-Sandia Laboratories, November 3, 1983.

BACA

Elected to membership in the American Society of Biological Chemists.

Invited to present a paper at the National Institute of Allergy and Infectious Diseases NIH's symposium on "Molecular Biology of Rickettsiae" in Hamilton, MT at the NIH's Rocky Mountain Laboratories. Title of paper: Possible Biochemical Adaptations of Coxiella burnetii for Survival within Phagocytes (to be published in Microbiology 1984, published by the American Society for Microbiology).

Invited to present research seminar at the University of San Antonio, Biology Department, April 1983.

BACA (cont.)

Invited to present a research seminar at Ft. Lewis College, Durango, CO, November, 1983..

CATES

Invited paper in symposium of the 3rd International Ecology Congress, "Insect and Host Tree Interactions," Frieburg/B., West Germany, March 29-31. Paper titled "Natural product defensive chemistry of Douglas-fir, western spruce budworm success, and forest pest management practices."

Invited papers in symposium, "Plant-Animal Interactions," Lund, Sweden, August 22-26. Papers titled "The role of natural plant products in community and ecosystem processes," and "Patterns in the production of defensive natural plant products."

Invited paper in symposium, "The Physiological Ecology of Plant-Herbivore Interactions." Ecological Society of America, August 7-11, Grand Forks, North Dakota. Paper titled "Stress physiology of Douglas-fir and spruce budworm success."

Invited paper in symposium, "Plant Defense Strategies Against Insect Attack." Entomological Society of America, March 16, St. Louis, Missouri. Paper titled "Patterns in defensive chemistry of Douglas-fir and western spruce budworm success."

Invited symposium, "Host Insect Interactions." Paper titled "The evolution of forest tree defenses." Southern Forest Insect Work Conference. Biloxi, Mississippi, August 8-11, 1983.

CRAWFORD

"Tourism and conservation: can they coexist in arid environments/" Rossing Foundation /Quarterly Lecture, Windhoek, South West Africa/Namibia, 17 July, 1983.

"Decomposition in arid environments: role of the invertebrate gut." Keynote paper (invited), Symposium on the Zoology of Semi-Arid and Arid Environments, Zoological Society of Southern Africa, Swakopmund, South West Africa/Namibia, 25 July, 1983.

DUSZYNSKI

Advertising Editor, The Journal of Protozoology.

Reviewed Fulbright Grants (1).

GOSZ

Invited Paper: "Influence of clearcutting on selected microbial processes in forest soils." Third International Symposium on Microbial Ecology. E. Lansing, Mich. Aug. 1983.

GOSZ (cont.)

- *Scientific Advisor: Coweeta Forest Res. Program. N. Carolina.
- *Scientific Advisor: Konza Prairie Res. Program. Kansas.
- *Scientific Advisor: Jornada Desert Res. Program. N. Mexico.
- *Scientific Advisor: California Forest Res. Program. California.

*In each case, only 3 individuals from the United States are asked to advise a long term research program.

KIDD

Invited to present an NSF/AAAS workshop on "Toxic Substances in the Environment," held March 10, 11 and 12, 1983 at Parkland College, Champaign, Illinois (with M. Hadley).

KOGOMA

Appointment: Adjunct Associate Professor, Department of Cell Biology, UNM Cancer Center.

Invited Seminars: Centre de Recherche de Biochimie et de Génétique Cellulaires du Centre National de la Recherche Scientifique. Toulouse, France. (July, 1983).

Department of Microbiology, The Technical University of Denmark, Copenhagen, Denmark. (August, 1983).

Department of Biophysics, Norsk Hydro's Institute for Cancer Research, Oslo, Norway. (August, 1983).

D. LIGON

Chairman, Committee on The Conservation of the Red-Cockaded Woodpecker. Sponsored by the American Ornithologists' Union and the International Council for Bird Preservation (ICBP).

MOLLES

Invited Paper. Succession of stream ecosystems in the upper Rio Grande Drainage. UCLA Borderlands Binational conference, September 1983.

Invited Paper. Patterns of case building by caddisflies in the southern Rocky Mountains. 4th International Symposium on Trichoptera. Clemson, South Carolina, July 1983.

RIEDEL

State representative for American Institute of Biological Science.

TRUJILLO

Member - American Society of Biological Chemists.

Visiting Associate Professor - Department of Biochemistry, Case Western Reserve University Medical School, Cleveland, OH.

VOGEL

NIH Career Development Award, 1981-1985.

WIENS

Member, International Evaluation of Swedish Research in Terrestrial Vertebrate Ecology, Swedish Natural Science Research Council (I am the sole North American on the committee of five; we spent 1 week in Sweden in March meeting with 25 scientific groups and evaluating their research programs; a final report is due to be issued by NFR shortly).

Participant, Landscape Ecology Workshop, March, Allerton Park, Illinois (an NSF-sponsored workshop to establish guidelines for future research in landscape ecology; 25 participants). Presented two papers, one on modelling spatial patterns, another on spatial patterns of landscapes and population processes.

External Examiner, Ph.D. dissertation of Kathy Freemark, Department of Biology, Carleton University, Ottawa, Ontario, Canada. In addition, I delivered a seminar titled "The Competition Controversy: Can Community Ecology Become a Rigorous Science?"

Invited participant, Symposium on Seabird Energetics, American Physiological Society, Honolulu, August; delivered paper on "Energy Requirements of Seabird Populations" (a book from this symposium will be published during 1984 by Plenum Press).

Invited seminar, Arizona State University (December): "The Competition Controversy: Can Community Ecology Become a Rigorous Science?"

Research profiled in news column in Science, 221:636-639, 737-740.

YATES

Yates, T.L. 1983. Genetics and species survival programs. American Association of Zoological Parks and Aquariums, Central Regional conference. Albuquerque, NM.

Yates, T.L. 1983. Electrophoretic and karyological data - what are they? Share with Wildlife Symposium. Albuquerque, NM.

Yates, T.L. 1983. Genic divergence in Ictalurid catfish as it relates to the headwater catfish, Ictalurus lupus. Share with Wildlife Symposium. Albuquerque, NM.

Yates, T.L. 1983. Geographic patterns of protein variation in Rio Grande cutthroat trout - implications to management. Share with Wildlife Symposium. Albuquerque, NM.

Yates, T.L. 1983. Reproductive variation and enzyme degradation in Pronghorn Atelope - scientific advancement by chance. Share with Wildlife Symposium. Albuquerque, NM.

YATES (cont.)

Yates, T.L. 1983. Moles of the World. Central New Mexico Audubon Society. Albuquerque, NM.

14. GRADUATE STUDENT HONORS/ACCOMPLISHMENTS

BACA

Emanuel Akporiaye was awarded a post-doctoral fellowship at Los Alamos National Laboratories.

CATES

Colin Henderson. Teaching Excellence Award, Department of Biology.

DUSZYNSKI

Chavez, L. "In vivo excystation during parenteral infection of mice with oocysts of Eimeria falciformis." Paper presented at 15th Annual Meeting, RMCP, 29-30 Apr., Grand Junction, CO.

Reduker, D. "Potential use of protein electrophoresis in determining evolutionary relationships among Eimeriidae." Paper presented at 16th Annual Meeting, SWAP, 21-23 Apr., Lake Texoma, OK and at 15th Annual Meeting, RMCP.

Moore, J. Has been requested by the editors of Scientific American to submit her dissertation research as a feature article (to be published May 1984).

Moore, J. Was one of 278 applicants for an Assistant Professor position at Colorado State University - and she got the job.

FINDLEY

Karen Petersen. Evolutionary relationships of the family Zapodidae. ASM Mtg, June 1983. Gainesville, FL.

Karen Petersen. Habitat utilization in southwestern Eutamias minimus (least chipmunk) populations and their sympatric congeners. Ecol. Soc. America Mtg., August, 1983. Grand Forks, N.D.

Hafner, D.J. and K.E. Petersen. 1984. Sound dialects and gene flow in the white-throated sparrow, Zonotrichia leucophrys. Accepted by Evolution.

Sullivan, R.M. and K.E. Petersen. 1983. Systematic status of Eutamias minimus atristriatus. Tech. Report to N.M. Dept. Game and Fish.

Graham, G.L. 1983. Changes in bat species diversity along an elevational gradient up the Peruvian Andes. Journ. Mamm., 64:559-571.

Reduker, D. 1983. Functional analysis of the masticatory apparatus in two species of Myotis. Jour. Mamm., 64:277-286.

FINDLEY (cont.)

Hafner, D.J. and T.L. Yates. 1983. Systematic status of the Mojave ground squirrel. Journ. Mamm., 64:397-404.

G. JOHNSON

Stephen Sain received award as the graduate assistant receiving the highest teaching evaluations in summer session 1983.

Stephen Sain received a GRAC and a SRAC award for his M.S. research supplies.

KERKOF

Robyn Richards, was one of the 14 TA's rated "excellent" on teaching evaluations and was the only TA to be given a rating of "outstanding". Robyn received a \$25.00 award from the department for this achievement.

D. LIGON

T. Edwards, paper, Cooper Ornithological Society: "Ecological correlates of the cooperatively breeding gray-breasted jay, Aphelocoma ultramarina, in southwest New Mexico."

J. Haydock, paper, COS: "Does asynchronous hatching increase fledging success in the Chihuahuan Raven?"

N. Joste, outstanding student paper, COS (2nd place): "An electrophoretic analysis of paternity in the acorn woodpecker."

A. McCallum, paper, American Ornithologists' Union: "Breeding behavior and ecology of the flammulated owl in western New Mexico."

S. Zack, paper, AOU: "Habitat, demography, and dispersed dilemma in group-living shrikes."

S. Zack, AOU, Marcia Brady Tucker Travel Award.

S. Zack, paper, COS: "Patterns of interspecific aggression in the common fiscal shrike."

NATVIG

Grants received by Spencer Farr for his research on the proposed ponyfish to Photobacterium leiognathi superoxide dismutase gene transfer:

Student Research Allocations Committee, \$150.00
 Graduate Research Allocations Committee, \$200.00
 Sigma Xi, \$300.00

POTTER

Reith, C.C. 1983. Received award for best student paper presentation at AAAS SW Div. and Pacific Sec. of Ecological Society, Logan, Utah, June 1983.

POTTER (cont.)

Reith, C.C. 1983. Received \$200 award from ARCO for best paper presented in Environmental Science Section, AAAS SW Div. and Pacific Sec. of Ecological Society, Logan, Utah, June 1983.

Fischer, N.T. 1983. Changes in streamside vegetation in response to flow regulation and its effects on channel morphology, Green River, Colorado. Paper given at American Geomorphology Field Group, Albuquerque, NM, Oct. 7-10, 1983 and Abstract published in 1983 Field Trip Guidebook, p. 245.

Trotter, Eleonora. 1983. Interactions between stream structure and riparian plant communities in aspen and conifer forests - an experimental study. Paper given at American Geomorphology Field Group, Albuquerque, NM, Oct. 7-10, 1983 and Abstract published in 1983 Field Trip Guidebook, p. 252.

TAYLOR

Spalding, J. Cover article in UNM Computer Center Newsletter on 3-dimensional plotting.

THORNHILL

Dodson, G., G.K. Morris and D.T. Gwynne. 1983. Mating behavior of the primitive orthopteran genus Cyphoderris. In: Orthoptera Mating Systems, D.T. Gwynne and G.K. Morris, eds. Boulder, CO: Westview Press.

Gwynne, D.T. and G. Dodson. 1983. Nonrandom provisioning by the digger wasp, Palmodes laeviveutris. Ann. Ent. Soc. Amer. 76:434-436.

TOOLSON

Crowley, S.R. and R.D. Pietruszka. 1983. Aggressiveness and vocalization in the leopard lizard: The influence of temperature. Animal Behav. 31:1055-1060.

Crowley presented two papers at two different national meetings.

WIENS

Publications:

Bradley, R.A. 1983. Complex food webs and manipulative experiments in ecology. Oikos 41:150-152.

Bradley, R.A., and D.W. Bradley. 1983. Co-occurring groups of wintering birds in the lowlands of southern California. Auk 100:491-493.

Bradley, R.A. 1983. Review of "Aves Brasilerias". Auk 100:1021.

Bradley, D.W. and R.A. Bradley. 1983. Application of sequence comparison to the study of bird songs. Chapter 6 in Time warps, String edits, and Macromolecules (J. Kruskal and D. Sankoff, eds.). Addison-Wesley, New York.

WIENS (cont.)

Morton, M. and J. Kjelmyr. 1983. Boardman Research Natural Area. Suppl. to "Federal Research Natural Areas in Oregon and Washington: A guidebook for Scientists and Educators", U.S. Forest Serv.

Miller, G. and D.R. Woolridge. 1983. Small game hunting behavior of polar bears, Ursus maritimus. Canadian Field-Naturalist 97:93-94.

Crowley, S.R. and R.D. Pietruszka. 1983. Aggressiveness and vocalization in the leopard lizard (Gambelia wislizenii): the influence of temperature. Anim. Behav. 31:1055-1060.

Molles, M.C. and R.D. Pietruszka. 1983. Mechanisms of prey selection by predaceous stoneflies: roles of prey morphology, behavior, and predator hunger. Oecologia 57:25-31.

Grants Received:

George, T.L. UNM Graduate School, Graduate Student Association and Biology Department; \$800 for research in Baja California.

George, T.L. UNM Biology Department; \$100 for travel to AOU meeting.

George, T.L. Sigma Xi; \$400 for Baja California research.

George, T.L. American Museum of Natural History (Frank M. Chapman Memorial Fund); \$450 for Baja California research.

George, T.L. Central New Mexico Audubon Society; \$50 for travel to AOU meeting.

George, T.L. UNM Latin American Institute; \$1,875 for Baja California research.

Hill, G. Undergraduate Research Grant, Indiana University; \$282.

Kjelmyr, J. Central New Mexico Audubon Society; \$50 to attend AOU meeting.

Miller, G. Arizona Power Company; ca. \$17,500 for investigations of desert bighorn sheep ecology and behavior.

Awards Received:

Hill, G. Phi Beta Kappa, Indiana University.

Hill, G. Payne Undergraduate Biology Award (\$1,000), Indiana Univ.

Hill, G. Indiana University Alumni Scholarship (\$600).

WIENS (cont.)

Papers Presented:

George, T.L. "Island-mainland comparison of bird-habitat relationships in Baja California" Cooper Ornithological Society, Albuquerque, NM.

George, T.L. "Island-mainland comparison of bird-habitat relationships in Baja California" Ecological Society of America, Grand Forks, N.D.

George, T.L. "Comparison of habitat niche breadths of island and mainland landbird populations in Baja California" American Ornithologists' Union, New York.

Kjelmyr, J. "Relationships between annual rainfall and avian productivity in a Mediterranean climate" American Ornithologists' Union, New York.

Miller, G. "Band size and composition of desert bighorn sheep in western Arizona" Desert Bighorn Council, Silver City, NM.

Pietruszka, R.D. "Reptile Ecology in the Sandias" Albuquerque Academy Sims Cabin Speaker Series.

YATES

Papers Published:

Sullivan, R.M., J.O. Stack and W.J. Houck. 1983. Observations of gray whales (Eschrichtus robustus) along northern California. J. Mamm., 64(4):689-692.

Hartman, G.D. 1983. Notes on sex determination, neonates, and behavior of the eastern mole, Scalopus aquaticus. J. Mamm., 64(3):539-540.

Reduker, D.W. 1983. Functional analysis of the masticatory apparatus in two species of Myotis. J. Mamm., 64(2):277-286.

Hafner, D.J. and K.N. Geluso. 1983. Systematic relationships and historical zoogeography of the desert pocket gopher, Geomys arenarius. J. Mamm., 64(3):405-413.

Smith, M.F., J.L. Patton, J.C. Hafner and D.J. Hafner. 1983. Thomomys bottae pocket gophers of the central Rio Grande valley, New Mexico: local differentiation, gene flow, and historical biogeography. Occas. Papers Mus. Southwestern Biol., Univ. New Mexico, 2:1-16.

Hafner, J.C., D.J. Hafner, J.L. Patton and M.F. Smith. 1983. Contact zones and the genetics of differentiation in the pocket gopher, Thomomys bottae (Rodentia: Geomyidae). Syst. Zool. 32:1-20.

YATES (cont.)

Grants and Awards Received:

Sarah George: Systematics of North American shrews of the genus Sorex. American Society of Mammalogists. Grant-In-Aid of Research. \$500.

Sarah George: Phylogenetic systematics of North American Shrews of the genus Sorex (Mammalia: Insectivora). Theodore Roosevelt Memorial Fund, American Museum of Natural History. \$700.

Sarah George: Evolution of holarctic Sorex. Durning Scholarship, Delta, Delta, Delta. \$3,500.

Sarah George: Biochemical systematics of the genus Sorex. Sigma Xi. \$600. Submitted.

Laura Janecek, Robert Sullivan, David Reduker, and Sarah George also received SRAC grants in 1983.

Papers Presented:

*Reduker, D.W. 1983. Potential use of protein electrophoretic data in systematic studies of Eimeriidae. Southwestern Association of Parasitologists Annual Meeting. Lake Texoma, Oklahoma.

*Reduker, D.W. 1983. Use of protein electrophoretic data to determine evolutionary relationships among Eimeriidae. Rocky Mountain Conference of Parasitologists. Grand Junction, Colorado.

Hafner, D.J. 1983. Levels of taxonomic differentiation, examples from New Mexico rodents. Share with Wildlife Symposium. Albuquerque, New Mexico. Invited.

Hafner, D.J. 1983. Biochemical genetics of sandhill cranes. Share with Wildlife Symposium. Albuquerque, New Mexico. Invited.

Hafner, D.J. 1983. Chromosomal analysis in contact zones. Share with Wildlife Symposium. Albuquerque, New Mexico. Invited.

*Hafner, D.J. 1983. Biochemical systematics of nearctic Scuriidae. National Meeting, American Society of Mammalogists. Gainesville, Florida.

Sullivan, R.M. 1983. Electrophoretic variability in least chipmunks. Share with Wildlife Symposium. Albuquerque, New Mexico. Invited.

Sullivan, R.M. 1983. Ecological and morphological variation in chipmunks. Share with Wildlife Symposium. Albuquerque, New Mexico. Invited.

*Sullivan, R.M. 1983. Geographic variation in bacular morphology: vicariance or lust? National Meeting, American Society of Mammalogists. Gainesville, Florida.

YATES (cont.)

*Petersen, K.E. and R.M. Sullivan. 1983. Habitat utilization in southwestern Eutamias minimus (least chipmunk) populations and their sympatric congeners. Ecological Society of America. National Meetings. Grand Forks, North Dakota.

Moore, D.W. 1983. Chromosomal variation in Mexican voles. Share with Wildlife Symposium. Albuquerque, New Mexico. Invited.

*Moore, D.W. 1983. Karyotypic analysis of Microtus mexicanus (Rodentia: Cricetidae). Annual Meeting, Southwestern Association of Naturalists. Little Rock, Arkansas.

Sleeter, J. 1983. Geographic variation in New Mexico bobcats. Share with Wildlife Symposium. Albuquerque, New Mexico. Invited.

* Indicates papers for which abstracts were published.

Other Graduate Student Activities:

Sarah George served on the Graduate Policy Committee and the Graduate Selection Committee in the Department of Biology and was a member of the Standing Committee on nomenclature of the American Society of Mammalogists during 1983.

David Reduker served as Chairman of the Graduate Research Allocation Committee during 1983.

8. Castetter Laboratory for Ethnobotany

During 1983, the Castetter Laboratory for Ethnobotanical Studies completed reports on 28 research projects (#80-107). This group, which generates its own research support, includes Karen H. Clary, Anne C. Cully and Mollie S. Toll as full-time staff, Beth Crowder on a permanent part-time basis and Chris Allen on an occasional basis. Their activities during 1983 are listed below.

(a) Papers presented.

Current archeobotanical research in the American Southwest (Toll, w/Robert Gasser of the Museum of Northern Arizona, at the Society for American Archeology annual meetings, Pittsburgh, 4/83. Part of a symposium submitted as a volume to Academic Press).

(a) Papers presented (cont.)

Wild plant use in the Rio Abajo: some deviations from the expected pattern throughout the central and northern Southwest. (Toll, at Rio Abajo Area Conference; a Seminar on the Archeology and History of the Socorro District, 3/83).

At least some substantive evidence for Archaic subsistence in the San Juan Basin, New Mexico (Toll, at 6th annual Ethnobiology Conference, Norman, Oklahoma 3/83).

(b) Research in progress includes:

"Archaic hunter-gather culture change and the development of sedentism in the Southwest." N.S.F. (Cynthia Irwin-Williams, P.I.; Desert Research Institute). (Cully and Toll, ethnobiological consultants).

Pollen, flotation, and macro-botanical studies, Chaco Canyon National Monument, National Park Service (Cully, Toll).

Pollen and Floral Studies from west central Panama, Smithsonian Institution (Clary).

Pollen and flotation studies for Dinosaur National Monument and Glen Canyon. National Park Service (Cully, Toll).

Flotation studies for Elena Gallegos Land exchange parcels. National Forest Service (Toll, Donaldson).

Botanical remains from eight archeological sites near Farmington, N.M. U.S.D.A. National Forest Service (Donaldson).

Pollen analysis, 10 metates from Glen Canyon National Rec. Area. National Park Service (Cully).

Prehistoric subsistence at Chaco Canyon, N.M. Evidence from pollen analysis (summary of palynological work done since 1976).

Distribution and autecology of plant species, Arroyo Cuervo, N.M. Desert Research Institute, Reno, Nevada (Cully).

Pollen studies from Panama (In conjunction with Smithsonian and NSF).

The analysis of pollen from a 7000 year old cave occupied intermittently over time revealed that the cave inhabitants were using maize (Zea mays L.) as a food resource. This is the earliest confirmed date (carbon-14) for the use of maize in central America. This finding helps to verify the hypothesis that early man in the neotropics was practicing agriculture as an adaptive strategy much earlier than has been previously recognized. An article on the results of this research has been submitted to Science and is currently in review for publication.

Also, the study of modern pollen deposition is underway to define variability in pollen transport and deposition in soils. This information will be useful in establishing parameters for interpretation of the past pollen record from Panama.

As well, temporal pollen chronologies from the end of the Pleistocene to the present are being established by the identification of pollen from soil cores taken from coastal sediments off the southern coast of Panama. (Clary)

Pollen studies of an Archaic period (1000 B.C.) American Indian archeological site from Austin, Texas.

Pollen from various features from the archeological site are being studied to define plant-food subsistence patterns, and site environment of early Texas inhabitants. (Clary).

(c) Papers in press:

Clary, Karen Husum

Anasazi diet and subsistence as revealed by coprolites from Chaco Canyon, N.M. 23 pp. The Kiva.

Cully, Anne C.

Pollen analysis at Chaco Canyon National Monument, NM. The Kiva.

Toll, Mollie S.

Taxonomic diversity in flotation and macro-botanical assemblages from Chaco Canyon archeological sites. The Kiva.

(d) Papers in review:

Piperno, Dolores R., Karen H. Clary, Richard R. Cooke, Anthony J. Ranere and Doris Weiland.

Preceramic maize in central Panama: phytolith and pollen evidence. Science

9. Biology Department Land Holdings

The Biology Department has certain land holdings that have been donated over the years. These include (a) a cabin near Valle Grande in the Jemez Mountains on Forest Service Property; (b) three home-site lots (6.8 acres total) on the west mesa (acquired February 1972 from Harry Ross); and (c) a parcel of 640 acres on the east side of Mt. Taylor (acquired Spring 1979, anonymous donor). During December 1983 we acquired 160 acres of land located 23 miles south of Grants, NM off highway 53 in the Malpais country (from Larry Abraham).

B. Plans and Recommendations

Much of the information on plans and recommendations is stated in my portion of the UPTF report sent to the Dean. Since some of this will undoubtedly be diluted in the Dean's summary of the College to the Provost and again in the Provost's summary for the final report, much of what I wrote is repeated here. Our plans and recommendations for the future are to continue to build and maintain the best program we can.

The pressure of natural selection for excellence that exists in our Department is gaining momentum as we continue to hire new, young, bright, aggressive individuals. This is a potent force. The weak will retire early or leave (voluntarily or not). Those who can compete successfully will do so and I expect this will produce one of the most dynamic, and well-respected Biology departments in the western United States, if not the nation. The limiting resources are dollars and support from the higher administration to allow us to continue in this direction. We already have numerous inter- and multidisciplinary activities among the whole organism-ecosystem-ecology group in the department (e.g., nutrient cycling

through whole ecosystems, coevolution of host and parasites, coevolution of plants and herbivores, etc.) and I expect these to increase in scope and diversity in the environment of this Department. In the molecular-cell-micro group I see expansion of cooperative programs with the Medical School to include numerous joint appointments, joint grant proposals and publications, cooperative teaching arrangements, cooperative supervision of graduate students and the like. If we are to develop a strong regional program in this area it will take a substantial commitment of dollars by UNM, in terms of faculty lines, new space and sophisticated equipment. The spirit is there, if the resources become available. Finally, there are a number of ways in which biologists at UNM may well interface with the (proposed) future development of high tech industry in the state. A few of these possibilities were summarized in detail in my 7 December 1982 report to Professor Scaletti. A copy of this document is available upon request.

In the next five years I expect many things to change in Biology and some to remain the same. Our undergraduate curriculum will continue to evolve to better meet the needs of our future students. Last year we initiated a voluntary undergraduate student advisement program in the Department (see above). Eventually, we may make advisement mandatory. This year we are looking to make some modifications in the curriculum for our majors, to better tailor specific programs (tracks) to the specific needs of the student. Next year we will look seriously at instituting a B.A. degree in Biology because I perceive this may serve the needs of a certain percentage of our students. And so on. A department without a

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dynamic, constantly evolving undergraduate program has no place in an institution of higher learning.

There is little we (in Biology) can do to change the entrance requirements of the University, so until this is done I expect there will continue to be a rather large percentage of entering students who are ill-prepared for the rigors of a University education. We have not compromised our standards in the past to coddle such people (failure in our freshman core program, Biology 121-122, is about 40%) nor will we do so in the future. Yet we will continue to place our best teachers in these classes to assure our students their rightful opportunity to succeed and to assure the material presented remains current.

The academic standards of our graduate program have increased dramatically in the last few years and I expect they will remain at their present level or get more rigorous. We have begun a graduate core program in the area of ecology-evolutionary biology and are receptive to considering a similar core in the molecular-micro-cell area if these faculty perceive a need for one. We have begun a graduate student recruitment program (see above) and this has allowed us to attract and interview some first-class graduate students in the last two years. Half of those who visited our program to interview decided to come to UNM. I have initiated a graduate student teaching award program (see above) that I hope to expand in the future, resources permitting. I also have plans to set up an endowed graduate student national fellowship, a program to send graduate faculty to national meetings with all expenses paid, a program to set up postdoctoral line items in the department as a means to attract high quality applicants for faculty positions, a program for at least one

endowed chair in Biology, a program (in consultation with the dean) to reward exceptionally productive scholars on a one-time basis, a program to reward exceptional teachers in Biology, and others. My task as chairman is to provide the right climate, and some reasonable incentives, to continually stimulate my faculty and students to progress and achieve to their fullest potential.

With the exception of a few faculty with biological training in other departments, and the Medical School faculty (whose mission is research, not teaching), our Department's faculty represent the entire spectrum of life sciences at UNM available to teach students. This is simply not adequate and by comparison with regional institutions (Table I) the overworkload of our present faculty is glaring. Even lowly UTEP, without a Ph.D. program, has more Biology faculty/university student than does UNM!! Whether or not there is significant improvement in undergraduate education in the next five years will depend, to a large degree, on the commitment in human and physical resources by the legislature and the administration of UNM. I suggest a reasonable input of new faculty lines would be at least 17 new faculty positions to reduce our faculty:student ratio to 1:500. If planning such input is forthcoming we will need to proceed with vigor on planning the new, five-story (three above, two below ground) Biology Wing which I hope will be scheduled to replace Marron Hall. This is critical since, at present, there is no unused space in our present building.

C. Appointments to Staff

July. Maida West replaced Joanne Tapia as Office Manager.

August. Yevonn Ramsey became our first in-house part-time Graphics Technician.

C. Appointments to Staff (cont.)

September. David Opasic replaced David Pennington as Lab Tech III.

January. Kathy Campbell was hired as a Lab Tech II in Dr. Kathryn Vogel's lab using funds released by Dr. Vogel's Career Development Award.

April. Dr. William Rice was appointed Assistant Professor to replace Dr. Ewing. Bill's main duties include teaching and research in the area of population genetics.

May. Dr. Clifford Dahm was appointed Assistant Professor to replace Dr. Kidd. Cliff's main duties include teaching and research in the broad area of ecosystems and freshwater biology.

D. Separations From Staff

June. Joanne Tapia left the department to accept a higher paying position in the Office of the Associate Provost.

September. David Pennington left the department to accept a higher paying position with the City of Albuquerque.

June. Dr. Evelyn Ewing left the department when she did not earn tenure.

June. Dr. David Kidd left the department to make a lateral move to the General College.

E. Sponsored Research

Records on grant proposals submitted to outside agencies are kept in this department on an annual basis (i.e., by year). Therefore information reported here is for the year 1983.

(a) During 1983, 22 of our 29 faculty (76%) submitted 56 grant proposals to outside agencies.

(b) During 1983, 19 of our 29 faculty (66%) received new awards or renewal of previously awarded grants.

The outside contracts in force in the department on 30 June 1984 totaled \$2,862,447. This information is summarized, by faculty member, in Table II (p. 69).

Table I. Numbers of Biology Departments and Faculties at Major Regional State Universities in Arizona, Colorado, New Mexico and Texas.

		<u>No. Students</u>	<u>No. Biology Departments</u>	<u>No. Biology Faculty</u>	<u>No. Students/ Faculty Member</u>
<u>ARIZONA</u>					
U.A.	(1978-79)	23,243	20	260	93
A.S.U.	(1977-78)	20,884	2	46	454
<u>COLORADO</u>					
U.C.	(1981-82)	20,000	2	89	225
C.S.U.	(1983-84)	18,400	18	406	45
<u>NEW MEXICO</u>					
U.N.M.	(1983-84)	23,300	1	29	803
N.M.S.U.	(1980-81)	9,952	4	67	149
<u>TEXAS</u>					
Texas A&M	(1979-80)	30,000+	9	217	138
Texas Tech	(1979-80)	23,129	4	76	304
U.T. Austin	(1978-79)	46,179	3	140	330
U.T.E.P.	(1983-84)	15,836	1	20	792

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Table II. Active Research Grants/Contracts Held by Department of Biology Faculty as of 30 June 1984.

Faculty Member(s)	Agency	Title	Current Dollars	Total Amount of Award
Baca	MBRS	Phase variation in <u>Coxiella burnetii</u>	\$ 20,725	\$ 59,339
Barton	MBRS	Fe(II) transport system	21,075	58,299
Cates/Van Horne	Forest Service	Black-tailed deer	30,482	30,482
Cates/Gosz	NSF	Plant secondary chemistry	175,059	175,059
Cates	Forest Service	Loblolly pine chemistry	46,474	46,474
Crawford/Taylor	NSF	Cellulose decomposition	80,000	80,000
Duszynski	NMG&F	Coccidian parasites from cranes	5,250	5,250
Duszynski/Yates	MBRS	Host genetic factors/host specif.	27,269	109,621
Fritts	NMG&F	<u>Rana</u> status	3,500	3,500
Gosz	NSF	Atmospheric inputs	98,453	305,433
Gosz	Forest Service	Fire effects on nutrients	29,000	29,000
Gosz/White	NSF	Predoctoral Improvement	1,882	1,882
Johnson, G.	NMWRRI	Salt-tolerant <u>Azella</u>	10,248	10,248
Kerkof	MBRS	Thyroid gland cells	23,202	67,231
Kogoma	HEW	DNA replication	100,588	503,173
Kogoma	MBRS	DNA replication in <u>E. coli</u>	9,870	28,000
Ligon/Stacey	NSF	Cooperative polyandry	31,889	88,411
Molles	NMG&F	Isopod culture	5,000	14,686
Natvig	BSRG	Cloning superoxide dismutase gene	4,000	4,000
Potter	Nat'l Park Service	Vegetative analysis	5,273	5,273
Potter	Nat'l Park Service	Line transects, Bandelier National Monument	8,100	8,100
Riedesel	RAC	Overhydration with oral glycerol	1,700	1,700
Taylor	NSF	Theoretical analysis	66,444	66,444
Thornhill	NSF	Evolution of behavior	73,766	73,766
Thornhill	NSF	Sexual selection	76,999	76,999
Toolson	NSF	<u>Drosophila pseudoobscura</u>	33,000	110,000
Vogel	HEW	Glycosaminoglycans	37,908	111,810
Vogel	MBRS	Fibroblast proteoglycans	16,991	48,200
Wiens/Cates	NSF	Avian predators	110,784	548,327
Woodward	NSF	Anuran behavior	12,200	22,193
Yates	NMG&F	Genetic and chromosomal variation	20,000	69,547
Yates/Findley	NSF	Update mammal collections	100,000	100,000
TOTALS			\$1,287,131	\$2,862,447

II. Selected Highlights

Over the last year or so, since I began the Biology Newscasts in November 1982, administrators and the general public have had the opportunity to learn about a wide variety of activities and achievements by many of the faculty and graduate students in our department. In the main, these vignettes have focused on research-oriented accomplishments that bring credit to our Department and to the national reputation this university is slowly developing. We all recognize that good teaching and service are equally important faculty activities, but these are harder to document in black and white, than say a review article published in a national journal or a federal grant awarded. Nonetheless, there are certain kinds of data available. For example, as teachers we should be providing our students with current information and new ideas. As students become interested in particular areas and want to learn more, they take additional courses and if their interest is real, they will major in the subject. While teaching our classes, we should strive to do the best we can to be "good" teachers--in the true sense of the word. So two ways that departments can be gauged are by the degrees they award and by the teaching evaluations of their faculty (I fully realize that students may not be the best trained to judge "good" teaching, but their evaluations are a yardstick by which we are all measured and can be an indicator of potential goodness or badness.). In this light, the following information is of interest. Biology does not offer a BA degree, but is one of seven departments in the College of Arts and Sciences to offer a BS degree. In going through A & S graduation files I was surprised, but pleased, to find

that over the last six years (1978-83) the Biology Department has awarded 55% (476 of 858) of all BS degrees given by the College during that time. (Table II).

One of the reasons so many students seem to get interested in Biology and then go on to study it may be the quality of our teachers. The UNM Testing Division coordinates student evaluations of faculty teaching campuswide in its Instructor and Course Evaluation System (ICES). Last year (1983) was the first full year that Biology participated in ICES (in former years we had our own departmental evaluation form). After computer printouts are done for teacher evaluations for all departments, ICES produces "An Incomplete Listing of Instructors Rated Excellent by Their Students" each semester. In 1983, 40 biologists (18 in Spring, 2 in Summer, 20 in Fall) were rated excellent by their students. This is more individuals singled out for teaching excellence than in any other department in the University. Yet Biology is not even the largest department in A & S (English, Math and M&CL are larger and Anthropology, History, Physics and Psychology are only 3-4 faculty members smaller).

When one examines such data, and when research accomplishments are included, it seems clear that the Biology Department is the leading department in the College of Arts and Sciences, and may be the best department on campus. The Highlights that follow may support this notion.

Table III. Total Bachelor of Science (BS) degrees awarded by the College of Arts and Sciences and by the Biology Department from 1978 through 1983.

<u>Year</u>	<u>Semester</u>	<u>Total # BS degrees in A&S</u>	<u># of Biology BS degrees (%)</u>	<u># of Biology minors (%)</u>	<u>Majors/Minors in Biology of total A&S degrees (%)</u>
1978	Spring	104	65 (63)	5 (5)	70 (67)
1978	Summer	28	19 (68)	3 (11)	22 (79)
1978	Fall	46	28 (61)	2 (4)	30 (65)
1979	Spring	91	60 (66)	4 (4)	64 (70)
1979	Summer	10	7 (70)	1 (10)	8 (80)
1979	Fall	44	18 (41)	7 (16)	25 (57)
1980	Spring	94	48 (51)	7 (7)	55 (59)
1980	Summer	14	11 (79)	0 (0)	11 (79)
1980	Fall	37	23 (62)	3 (8)	26 (70)
1981	Spring	85	43 (51)	8 (9)	51 (60)
1981	Summer	11	4 (36)	0 (0)	4 (36)
1981	Fall	30	13 (43)	3 (10)	16 (53)
1982	Spring	79	40 (51)	5 (6)	45 (57)
1982	Summer	20	12 (60)	3 (15)	15 (75)
1982	Fall	50	26 (52)	7 (14)	33 (66)
1983	Spring	81	45 (56)	4 (5)	49 (60)
1983	Summer	8	2 (25)	0 (0)	2 (25)
1983	Fall	26	12 (46)	4 (15)	16 (62)
TOTALS		858	476 (55)	66 (8)	542 (63)

In Biology we take great pride in the accomplishments of our people. A typical example is Janice Moore one of our former Ph.D. students (next page). Probably the plum faculty position in Biology in the western U.S. this past year was in the Department of Zoology and Entomology at Colorado State University and Janice got the job.



Janice Moore finished her Ph.D. in December 1981 under the direction of Drs. Don Duszynski and Rex Cates. She spent 1982 in the Department of Zoology, The University of Texas, Austin as a Lecturer teaching parasitology and introductory biology. Recently, the National Science Foundation awarded Janice \$74,000 to study "Helminth communities in bobwhite quail" with Drs. Daniel Simberloff and Robert Short at Florida State University, Tallahassee. In January 1983 the editors of Scientific American, which has a world-wide readership of more than a million and is published in seven languages, asked Janice to submit her doctoral dissertation research (done at UNM) so they could publish it as a feature article later in 1983. Not many new Ph.D.s can make that claim. Her dissertation research concerned the coevolution of an acanthocephalan (a parasitic worm) with its intermediate host (a pillbug) and its final vertebrate host (the starling). Finally, Janice was one of three candidates, from 278 applicants, invited to interview in April for an assistant professor position in the Department of Zoology and Entomology at Colorado State University.

3/83

SHE GOT THE JOB!!!!

Dr. Randy Thornhill continues to build his international reputation. His work on the evolution of behavior, now entering the controversial realm of human sexual behavior, continues to be widely quoted (Science, Nature, Science 83, etc.) and debated. NSF has continually supported Randy since he joined our faculty and that trend continues. He is one of the many scholars in Biology bringing national attention to UNM.



April has been a good month for Biology faculty. Dr. Randy Thornhill has received notice that the National Science Foundation has awarded him \$73,766 to support his study, "Ecological Determinants and Evolution of Behavior." The grant is effective May 1, 1983 and expires October 31, 1986. This is the fourth NSF grant awarded to Randy since he joined the Biology Department in 1975. His awards have totaled more than \$233,000.

4/83

UNM Anthropologist, Biologist Study Rape as Evolved Behavioral Alternative

00493

By George Zamora

The practice of rape may have evolved as a behavioral alternative for "losers" who can't employ the more socially accepted reproductive strategies used by the "winners" in the age-old competition among males for desirable mates. University of New Mexico scientists said.

That's a simplification of a conclusion reached by two UNM scientists, Dr. Randy Thornhill of the biology department and Nancy Wilmsen Thornhill of anthropology, after a 3½-year study of the evolutionary aspects of human rape.

The husband-and-wife research team's 93-page report on their research, "Human Rape: An Evolutionary Analysis," is set for publication this fall in *The Journal of Ethology and Sociobiology*.

In their study, the Thornhills carefully reviewed the literature on rape written by biologists, anthropologists, sociologists, criminologists, and psychologists.

The facts and figures from the available literature, as well as statistics from sources such as the Albuquerque Rape Crisis Center and the FBI, were used by the Thornhills to test their predictions about the rapist's and the victim's behavior, and also to test predictions they made about rape laws and taboos.

The predictions, Thornhill said, "were derived from the hypothesis that human rape is an evolved facultative behavior that is condition-dependent in that it is used by men that can't succeed socially . . . If this hypothesis is sound, then our predictions should be true."

The "evolved facultative behavior," the Thornhills wrote in their study, is a result of natural selection over the course of human evolutionary history. Therefore, during human evolutionary history, rape was probably an adaptive, evolved strategy that allowed the losers in the competition to pass their genes into the next generation, Thornhill said.

Differences in behavior among different human societies or among individuals, the Thornhills said, are probably not because of genetic differences, but are the result of a single general genetic program indirectly related to behavior patterns. Differences in behavior are influenced by the differences in the development of the individual or the general social environment, they said.

As the Thornhills studied the phenomenon of rape among different societies, and even among different species, however, "a general picture developed," Thornhill said.

"The loser males in the competition have to resort to forced copulation." This would suggest, the Thornhills noted in their study, rape is an evolved reproductive strategy in human history.

The first prediction the Thornhills postulated in relation to their evolutionary analysis of rape was that victims would be young women. Their study, they said, supports this prediction. "The majority of victims are in the 18- to 24-year-old age group," Ms. Thornhill said. "The curve drops off at about 30 years of age," she said.

Thornhill explained, "We are not saying that 85-year-old women and young babies are never raped — that happens. But a related prediction would be that the rare extremes, the very old and the very young, will be raped by truly psychotic men," he said.

He said, "The psychiatrists just can't seem to identify rapists as a category. The only distinctive features of rapists are low self-esteem; they're largely young, and they're largely poor," Ms. Thornhill added.

These findings support two other predictions made by the couple. One being that, in general, rapists will be poor. He will be on the bottom rungs of the socio-economic ladder, Thornhill said.

The other prediction was the rapist would probably be a young man, one who rapes prior to the society's average marriage age, in which there is the most intense competition for desirable mates.

In their paper, the Thornhills wrote, "High-status men are not expected to rape because their status provides them with legitimate sexual access."

In a cross-cultural perspective, the Thornhills predicted that punishments for rape would be most severe in societies where males invest inheritance in their own offspring (patrilineal societies).

In societies where there is low reliability of paternity and males invest inheritance on their sister's offspring (matrilineal societies), they expected to find less severe punishments for rape. The data, they said, also supported these predictions.

The entire range of rule and punishment differences regarding

lineal societies are all related to the degree of importance paternal reliability has in a society and rape's subsequent effect of reducing the reliability of male parentage in those societies, Thornhill said.

But the rapist does not consciously consider the cross-cultural or evolutionary aspects of his act, Thornhill said. "He doesn't consciously weigh the costs and benefits in terms of reproductive probability."

The Thornhill study suggests, however, that low-status men do make an unconscious decision to risk rape if they perceive the benefits to exceed the costs.

"Historically, despite low reproductive returns from rape (i.e., small chance of successful reproduction), these returns were sufficient to offset all costs when men could not compete successfully: a chance of children was better than no children," they wrote in their study.

for political effect and as an attempt to vindicate impractical political principles and roles. Such criticism came across as a kind of non sequitur in light of the state's financial condition, and its need for providing services to people.

In addition to the \$138.9 million state public works bill passed by the Legislature and signed by the governor, State Highway 264, 16 miles from Yah-Tah-hey Junction, New Mexico, to the Arizona line, a treacherous stretch of two-lane road, will be widened. The bill for this was championed by Senator John Pinto and his many constituents, some of whom appeared day after day in various committees to lobby and fight to improve a road that many Indian children must travel on every day, a road on which many Navajos have died over the years.

Santa Fe will get funding to establish a community college, a project many northern New Mexicans have pushed for a long time.

* * *

It seems that 1983 will go into the annals of government finance as a year of tax increases in states across the country. As governmental writers Steven Gold and Karen Benker have recently reminded us, "the great majority of states managed to get through the last seven years without raising either personal income or general sales taxes. In fact, nearly all states were net tax cutters after 1978. The fiscal noose has been gradually tightening around the necks of legislators and governors, but it was not until fiscal 1983 that states reached the point where they felt the need to raise one of their major taxes." New Mexico chose this year to raise two of its "major taxes." In 1981, New Mexico cut taxes by \$200 million. Between fiscal 1978 and fiscal 1982, state tax revenues in relation to personal income fell from 6.98 percent to 6.48 percent, according to *State Legislatures* in its March 1983 issue. Such a development can be traced to such monuments of public policy as Proposition 13 in California, and many states responded to this example by cutting their own sales and income taxes. In New Mexico, as in many states, 1982 and 1983 budget deliberations were much tougher than usual. Obviously, governors and legislators do not enjoy raising taxes, but that course was inevitable here as it was around the country.

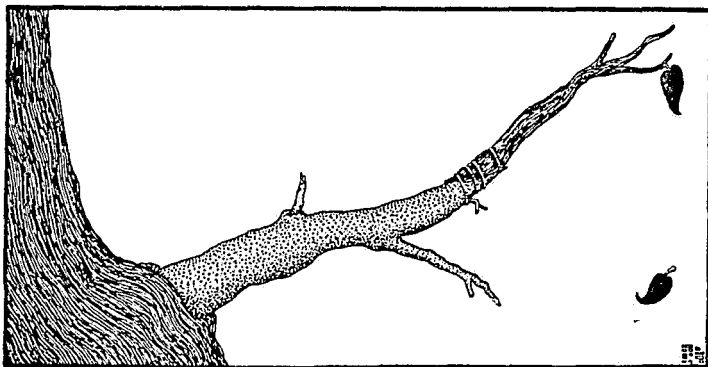
In contrast to the promise of its advanced billing, the 1983 New Mexico Legislature displayed little in the way of significant institutional change. It's still

largely a matter of adjustment and adaptation by new players in new roles, and old players in new roles facing new beginnings. This condition applies to legislators and their staffers, as well as to members of the executive branch. Rigid political philosophies, be they liberal or conservative, especially on money matters, tend to give way to more pragmatic approaches to getting things done—for the individual solon and his constituents back home. Legislative behavior, and therefore lawmaking, in all its splendid and awkward forms, is still a subtle mixture of ego, bravado, common sense, and compromise. This year, in that "unreal" Santa Fe world of legislative politics and policy, compromise was the salutary reflex, with some exceptions, from the Republican loyal opposition, and a couple of "maverick" Democrats, in an atmosphere of caution, manageable intra-

party divisions, gradualism, and moderation in all things. A wretched economy demanded it.

The Legislature and the new governor are still on their customary shakedown cruise, after the departure last year of some whales, including Bruce King, John Mershon, and, even earlier, Aubrey Dunn. One wonders if those notables miss the power, action, and occasional intrigue of yet another legislative session; King and Dunn probably do, Mershon probably doesn't. Legislators went home this year to think about 1984, their constituents, and their own personal and political agendas. Toney Anaya can now really begin his term of office and try to realize his various governmental and political goals in New Mexico and elsewhere.

Richard Fox is a Century contributing editor.



Of Rape and Evolution

by MELISSA HOWARD

An evolutionary view of rape as a last-ditch bid for fatherhood has been proposed at the University of New Mexico.

The idea strikes some feminists as heretical, but it is likely to intrigue scientists. And it suggests that the woman who fights back might deter a rapist.

What the idea need not do, however, is call into question recent reforms in the criminal justice system's response to rape.

Randy Thornhill, a UNM biologist, and Nancy Wilmsen Thornhill, an anthropologist, have collected impressive

evidence for their arguments, which proceed from fundamental tenets of evolutionary theory.

"Human rape can be considered as an evolved facultative behavior that is condition-dependent in that it is employed by men who are unable to compete for resources and status necessary to attract and reproduce successfully with desirable mates," the Thornhills said in a paper they prepared for an academic journal.

In everyday language, Nancy Thornhill says, "Rapists haven't got what it takes" to attract women, and Randy adds, "The rapist doesn't know he's doing it ultimately for reproduction."

Before the evidence and implications of the Thornhills' theory can be understood, its foundations must be laid in evolutionary biology.

First, evolution theory says that all

living creatures are the product of natural selection: that they possess traits—protective coloration, sharp teeth, wits—that insure their survival and that have been passed from generation to generation.

Second, some biologists believe that human behavior is also the product of natural selection. "Our behavior is largely cultural," Randy Thornhill says. "We do what we do because of social learning. But the biologist realizes that cultural behavior can be analyzed from the same evolutionary framework as noncultural behavior. That is, when an individual makes a decision to adopt a particular kind of behavior, he does so on the basis of mechanisms in his body, his nervous system and so forth, that were designed by natural selection."

Third, evolution theory proposes that all behavior is ultimately aimed at reproduction. "It's more than sexuality," Randy explains. "All our social interactions must somehow ultimately relate to reproduction or they would not have evolved. The rapist's drives may feel like sexuality to him, but they are present because in evolutionary history those drives contributed to more successful reproduction."

Fourth, to the evolution theorist, all organisms are capable of weighing the costs and benefits of alternative behaviors. The Thornhills suggest that men make an unconscious decision to risk rape when it appears to be a way of getting their genes into the next generation. "You would never expect the evolution of anything, behavior or otherwise, when the costs outweighed the benefits," Nancy says.

Fifth is the notion of causation, both proximate and evolutionary. "These are two approaches that biologists use for studying traits," Randy explains. "Proximate causation has to do with immediate causes. Ask a rapist why he rapes and he says, 'I'm angry.' He's angry about being dominated by men who are more successful, or he's angry that he can't have the women he wants. But there's another level of causation, which explains why rape is an expression of anger. And now we're talking about a causation that has acted in human evolutionary history: that causation being natural selection in favor of males who would rape under certain circumstances."

The final evolutionary principle underlying the Thornhills' theory is female choice. Females too are motivated by reproduction. Among their

most significant behaviors are the choice of whether or when to reproduce and the choice of a mate. Often females can prosper by exchanging sexual favors for food, protection, status or other benefits. Rape denies choice.

In their paper, titled "Human Rape: An Evolutionary Analysis," the Thornhills made 18 predictions about rape. The 93-page manuscript was based, Nancy says, "on every bit of data that is in the literature now," including studies of animal behavior, anthropological records, crime statistics, psychiatrists' reports, and feminist analyses of rape.

The Thornhills' first prediction was that most rape victims will be women in their child-bearing years, and their research supports it.

"Men like young, fertile women," Randy says, "all men do. And by choosing them as victims, rapists are behaving like other men. We consider that very strong support for the notion that evolutionary biology has great application to rape." If rapists were motivated only by drives other than reproduction—by dominance and aggression, as many feminists believe—rape would be an aberrant behavior unlikely to survive from generation to generation, Randy says.

Asked if a victim's sexual allure, not her possible fertility, attracts the rapist, Nancy suggests that those qualities are functionally identical. "Victims are sexually alluring for good evolutionary reasons," she says. "That is, at the age they are considered sexually attractive they are most likely to give birth to a viable offspring."


The Thornhills also predicted that rapists are more likely to be young, poor men. Again the statistics, including FBI crime reports, support the prediction.

Low self-esteem, poor social relationships and reduced competitiveness are characteristics of many rapists, according to the Thornhills' sources.

"Males who have the most difficulty climbing the social ladder (i.e., poor men) will more often be rapists than men who successfully compete," said the Thornhill paper. "High-status men are not expected to rape because their status provides them with legitimate sexual access."

Data on rapists' marital status in the United States and other societies are unreliable. "It's really hard to know how many rapists have consensual sexual access," Nancy says. "The estimates are from zero to 45 percent."

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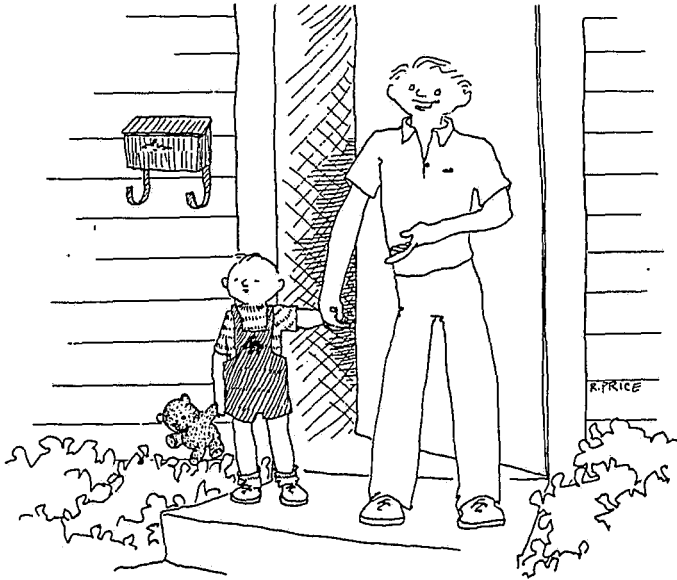
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"Look out, world, here comes Marlowe P. Tinsdale, the 3rd!"

"We feel that the important factor influencing costs and benefits associated with rape, and thus the factor that allows an exploration of rape from an evolutionary perspective, is the likelihood of success via other alternatives" for reproduction, the Thornhills wrote.

To examine alternatives, they looked at reproductive behavior, including parenting and rape, in different societies. Rape is tabu or illegal in most societies, although the degree of punishment varies. Anthropological data on rape are limited, the Thornhills wrote, but available sources confirm their predictions.

"We used a scale of punishment severity from anthropology (for the crime of rape), looked at the data, and the predictions worked," Randy says. "As mating systems deviate from monogamy toward polygyny, there is more severe punishment for rape."

Rape is less common and less severely punished in the matrilineal societies surveyed by the Thornhills. Because inheritance is through the females, paternity is less important; in fact, many men don't know who their children are. Further, the ruling men in a matrilineal society are less powerful and less able to restrict sexual access. Promiscuity is acceptable. If they are unable to play a traditional father's role, some men in matrilineal societies may help care for

their sisters' children, the Thornhills noted. This "avuncular" behavior is another reproductive alternative unconsciously chosen by men who want to be sure that at least some of their genes are passed along.

In polygynous, patrilineal societies, rape is more frequent and more harshly punished, the Thornhills found. In these societies, inheritance is through the male line, so men want to be certain who their children are. They use their authority to minimize behavior like adultery or rape that results in children of unknown paternity.

In highly stratified societies, monogamy is enforced. Power is held by a small number of men. They restrict access to the fruits of successful competition, including desirable women, and thus produce a corps of frustrated men who are potential rapists.

"In sum," the Thornhills wrote, "data from both industrial and preindustrial societies seem to... [show] that it is men who have the greatest difficulty in climbing the social ladder that are most likely to rape."

"Men seem to behave as if they have evolved to adopt rape in this context, because despite low reproductive returns from rape (i.e., small chance of successful reproduction), historically, these returns were sufficient to offset all costs

when men could not compete successfully; a chance of children was better than no children."

The Thornhills made another group of predictions about the impact of rape on its victims.

Citing a survey showing American women fear rape more than murder, they stressed rape's reproductive consequences. In fact, unconscious fear of these consequences may explain the large number of rapes believed to go unreported, the Thornhills suggested.

Women share men's concern about exclusive paternity, Nancy says, and rape threatens it.

"In evolutionary terms, a man views any copulation by his female with anyone other than himself, whether it was forced or not, as a threat to his paternity," she says. "But it's not just a feeling of men; it's the strategy that females have adopted over evolutionary time" of trading exclusive sexual access for benefits.

Rape's disruption of this female strategy explains some of the trauma suffered by victims, the Thornhills believe. As evidence they offer these predictions, which are supported by a reputable study of American rape victims in the mid-1970s:

— While all victims experience worsened sexual relations, married women report more problems than unmarried victims.

— Women in their child-bearing years have more severe post-rape problems than victims who are too old or too young to be impregnated.

— A victim who can convince her husband that the rapist violently overcame her resistance has fewer adjustment problems than a victim who bears no injuries as evidence of resistance.

— A rape that involves completed intercourse is more traumatic (and more common) than one that involves other activities.

These and other predictions in the Thornhill paper suggest new ways for dealing with rape. For example, they hint that victims' emotional wounds might heal faster if counselors helped them understand the crime in biological terms. Or perhaps rapists might be diagnosed and deterred if counseling could help them form stable relationships. Perhaps counseling should be required for rapists in prison.

But all three ideas are undoubtedly naive. The U.S. Department of Justice estimated in 1979 that 31 percent of rape victims did not report the crime, and it is widely believed that few re-

ported rapes ever result in conviction and punishment.

"It's kind of sad that not only is rape underreported, but it's underpunished," Nancy Thornhill says. "If a man who has rapist inclinations realizes that it doesn't matter what he does, that there's a low likelihood he will be punished, then what difference does it make?"

"I think the rape penalties should not only be drastically increased but harshly enforced," she continues. "I also think the female herself could increase the cost of rape to the rapist." A rapist unconsciously weighs the costs and benefits of the attack, she notes, and he wants it to be easy.

"I would never advocate that a woman fight back if she thought her life was in danger, but women who can defend themselves increase the cost of rape to the rapist, that is, make it harder for him. In an evolutionary sense, as the costs of any behavior increase, the incidence will decline."

Feminists may agree with the Thornhills that some rape victims should resist, but they are likely to disagree with the view of rape as reproduction-oriented.

Feminists see rape as a grotesque exaggeration of the aggressive male's drive to dominate, the ultimate form of sexism. This view was first widely discussed in the 1970s, as part of a sweeping analysis of gender stereotypes and sex discrimination. The feminist view of rape is probably more ideological and political than scientific, and the Thornhills maintain the scientific evidence is on their side.

"We're certainly not out for any social or legal change," says Nancy Thornhill. "Our entire goal was to understand this behavior that nobody has understood until now, and we think we understand it."

The feminist view of rape has inspired law-enforcement reforms that have nothing to do with an evolutionary analysis of rape's causes. New Mexico's new sexual-crimes act, approved in 1975 and since hailed as a national model by the American Bar Association, made such changes as these:

- It removed the requirement that a witness corroborate a rape victim's story and made it difficult to introduce evidence about a victim's past sexual history.

- It defined various categories of specific sex crimes and applied graded penalties to them.

- It changed sexual assault on a male

from a misdemeanor battery to a felony sex crime.

- It punished sexual contact between minors and adults in positions of authority.

Feminists also campaigned successfully for state funding of rape-victim treatment programs, logistical assistance to police and prosecutors and evidence-collection equipment for hospitals.

The goals of these feminist reforms were to encourage reporting of rape, to minimize posttrauma trauma for victims, to increase the odds of successful prosecution and to make sure rapists are punished.


Probably it would have made no difference whether the reform effort had been led not by feminists but by biologists. The Thornhills stress that no matter what ultimate motivation is assigned to the rapist, he is still a criminal. His unconscious drive to pass on his genes, however adaptive in evolutionary terms, does not justify injuring his victim, violating tabus, and breaking laws. To understand rape is not to condone it.

Melissa Howard helped draft and lobby for the 1975 New Mexico sex crimes act.

For Sanity

The emotional battering one takes from the daily news can become unbearable. Reports of endless slaughter and savage poverty, of torture, nuclear weapons, and environmental pollution, of fear-mongering, scapegoating, and propaganda—these are our daily fare. Depression becomes unavoidable; we have knowledge but no power. We feel helpless and without hope, burdened with awareness of a world in torment and crisis. It seems at such moments, in fact, as if we know too much; and the desire to escape, to shut down, to pay attention only to the calling of our own private lives becomes irresistible. And we succumb to the seduction of ignorance and its illusions of tranquility. But the pervasiveness of modern communications won't let us escape for long, and among the drone of horrors and calamities, useful new knowledge and experience emerge and, momentarily at least, take precedence.

Late last month, for instance, on public television's "Frontline" with Jessica Savitch, a program entitled "U.S.-Soviet Debate" was filled with in-



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Dr. Molles is another one of our young faculty members who is beginning to gain wide recognition for his work and, as a consequence, brings more recognition to UNM. In addition to the international symposium in which he was an invited participant in May, he has also been invited to present his work at the UCLA Borderlands Conference and gave seminars at several of the U.C. schools in October.



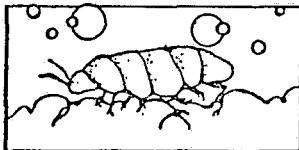
Dr. Manuel Molles has received a great deal of public attention recently for his work on the Socorro Isopod, an endangered species of crustacean, that is found only in one thermal spring near Socorro, NM (see attached article from the Albuquerque Journal). Dr. Molles has contracted with the NM Game and Fish Department to build an artificial stream in his laboratory to raise these animals (yes invertebrates are animals) as part of its Share With Wildlife Program. The original contract between Dr. Molles and Game and Fish was for \$4,686 to begin to raise the isopods in captivity. The rearing program was so successful (lab-reared females produce 40 young/female vs. wild caught mothers that produce 8 young/female) that Fish and Game has added an additional \$40,000 to the project, much of which will be used for reintroduction of the isopods into other parts of the state. Nice work Manuel.

4/83

Biologist Breeds Rare Shellfish

By George Zamora

A unique crustacean, living a precarious existence in a single, central New Mexico stream, will someday flourish elsewhere if a UNM biologist's efforts succeed.



The species is a member of an order of crustaceans known as isopods. The isopod looks very much like its cousin, the sow bug — those small creatures found under rocks or old boards that curl up like an armadillo when disturbed.

This federally endangered species, *Thermospaeroma thermophilum* as it is known to scientists, can only be found in nature in a single portion of a stream in central New Mexico. The stream's water remains at a constantly warm temperature year-round, giving the isopod its "thermophilum" portion of its name which means "warm loving."

The isopod's nearest relative is a marine species that thrives in the open seas. It is speculated that the two share a common ancestor that probably also lived in a marine en-

vironment. How the isopod population has managed to survive only in the fresh water environment of the New Mexico stream is unknown.

Dr. Manuel Molles, assistant professor of biology, has collected specimens of *T. thermophilum* and has met with unprecedented success in starting a new population of the species in his laboratory.

"The isopods I captured in the field have given birth in the lab twice already," Molles said. "The older daughters born in the lab are now giving birth, also." This makes the second generation of the isopod ever to have been born out of their natural habitat, he said.

"The lab-born daughters are having many more offspring than they would out in the wild," Molles added. "One of them had 58 babies, another had 51," he said. In their natural habitat, isopods were observed to normally have broods that averaged near eight.

"Under laboratory conditions, the isopods have up to seven times their natural output," Molles said. "Within the next couple of weeks, we will have tripled the entire population of the species," he said. "The results are much better than I expected."

Field observations of the isopod made in 1979 by a former UNM graduate student, Stephen Shuster,

showed that the isopods are predators that feed on both plant and animal material.

In a report published by Woods Hole, University of California at Berkeley, Schuster said that food seemed scarce in the stream, but the population did not face any competition for food from other species.

There was also no apparent natural enemies of the isopod present in their habitat. The study noted that the stream lacks fish, and birds showed no interest in feeding on them.

Previous attempts made by other people to establish isopod populations in the lab did not fare as well as Molles' efforts have because they used different approaches, he said.

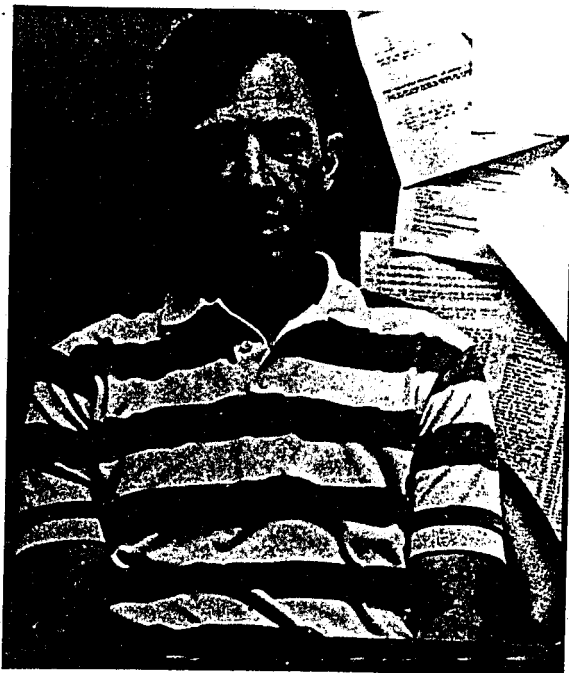
Molles estimated his lab population should reach 4,000 in the next few weeks, double the estimated species number in the wild. "By fall, we will be introducing new populations to other areas in New Mexico," he said.

"We're also going to establish one population as a display setup in the Albuquerque zoo," Molles said. "When this is done, we can down-list the species (from federally endangered) to a much better status."

Molles' work with *T. thermophilum* is funded by a grant from the New Mexico Game and Fish Department's "Share with Wildlife" program.

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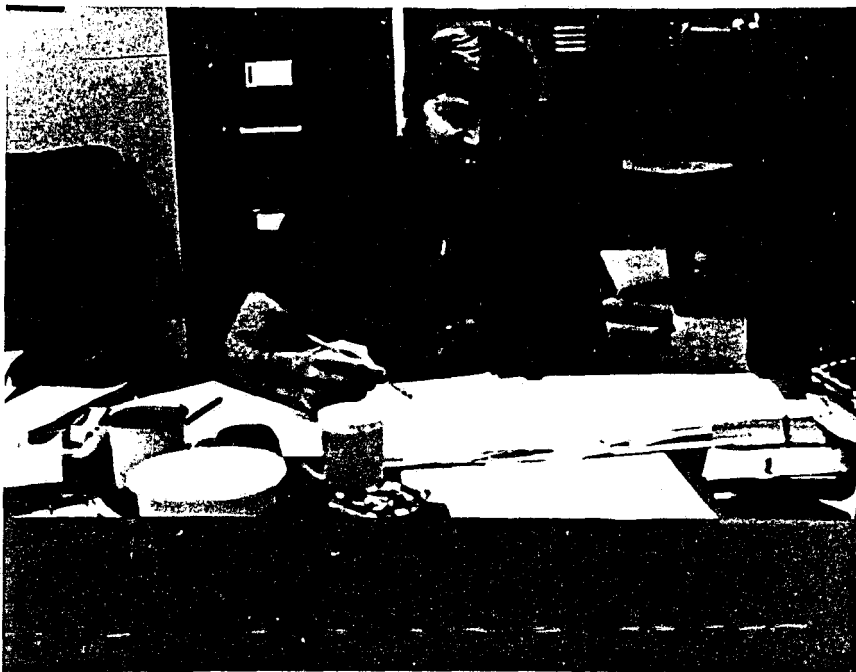
Dave Ligon and his wife Sandy have spent five years studying bird behavior in Africa, his papers have been published in leading journals including Scientific American, and he continues to be a leader in the area of bird behavior as the recent extension of his current NSF grant will attest.



The Grants Officer at the National Science Foundation recently notified UNM that an additional \$31,889 will be awarded to Dr. J. David Ligon of our department and Dr. Peter B. Stacey (University of Missouri, St. Louis) for their project, "Adaptive Significance of Cooperation Polyandry." Their project involves studying the communal lifestyle of acorn woodpeckers that live in Water Canyon in the Magdalena Mountains of New Mexico. This is the third year NSF has supported the study by Ligon and Stacey with the total award of the grant being \$88,411 during that time.

4/83

Dr. Bruce Woodward, a former student of Drs. Randy Thornhill and Norm Scott, is continuing his research (thanks to NSF) on the phenomenon of female choice of mates, based on their genetic quality. This is a "hot topic" in evolutionary biology and one that has proved difficult to document. Bruce is currently one of three finalists being considered for the sociobiologist position in the Department of Zoology at Arizona State University in Tempe and one of four finalists for an assistant professor position at the University of Nevada, Las Vegas.



Dr. Bruce Woodward, a Visiting Research Assistant Professor in Biology, learned in April that the National Science Foundation had awarded him an additional \$12,200 to continue his studies on behavior and sexual selection of certain New Mexican toads. The study, "Proximal Factors Affecting Anuran Mating Behavior" was first funded by NSF in 1982. The most interesting aspect of Dr. Woodward's research relates to the effects of parental genes on offspring fitness. Bruce has been invited to give a half-hour talk on this research at the Annual Meeting of the American Society of Ichthyology and Herpetology this month (June) in Florida. Bruce completed his Ph.D. in this department in 1981.

6/83

CAMPUS NEWS 1 DEC 1983

Biologist studies spadefoot toads

By MELISSA HOWARD

An ugly man may be unkindly described as a toad, but a real male toad may be downright alluring to females.

UNM biologist Bruce Woodward is looking for the reason that some large male spadefoot toads get to mate more often than smaller ones. The National Science Foundation is funding his research, which tests the idea that females select large males so their offspring will have a better chance of surviving or growing to a large size.

"The phenomenon of female choice of breeding partners is documented in many animals," says Woodward, "usually in situations where males control access to shelter, food or other desirable resources." In addition, "investigators studying a wide array of organisms think females also pick mates on the basis of male genetic quality," says Woodward, "but we have little evidence for it at present."

Female spadefoot toads "probably have the option of choosing mates because there are usually many more males than females present and attempting to mate," says Woodward, a visiting research assistant professor in the UNM biology department and a graduate of the University of Connecticut.

Male spadefoot toads do not remain with the female after breeding and do not help rear the young or offer any other resources. So, says Woodward, "if females are choosing mates it has to be on the basis of genes." Above-average size probably is the indicator to the female of superior genetic material in a potential mate, because a large toad is probably older and has proved his ability to survive.

In his UNM lab, Woodward has mated a female spadefoot with first a smaller and then a larger male, then compared the offspring from each union "to examine the effect of paternal genes, because any differences between these

half-siblings must be due to the paternal genetic input." Of several hundred spadefoot half-siblings raised in his lab, Woodward has found that "large males consistently produced offspring with higher survival and faster growth rates, establishing that large males would be desirable mates and suggesting that large males possess superior genes."

In one experiment juvenile half-siblings resulting from large and small males were raised together and required to compete for food. "Offspring of large males consistently grew larger," Woodward says, "suggesting that large males possess genes which enhance competitive ability."

To test his ideas further, Woodward is now raising the offspring of natural matings between spadefoot toads who choose their own partners and the offspring of matings he arranges. Spontaneous matings probably reflect both female choice and the outcome of male-male competition, Woodward believes, because male toads are known to wrestle with their rivals and to use distinctive vocal calls to attract females' attention.

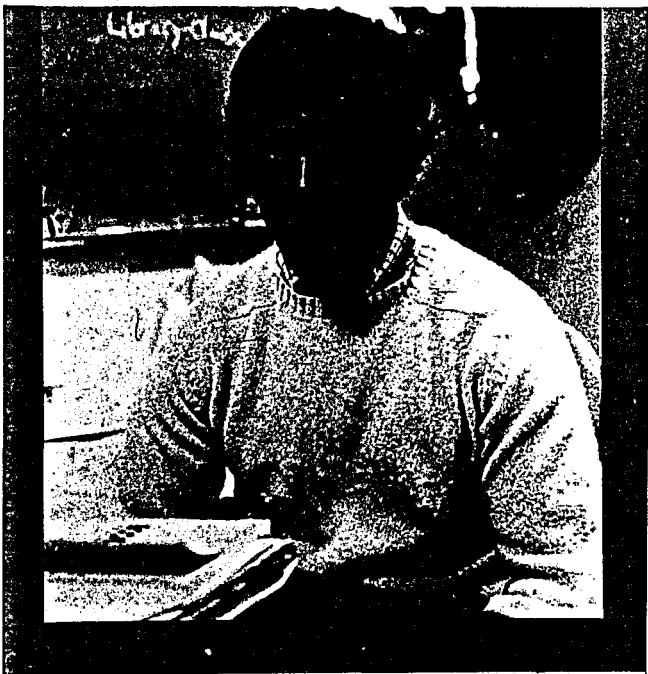
Jim Gosz continues to be one of our most visible and productive scholars. Early in the FY he was asked by the National Science Foundation to apply for the position of Director of its Ecosystems Study Program, the largest of the programs within the NSF. If Jim is eventually selected as Program Director it will mean his going to Washington D.C. for two years beginning September 1984. This would bring a great deal of credit to the department and UNM.



We received word on 31 May 1983 that the National Science Foundation has awarded \$98,453 to Professors Jim Gosz of our department and Doug Brookins (Geology) to continue its support of their project, "Quantification of Atmospheric Inputs with Strontium Isotope Ratios." Dr. Gosz has served on two NSF review panels (Long Term Ecological Research Program, Ecosystems Study Program) and is a member of the Organizing Committee for the Sixth International Environmental Biochemistry Symposium. Through his various professional activities Dr. Gosz continues to bring a great deal of visibility and respect to the University of New Mexico.

6/83

Dr. Molles strikes again. In another project supported by the New Mexico Game and Fish Department, Manuel will be saving the endangered Socorro isopod with funds provided by the Share with Wildlife Program.



Dr. Manuel Molles has received considerable local publicity during Spring Semester 1983 for his work with the endangered Socorro isopod, Thermospaeroma thermophilum (see article below and Albuquerque Journal article, 8 April 1983). Now his work on stoneflies and caddisflies is becoming nationally recognized. On 24 May 1983, Dr. Molles was invited to present a symposium paper at the Fourth International Symposium on Trichoptera to be held at Clemson University, South Carolina, 11-16 July 1983. Manuel will talk about his studies on casebuilding by caddisflies at various elevations in New Mexico mountain streams. Manuel, who received his Ph.D. at the University of Arizona, has been a member of our faculty since August 1975.

6/83

Tax Refund At Work



Journal Photos by Brian Walcott

**Professor Manuel Molles
Breeds Socorro Isopods
In Tank. Inset:
Endangered Creatures
Resemble Common Pill
Bugs**



Wildlife Fund Helping Small Creature

By NOLAN HESTER
Journal Staff Writer

University of New Mexico professor Manuel Molles leans over a bubbling aquarium, his own voice bubbling with excitement. He pulls out a small plastic container and, with a flourish, pulls off the top to reveal ... bugs.

Small, gray and unappealing, these seemingly insignificant creatures are just part of the state Game and Fish Department's Share With Wildlife program. Begun last year, the program allows state taxpayers to earmark part of their income tax refunds for helping wildlife of all kinds.

While the department has a \$10 million budget, most of that money comes from hunting and fishing license sales and goes toward management of species shot or hooked. Share With Wildlife funds have enabled the department to begin managing the 375-plus non-game species in New Mexico, including Molles' passion — the endangered Socorro isopod.

ro isopod.

The program garnered \$256,000 last year — far more than expected for the fledgling program. But donations this year are lagging. Department officials said the falloff may stem from publicity last year over plans to use over the money for game species. After a flurry of protest, the department reversed itself and appointed a committee to draft guidelines on spending the money.

Associate Director Wain Evans said the guidelines ensure that tax-refund money will be used on animals traditionally shortchanged. For example, Evans said some money will be spent on the desert bighorn sheep and Gila trout — both game species. But he said both are endangered and need extra help to survive.

Beyond professor Molles' research on the Socorro isopod, Share With Wildlife donations also will be used to: re-establish the Rio Grande cutthroat and Gila trout, transplant desert bighorn sheep, study bobcat

populations, rescue injured wildlife, and restore Hidalgo County's San Simon Cienega.

The cienega lies on the San Simon River southwest of Road Forks. By fencing cattle out of four acres and removing a series of check dams, the department hopes to revive the nearly vanished cienega — and the native plants and animals which once depended upon it.

The change will take years. But without Share With Wildlife funds, John Hubbard of the department's endangered species program said, "We were on the verge of losing it completely as a wildlife area."

The Socorro isopod also may be plucked from extinction with Share With Wildlife research. Found in only one spot in the world, the creatures had been thought extinct until 1978 when a researcher found them by accident.

Resembling common pillbugs found under damp logs, isopods are not bugs at all. They are crustaceans, related to today's shrimp and crabs. Molles said

some scientists believe New Mexico's population is a remnant of when this state was covered by a shallow sea.

Molles began the breeding last November with 200 isopods taken from the wild. By now, however, Molles has nearly 4,000 isopods breeding away in his lab. Meanwhile, Game and Fish officials are scouting the state for places to reintroduce the creatures, which they hope to do by this fall.

The project, of course, begs the question: Why so much fuss over a little old bug?

"They can be justified in several ways," said Molles. Lessons learned saving the Socorro isopod can be used to save endangered species that are more visible but no more precious — California condors, whooping cranes and Mexican wolves.

Still, beneath the professor's cool, scientific justifications lies a more fundamental reason for his work. Like millions of other inconspicuous creatures, Molles said these homely isopods are "the foundations of entire ecosystems."

Our next Newscast demonstrates the benefits of cooperation when biologists with seemingly unrelated interests get together. Dr. Van Horne has long been interested in population biology of vertebrates, especially small mammals and birds, whereas Dr. Cates is a plant biochemist. Their joint effort has the potential for future long term interaction with the U.S. Forest Service.

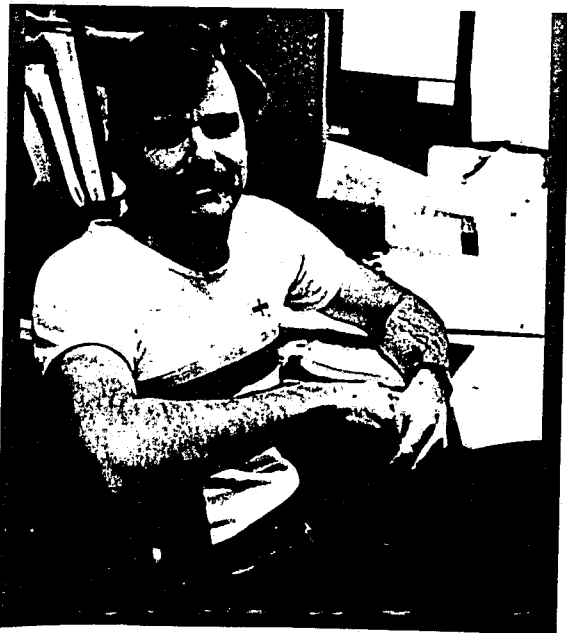


The Pacific Northwest Forest and Range Experiment Station, of the U.S. Forest Service, of the U.S. Department of Agriculture (whew!) has recently awarded Dr. Bea Van Horne and Dr. Rex Cates of our department \$40,117 to study "Food Quality for Black-Tailed Deer in Spruce-Hemlock Forests". The comparative research agreement began 30 March 1983 and will expire 31 July 1984. Bea finished her Ph.D. in our department in 1982 and recently married Dr. John Wiens. She will be doing all of the field work on this project. Rex joined our faculty in 1975 and his laboratory has pioneered the investigation of the interactions between foliage protein and the foliage chemical defense systems of forest trees and their effect on forest pest population dynamics.

6/83

Even biologists get jobs. The job market for Ph.D's in Biology was tight this past year, but our graduates were fortunate to secure some of the most highly sought-after positions. We hope that Rich Bradley is typical of the type of student we are trying to train in Biology.

Also attached is a copy of a letter from a former New Mexico resident who is now a faculty member at the Southern Illinois University School of Medicine. Dr. Chavez was visiting Dr. Kelley in the Anatomy Department at the Medical School and we invited him to present a seminar to our department. His comments are of interest.



Dr. Richard Bradley has just accepted an appointment as Lecturer (=Assistant Professor) in the School of Biological Sciences, University of Sydney, N.S.W., Australia. Rich, who just finished his Ph.D. in Biology in May, was a student of Dr. John Wiens and his dissertation work involved studying the activity and population dynamics of the desert grassland scorpion in New Mexico. Rich has a busy summer prior to moving to Australia in September. He has been invited to present a seminar on his research at Princeton University in mid-June. Then in July he will spend three weeks at Explorer's Inn Research Area in the Amazon Basin of Peru. While on the faculty of the University of Sydney, Rich will teach only one course during fall and winter quarters and will have each spring quarter free to work on his research (perhaps UNM faculty should be treated this way?). Congratulations are due Dr. Bradley for having secured what turned out to be one of the most attractive and highly sought after positions in this year's job market.

6/83



Southern Illinois University
School of Medicine
Southern Illinois University at Carbondale
Carbondale, Illinois 62901

Anatomy
Lindgren Hall

August 23, 1983

Dr. Donald Duszynski, Chairman
Department of Biology
University of New Mexico
Albuquerque, NM 87131

Dear Dr. Duszynski:

The purpose of this letter is to thank you for the kind hospitality you and your faculty extended to me during my visit to your department last week.

I was most impressed with your facilities and it is my opinion that you have a stellar department comparable to any major university in the United States. You are especially strong in the areas of ecology and environmental biology. You have done a great service to UNM and the state of New Mexico.

As you know, I am a native New Mexican and in the mid 1960's I had to attend university out of state in order to obtain a quality education in biology. I am happy to say that situation is no longer true and now New Mexicans have access to one of the finest biology departments in the country.

With my best wishes to you and your faculty, I remain

Sincerely yours,

A handwritten signature in cursive script, appearing to read 'Daniel J. Chavez'.

Daniel J. Chávez, Ph.D.
Assistant Professor of Anatomy

DJC/ct

This Newscast focuses on Ms. Sarah George, one of our outstanding graduate students. This past year Ms. George applied for three nationally competitive awards and received all of them! She has been at UNM since Fall Semester 1980 and plans to graduate in May 1984. Sarah was a National Merit Commended Scholar in high school and prior to coming to UNM she graduated with honors from the University of Puget Sound (B.S.), was a National Science Foundation research assistant at Fort Hays State University where she completed her M.S., and served as a Curatorial Intern at the American Museum of Natural History.



Sarah George is a doctoral candidate in Biology working with Dr. Terry L. Yates. This past Spring Sarah received three grants from national organizations that merit special recognition. On 22 April, Delta Delta Delta National Sorority awarded her a \$3500 competitive scholarship to help her complete the last year of her Ph.D. On 23 April, she was notified by the American Museum of Natural History that she had been awarded \$700 by the Theodore Roosevelt Memorial Fund to support her doctoral field research. And on 29 April she received word from the American Society of Mammalogists that they had awarded her a \$500 grant-in-aid of research to complete her doctoral research; this was one of only nine awards made this year. Sarah's research involves studying the genetic relationship between North American shrews. During the past three summers she has collected shrews from throughout North America, Mexico, northern Europe and Japan.

7/83

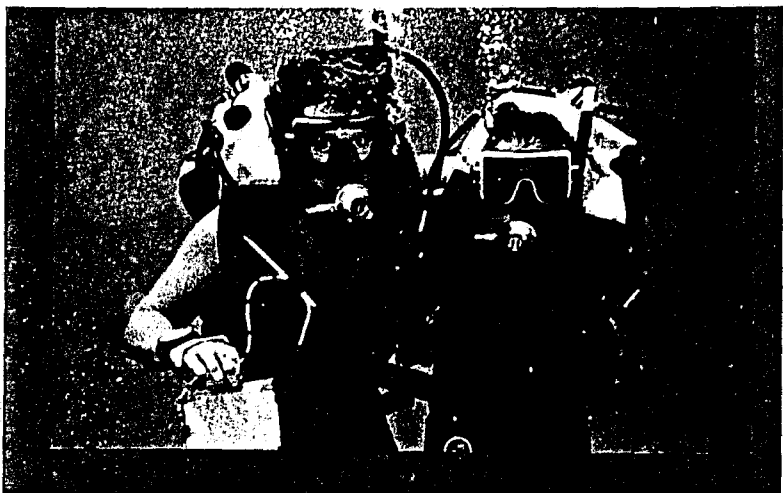
This "dynamic duo" is at it again! If money talks (grant money, that is), then the message is that this is one successful team of ecologists. Where do they find the time? Aside from an obviously heavy research schedule and full teaching responsibilities, both Cates and Gosz are heavily involved in community activities. Dr. Gosz and his family are "farmers", actively involved in 4-H. Jim is a rabbit and swine project leader for the Ponderosa 4-H Club and at this year's State Fair the Goszs' entered, and won several blue ribbons for their poultry, pigs and angora rabbits. Dr. Cates is an ordained bishop in the Church of Latter Day Saints and deals on a personal basis with thousands of Albuquerque Mormons each year.



This pair generates so much money we should let them run the University. URM might make a profit! Dr. Jim Gosz (on the right) and Dr. Rex Cates have received another large federal grant. Their joint research effort, "Role of plant secondary chemistry in ecosystem processes" was awarded a total of \$591,989 by the National Science Foundation. The project began 1 June and NSF will support it for the next 42 months. Dr. Gosz joined the faculty in Biology in August 1970; since then he has been successful in having nearly 30 state and federal grants funded for \$1,800,000. Dr. Cates came to URM in August 1975 and during his eight years in our department 18 state and federal grants have been awarded him and his coworkers totaling \$1,557,138.

7/83

Mr. Charles Reith has been winning awards for the "Outstanding Student Paper" at the regional AAAS meetings for four of the last five years. This year he won two "Best Student Paper" awards and this certainly brings visibility to our program. Charlie has been an outstanding graduate student, he completed all requirements for the Ph.D. in Fall Semester 1983. He is now an environmental scientist with the IT Corporation of Albuquerque. Dr. Reith is one more example of how well our Ph.D's are doing in securing professional positions in todays highly competitive job market.



Blub..blub..blub... The diver on the left is Charles Reith, accompanied by his wife, Nancy. This photo was taken during a 12 day field trip to the Discovery Bay Marine Lab, Discovery Bay, Jamaica, with the Advanced Marine Biology Class (Biol. 496/596) last March. Charlie is a biology graduate student who will be completing his Ph.D. this fall with Dr. Loren Potter. His underwater investigations on demosponges (during the field trip) were reported at the SWARM meetings of The American Association for the Advancement of Science in Logan, Utah, where he received the award for the Outstanding Student Paper. Mr. Reith also won this same award in 1978, 1980 and 1982 (Congratulations!). At these same meetings, he presented a second paper on vegetational reclamation following surface mining, for which he received the Atlantic Richfield Award for "Best Student Paper in the Environmental Sciences". This work, a part of his dissertation research supported by Dr. Potter's \$45,000 grant from the Office of Surface Mining, was also the subject of articles in the Albuquerque Journal and the New Mexico Business Journal. We're all quite proud of Charlie and his accomplishments.

10/83

Not only was Dr. Vogel's year in Sweden a rewarding professional experience, but it was a pleasant family experience as her husband Al and their two daughters were able to spend the year there too. All four of them learned to speak Swedish in a relatively short time, although the girls were far more proficient. This was due, Kate explained, to their total immersion in the language at a local school. It was their only language for communication between peers, whereas most of Kate's co-workers spoke English. The Vogel family thoroughly enjoyed their time abroad, but we are most happy to have them back.



Dr. Kathryn Vogel has just returned from a year in Sweden (August 1982-July 1983) where she was a visiting Research Professor in the Department of Physiological Chemistry, at the University of Lund. Funding for the year's intensive research activities, on macromolecular components of connective tissue matrix, was provided by her 5-year Research Career Development Award (NIH). During her time in Europe, Dr. Vogel presented papers at meetings in Uppsala, Sweden, and London. She also gave invited seminars at the Unilever Corporation in Bedford, England, and the Kennedy Institute of Rheumatology, London. Kate finished up this most rewarding leave by reporting her research findings at the International Symposium on Glycoconjugates, in Ronneby, Sweden. It is obvious, based on her research in Sweden alone, that Kate Vogel is developing a strong international reputation in her field, and in so doing, bringing more recognition to UNM.

10/83

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In the biological sciences only individuals with well established and respected reputations are asked to write articles for Natural History magazine. This past year, two of our faculty, John Wiens and Terry Yates have been so honored. Copies of their articles are attached for your pleasure.



Have you seen the latest issue of Natural History magazine? That striking cover-mole, with the sensuous naked nose, has been the object of Dr. Terry Yates' affection for over ten years. Star-nosed moles and their unique habits and evolution are featured in Yates' fascinating cover article, "The mole that keeps its nose clean". Natural History, a popular, beautifully illustrated magazine published by The American Museum of Natural History, has a broad readership aimed at the educated layperson. It is considered an honor to be invited to write a paper for Natural History, and Professor Yates (on the right) is not the only Biology Department member to be recognized this year. The March issue (1983) featured an article by Dr. John Wiens "Competition or peaceful coexistence?". This paper, based on a long-term study of bird communities in western North America, concludes that competition is not the primary factor organizing many avian communities, as is often predicted by Darwinian theorists. Wiens' views, thought to be heretical by many community ecologists, are now gaining widespread recognition.

11/83

Competition or Peaceful Coexistence?

In some environments, the "great battle of life" involves less competition between species than Darwinian theorists once assumed

by John A. Wiens

Examples of competition between species seem to abound in nature. A calliope hummingbird feeding at a nectar-rich flower in a mountain meadow is apt to be supplanted by a larger broad-tailed hummingbird, which, in turn, may be chased from the flower by a rufous hummingbird. Deer mice on islands that have no meadow mice seem to occupy a broader range of habitats and exploit more types of foods than do deer mice in adjacent mainland areas where meadow mice are present. As one travels up a mountainside in western North America, the scrub jays common at lower elevations may suddenly disappear, replaced by ecologically similar Steller's jays.

These kinds of observations have led many ecologists to conclude that competition between species is commonplace and that it determines, to a great extent, how natural communities are put together. According to this view, species are likely to compete if they require similar resources, such as food, habitat, or breeding sites, and if those resources are in limited supply. This competition will lead to the exclusion of one species by another or, over evolutionary time, to divergence in the species' use of resources until competition is minimized. Competition thus limits the number and kinds of species that may coexist in an environment.

These views are by no means new. To Charles Darwin, competition between and within species was a fundamental component of the "struggle for existence." In *On the Origin of Species*, he noted: "We have reason to believe that species in a state of nature are limited in their ranges by the competition of other organic beings quite as much as, or more than, by adaptation to particular climates." Elsewhere in this work, Darwin provided examples of such competitive exclusion:

The struggle will generally be more severe between species of the same genus, when they come into competition with each other, than between species of distinct genera. We see this in the recent extension over parts of the United States of one species of swallow having caused the decrease of another species. The recent increase of the missel-thrush in parts of Scotland has

caused the decrease of the song-thrush. How frequently we hear of one species of rat taking the place of another species under the most different climates! In Russia the small Asiatic cockroach has everywhere driven before it its congener. One species of charlock will supplant another, and so in other cases. We can dimly see why this competition should be most severe between allied forms, but probably in no one case could we precisely say why one species has been victorious over another in the great battle of life.

In the early 1960s, interest in the role of competition was stimulated by the development of mathematical theories of the ecology of communities. Numerical models attempted to describe the degree of difference needed between species to permit their coexistence, how resources might be subdivided between species, how the configuration of a habitat might affect the number of species present, how a species might expand its use of resources in the absence of a competitor, and so on. In part to make the mathematics tractable, such models contained the assumption that the communities they described were in equilibrium—that is, that the species making up a community were in balance with their resources and with one another. This theoretical work generated interesting questions and neat predictions about competition and communities and sent ecologists scurrying into the field and the laboratory to test the predictions and answer the questions.

Over the past decade, my student John Rotenberry (now on the faculty at Bowling Green State University) and I have explored these ideas. We have concentrated on communities of breeding birds at a number of locations in western North America, scattered from the prairies of the Great Plains to the shrub-grass mixtures (shrubsteppe) of the Great Basin. We chose these environments for several reasons. First, they are open. Prairie grasses and shrubsteppe plants, such as sagebrush, rarely exceed knee height; shortgrass prairies often resemble a well-trimmed lawn. We can easily see what the birds are doing. Second, these environments generally support relatively few species of grasses or shrubs and their phys-

ical structure is simpler than that of a multilayered forest. Consequently, different species of birds should be compelled to compete for the same resources more often than in more complex habitats. Third, the production of plant material and insects is relatively low, which we believed was another reason the birds might often have to compete for food. Finally, the habitats support few breeding bird species (generally two to eight per twenty-five acres), and the possible pathways of interactions among the species should thus be much less complex and easier to study than in habitats with many species.

We fully expected either to find competition going on in these communities or to be able to document patterns confirming that competition had existed in the past. As the research progressed, however, these expectations proved to be naïve. We now think that direct, ongoing competition is infrequent in these systems and that it may have relatively little to do with the organization of the bird communities. But I am getting ahead of my story.

The communities of breeding songbirds in the grasslands and shrubsteppe of North America are dominated by a few characteristic species—eastern meadowlarks, dickcissels, and grasshopper sparrows in the lush eastern grasslands; western meadowlarks, horned larks, and longspurs in the shortgrass prairies; and sage thrashers, sage sparrows, and Brewer's sparrows in the shrubsteppe. These and the other songbirds that are present are ecologically similar. All of them forage on the ground or in low vegetation and feed primarily upon insects and other arthropods during the breeding season. Most nest directly on the ground, in small flowering plants, or in shrubs, and males proclaim their territorial holdings by singing from exposed, elevated perches or in flight. Some, such as the meadowlarks and the dickcissel, mate polygamously, but most form monogamous pair bonds that are maintained through the breeding season. In the shrubsteppe of Oregon, where we have watched the birds closely for several years, adults seem to return to previous breeding locations for several successive years, but young birds appar-

ently settle elsewhere to breed. This pattern is likely to hold in other shrubsteppe and grassland habitats as well.

Competition theory suggests that, such general similarities notwithstanding, these coexisting species must be adapted to grassland and shrubsteppe conditions in different ways. One way to accomplish this necessary separation among the species is through differences in diet. If, as is generally assumed, populations are normally limited by their food supplies, then the feeding habits of coexisting species should reveal something about their relationships, including possible competitive interactions. To test this prediction, we sampled the diets of breeding species at four widely spaced locations for two, and in some cases three, successive years. Our sampling method involved collecting the birds and identifying food fragments in their stomachs. Unexpectedly, the patterns that emerged seemed muddled. Some of the coexisting species did differ substantially in the types of prey they consumed but often not consistently, from year to year. At a South Dakota prairie, for example, both 17-gram grasshopper sparrows and 32-gram horned larks gleaned large numbers of moth and butterfly larvae from the vegetation one year. The following year, however, the larks switched to a diet composed largely of chenopod seeds, while grasshopper sparrows preyed almost entirely upon grasshoppers. Moreover, in some years the diets of grasshopper sparrows overlapped extensively with those of the substantially larger (110 grams) meadowlarks.

Neither insect taxonomy nor avian body size thus seems to be a good measure of differences in diet among members of these communities. Because birds use their bills to obtain food, however, bill size might be more closely related to diet. Community theory, in fact, predicts that species should be evenly spaced along a bill-size gradient, each successively larger species having a bill about a third again as large as that of the next smaller species. Species with bill-size differences much smaller than this 1.3:1 ratio presumably will have extensively overlapping diets and will thus compete, leading to the elimination of one or the other. On the other hand, if two adjacent species on the gradient differ by a substantially greater amount, a third species, with an intermediate bill size, should be able to invade the community. The community should thus rapidly attain this even-spacing configuration, but the bird communities in grasslands and shrubsteppe do not. In these habitats, the spacing of species along a bill-size gradient is outrageously uneven, and there are sub-

stantial gaps in the sequence. In the South Dakota prairie, for example, grasshopper sparrows had a bill only 1.03 times longer than that of chestnut-collared longspurs. The bill of horned larks was 1.28 times the size of that of grasshopper sparrows (reasonably close to the predicted ratio), but the bill of the next and largest species in the sequence, the western meadowlark, was 2.26 times the length of a lark's bill. Other communities we looked at also seemed less consistently patterned and less fully packed with species than the theory led us to expect. Like body size, bill size failed to turn up clear evidence of differences caused by competition.

We also investigated the size of the food items eaten by the birds. Although the kinds of insects or seeds eaten by different species overlapped, perhaps the sizes might not. Coexisting species could then diverge ecologically by specializing on prey of different sizes irrespective of taxon. One of our study sites, a west Texas shortgrass prairie, seemed to support this possibility. There, the breeding species (horned larks, grasshopper sparrows, and western meadowlarks) differed substantially in the sizes of the foods they consumed. Furthermore, they differed in strict accordance with their body- and bill-size rankings. Other locations, however, produced conflicting results. At our South Dakota location, the diets of all species included prey of various sizes and overlapped extensively. The birds in the southeastern Washington shrubsteppe ate food items of virtually identical sizes. At both sites, there were considerable differences in bill and body sizes among the birds.

Excited by these findings and wanting to learn what, if not bill or body size, was determining the birds' diets, Rotenberry subjected the Washington shrubsteppe birds to greater scrutiny. By sampling their food habits frequently, he demonstrated that each species changed its feeding habits dramatically through the breeding season and that the diets of the different species changed in tandem. For example, as the sage sparrows switched from a diet dominated by beetle larvae, grass seeds, weevils, and grasshoppers in April to one dominated by weevils and lepidopteran larvae in May, so did the larger horned larks. Overall, the species seemed to be responding opportunistically and similarly to seasonal changes in the availability of different types and sizes of food. This certainly is not the sort of pattern one would expect of a set of species locked in intense competition over food.

Important as food is, it is only one of the resources over which competition might occur. Habitat—a place to live—is

equally vital. If the habitats of coexisting species differ consistently, even in subtle features, this might circumvent competition even among species with similar diets. After all, if the species obtain their food in different places, what does it matter if the prey are of the same types or sizes?

To determine the relations of birds to their habitats, ornithologists generally look at habitat in structural terms, measuring such features as vegetation height and density, understory coverage and stratification, grass cover, and litter accumulation. The low vegetation in shrubsteppe and grasslands makes such features easy to measure, and we recorded habitat structure in many locations. This information allowed us to ask, Are there clearly defined sets of co-occurring species that are closely related to features of habitat structure? If so, they might represent the groups of competitively adjusted species that theory leads us to expect.

The answer to the question turns out to be yes or no, depending on scale. When the entire spectrum of environments from midwestern tallgrass prairies to northwestern shrubsteppe is considered, well-defined groupings of co-occurring species do exist and are clearly related to large-scale variations in habitat structure. The distribution and abundance of dickcissels and grasshopper sparrows, for example, are tightly linked to tall vegetation, extensive grass cover, and a well-developed litter layer—features of tallgrass prairies. Sage sparrows and sage thrashers, on the other hand, avoid grassy areas and instead occupy habitats dominated by shrubs, where vegetation is patchily distributed and large areas of bare ground are common—typical shrubsteppe conditions.

On this large a scale, our findings offer little more than intuitive associations of birds with certain habitats, which any practiced bird watcher can make. To provide significant evidence that these sets of species have been organized by competitive interactions, we would need to discover the same bird-habitat relations when the focus is restricted to small-scale variations within one habitat type, such as the shrubsteppe. When we looked at a variety of shrubsteppe locations, however, we detected no consistent sets of co-occurring species. The species, instead, varied in abundance and were distributed independently of one another. Moreover, at this scale we found that in most cases the associations between individual species and features of habitat structure were weak at best. Several methods of analysis indicated that, overall, less than 17 percent of the variation in the distribution and abundance of the birds in these areas

could be explained by habitat structure.

Clearer patterns of bird-habitat association emerged when we considered the species composition of the vegetation, instead of its structural configuration. Within the shrubsteppe, the abundance of sage sparrows clearly varied in accordance with the amount of big sagebrush present, while sage thrashers and Brewer's sparrows varied independently of sagebrush but seemingly avoided areas where small spiny shrubs, such as hopsage or budsage, were common. These associations were not strong, but they do indicate that the plant species composition of an area may be more important to the birds than has been thought. Desert shrubs vary in the chemical composition of their leaf tissues, and these chemical differences may influence the abundance and variety of insects present on different plant species. If this is so, some apparent associations of plants and insect-eating birds may be reflections of the birds' food preferences.

In any case, the birds that breed in America's shrubsteppe and grasslands exhibit little regard for the predictions of ecological theory. Variations in the population size of one species in an area are largely independent both of the presence or absence of other species and of variations in habitat features. Coexisting species appear to use resources more or less opportunistically. We find little evidence that they are currently much concerned about competition with one another or that competition in the past has led to an orderly community structure.

When observations of nature do not match the predictions of a theory, we must ask why. In this case, one possibility is that the theory is inappropriate for grassland and shrubsteppe bird communities. A basic assumption of competition theory is that the communities one observes in nature, like the mathematical community models one can create, are in equilibrium. Is this assumption violated in our systems?

As any farmer or rancher will tell you, both midwestern grasslands and western shrubsteppe are extremely variable and unpredictable environments. From one year to another, the weather can vary from deluge to drought, and the effects on natural vegetation, as well as on croplands and pastures, can be profound. The weather in these environments is certainly not in equilibrium, but are the bird communities? The answer hinges in part on how long it takes the birds to respond to changes in their environment. If they take much time to adjust, then the interactions between species may be altered and the effect of competition on the community will

be diffused. If, however, the birds respond with no appreciable time lag, they might maintain a rough balance, or equilibrium, with resource levels. In that case, competition could still have a strong influence on community structure.

Our shrubsteppe studies included one of the driest years on record in the region, followed by two abnormally wet years. This provided an opportunity to observe how the vegetation and the birds reacted to such dramatic fluctuations. The response of the vegetation at our sites was clear-cut: in the two wet years that followed the drought, annual plants and grasses flourished. The overall height of the vegetation and the extent of ground cover increased; the amount of bare ground and patchiness decreased. The bird populations also varied, but none of the species changed in a way that was clearly associated with changes in habitat structure.

Another alteration in habitat, this time a result of human activities rather than weather, provided some perspective on why the birds may not closely track such variations. At one of our sites in southeastern Oregon, state and federal agencies applied herbicides as part of a "range improvement" program. The following fall, the native shrub, sagebrush, was disked and an exotic bunch grass, crested wheatgrass, planted. Because we had monitored this site for three years before the application, we could record the response. The vegetation, of course, was decimated—sagebrush coverage decreased from more than 25 percent of the ground area to less than 2 percent, and no vegetation taller than eight inches remained. Despite this, sage sparrows, which had in past years shown a clear preference for sagebrush, returned to the site in about the same numbers as before the treatment. We think that these birds had previously bred on the site and that the urge to breed in a traditional location overrode the tendency to select an appropriate habitat. Our continuing studies should record a decline in sage sparrows as these adults die or give up and move elsewhere. This example indicates that time lags in the responses of individuals to environmental changes can complicate attempts to compare natural systems to ecological theory.

In variable environments, such as grassland and shrubsteppe, populations may often be out of phase with their resources. This may provide the setting for feast or famine situations: periods of benign environmental conditions, when resource supplies may far exceed demands, may be punctuated by periods of sharply reduced resource availability. During these eco-

logical crunches, the supplies of resources may be so limited that competition among the species intensifies, leading to precisely the sorts of consequences predicted by theory. During the intercrunch intervals, however, the relative superabundance of resources may render competition unnecessary.

All of this suggests that competition is not the ubiquitous force that many ecologists have believed. Certainly, it does occur in some situations. Careful studies of groups of hummingbirds feeding on nectar, for example, have clearly documented competition between the birds, as well as between the birds and bees. Competition may be more likely to exist and easier to perceive in stable environments. In unstable environments, however, population sizes may be unrelated to immediate resource conditions, and assemblages of species may often not express the relationships that theory says they should.

Upon reflection, these statements seem to make good sense. Why, then, have ecologists since the time of Darwin been so preoccupied with competition, and why, in thinking about competition, have so many assumed that nature is more or less in equilibrium? Part of the answer is that we have used simplified theories in an attempt to gain some understanding of nature. But our views have also been influenced by their cultural context. Science does not develop in a vacuum but is a mixed product, influenced by previous findings and ideas in the discipline and by the prevailing world views of the society in which it grows and matures. The notion of equilibrium is deeply embedded in Western culture. It derives from Greek metaphysics, which portrayed the universe as ultimately ordered and balanced, and it is expressed in the commonly accepted notion of a "balance of nature." Competition also occupies a central position in Western culture—witness its expression in sports, economics, space exploration, international politics, or warfare. Little wonder, then, that community ecologists expected that the species they studied would be in balance with one another and with their resources, and that the primary factor organizing communities would be competition. After all, we have grown up immersed in such a world view. But now, the birds of grasslands and shrubsteppe seem to be telling us that nature may not always be this way. Darwin's "great battle of life" may be fought in skirmishes that are interspersed with periods of relative peace.

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NATURAL HISTORY

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The Mole That Keeps Its Nose Clean

It spends half its time in the water and has a nose with twenty-two tentacles. Where did the star-nosed mole come from, anyway?

by Terry L. Yates

Photographs by Dwight R. Kuhn

Millions of years before people walked the surface of the earth, moles were tunneling beneath it. Today, the meandering surface runways made by these animals in their constant search for food are a familiar sight to many Americans, and yet few people have more than a vague understanding of the creatures that inhabit them. Of the many mole species living today, none is more bizarre than the semiaquatic star-nosed mole.

The star-nosed mole gets its name from a ring of twenty-two fleshy appendages on the end of its nose. No other mammal has such a structure. Each tentacle contains highly sensitive tactile organs, called Eimer organs, which function as mechanoreceptors. This creature makes great efforts to keep its nose clean, even occasionally dunking the nose in water to shake off dirt, and its nose is constantly in motion. Star-nosed moles often test potential food items by exploring them with their noses. With the aid of this remarkable structure and countless vibrissae on their faces, hands, feet, and tails, the moles feel their way through bogs and marshes. Their tiny eyes provide little assistance in this task because they are useless except for light detection.

The star-nosed mole occurs throughout much of the northeastern United States and eastern Canada. In the northern part of its range, it is found from Manitoba and Minnesota to as far northeast as Labrador and Nova Scotia. The species ranges southwestward through much of Wisconsin, northern Indiana, and Ohio; along the Atlantic coast as far south as southeastern Georgia; and in the Appalachian Mountains to eastern Tennessee and western North Carolina. The species becomes rare in the more southern portions of its range

but is often abundant in northern areas where it is free from competition with other mole species. Although most of its relatives are solitary species, the star-nosed mole appears to be gregarious or perhaps colonial.

The star-nosed mole is the only species of mole that is semiaquatic. Part of its time is spent burrowing beneath the ground and part is spent in the water. Its tunnels are often found near marshy areas or streams and frequently open directly into water. In winter, star-nosed moles often burrow beneath the snow and even swim beneath the ice in frozen lakes and streams. They are frequently captured in minnow and muskrat traps set several feet beneath the surface of the water.

Probably as a result of this penchant for the aquatic, the star-nosed mole has a number of features not shared by other moles. Its pelage, which ranges in color from black to brown, is longer and coarser than that of most other mole species and sheds water easily. Its hind feet are not webbed, but they are longer and wider than those of other species and obviously useful for swimming. Even the star-nosed mole's tail seems to be adapted for life in the water. It is considerably longer than those of other fossorial (underground) moles and may serve as a rudder. During winter and spring, the tail swells up with an increased deposition of fat. Although its exact function is not known, the extra fat may provide a reservoir of energy during the breeding season.

If these features dramatically differentiate the star-nosed mole from other North American moles, its method of burrowing clearly links it to the others and removes any doubt that it is part of the same family, Talpidae. Most burrowing mammals,

such as pocket gophers, hold their forefeet beneath their bodies when they dig; moles dig with their forelimbs held to the side. They can do this because their pectoral girdles are drastically modified and their pelvic girdles, by comparison, are relatively narrow and unmodified. One of the most striking features of the mole pectoral girdle is a joint between the humerus and clavicle. In most mammals, this joint is between the clavicle and scapula. The star-nosed mole, like other moles, has a long scapula, which articulates directly with the humerus. The humerus is a massive rectangular bone, very different from that of most other mammals, and it provides a large surface area to which the well-developed digging musculature is attached.

The massive muscles used by moles for digging tend to obscure the neck and cause the forepaws to be rotated parallel to the body. Mole forepaws are usually spade shaped and the palms are as broad as they are long. The fingers have powerful claws and the first four fingers have three flat, triangular flaps on the outer edges. The result of all of these modifications has been that moles have an increased mechanical advantage and efficiency in burrowing, even though they are not bigger than other burrowing animals and their tunnels are the same size.

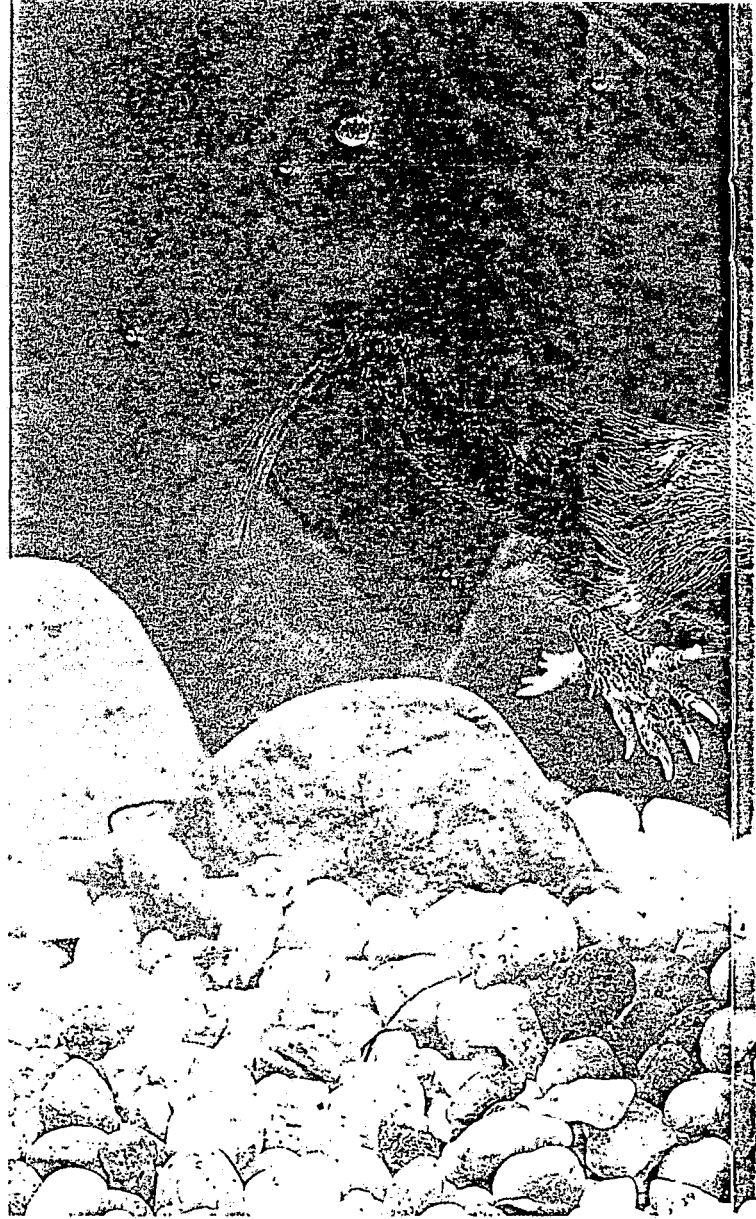
Star-nosed moles build tunnels similar to those of other mole species but typically construct them in poorly drained soils near marshes or streams, areas that other moles would shun. As such, their tunneling usually does not bring them into conflict with humans. The star-nosed mole generally constructs two types of tunnels, one shallow and one deeper. The shallow kind, which is usually dug in great numbers, is the result of the animal's constant

Unlike other moles, the star-nosed mole is semiaquatic. One poises at the edge of a pool, below, then dives in, where it soon latches on to a worm almost as big as itself, right. The animal is a strong swimmer and uses its large feet and tail to maneuver. Captured prey such as worms or tadpoles are towed to land before being eaten.



search for food. This type of tunnel is familiar to many Americans because it is usually only a few inches below the ground and forms a visible ridge of dirt, often extending across pastures, lawns, and golf courses. Most moles are pretty particular about their tunnels and won't tolerate even the slightest opening, but star-nosed moles are less fastidious that way. In extremely wet areas I have found active tunnels that were almost entirely exposed—they were little more than deep runways covered with grass.

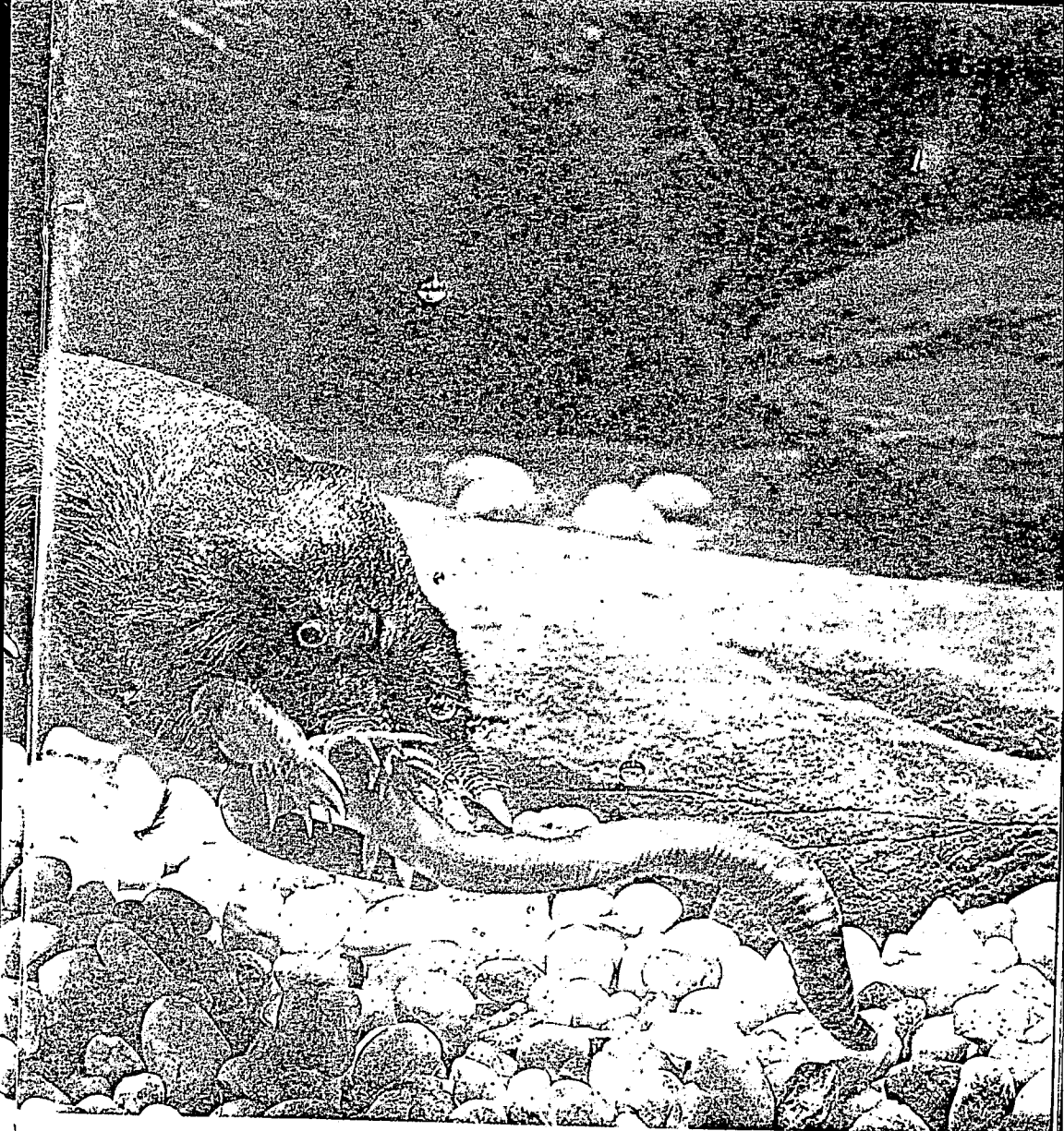
At the beginning of my research on star-nosed moles, now in its tenth year, I found that they were frequently rebuilding the shallow tunnels in the same spots year after year, even though the tunnels were often completely destroyed by rain and other natural forces. In an effort to determine how a blind animal could perform such a feat, I selectively destroyed sec-



tions of tunnel and marked precisely where each had been. The moles were able in every case to rebuild the old tunnel system. Examining these areas further, I discovered that the soil was less compacted in areas where old tunnels had been and realized that the animals were simply following, by touch, the path of least resistance. Since that time I have been able to divert individuals several feet away from their

normal tunnels by artificially compacting certain areas of soil. This tactic has proved crucial to our ability to capture live moles for research.

The other kind of tunnel the star-nosed mole constructs is deeper, perhaps several feet below the surface, and more permanent. This system of tunnels is used for resting, rearing young, and foraging for food when the surface of the ground is fro-



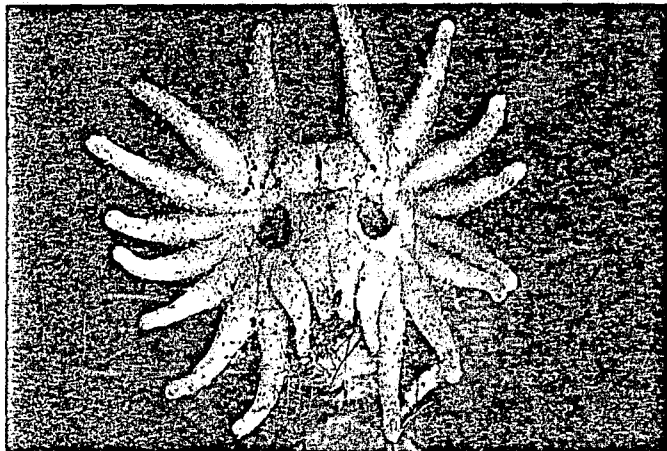
zen during the winter. These deep tunnels form the classic molehills out of which mountains are made. The moles can't build them simply by pushing into the soil, as they do with the surface tunnels. To build the deeper tunnels, the moles have to excavate, bringing soil to the surface and depositing it in a mound.

Star-nosed moles are not picky about their surface tunnels, but they are very

choosy about where they dig their nests and pick areas that are above high-water mark and near abundant food. Usually, they find some natural rise and create the nest by enlarging a section of tunnel and filling it with dry grass and leaves. Gardeners occasionally unearth nests since star-nosed moles sometimes choose manure piles or compost heaps as nesting places.

The moles breed once a year, and peak breeding time varies geographically. Litters range from three to seven young; they have been recorded from late March to early August. Although baby moles are naked at birth, the feet are well formed, the vibrissae on the snout are three to six millimeters long, and the star is evident although enclosed in a thin membrane. The young develop rapidly and apparently can

The star-nosed mole's nose is made up of twenty-two fleshy appendages that probe constantly for food. The two holes at the center are nostrils.



leave the nest when they are about four weeks old.

One cannot help but be impressed with the amount of food these moles eat daily. They have voracious appetites and consume 50 percent or more of their weight every day. I kept three of them alive in the laboratory for two days and they consumed seventeen dollars worth of earthworms. Their diet appears to vary by locality but these animals seem to eat certain invertebrates and little else; they show little interest in vegetable matter. In many areas, they seem to covet white grubs and earthworms, but those living near large bodies of water prefer aquatic annelids and insects. These feeding habits probably reflect what is available.

Whatever the food source, the mole's high metabolic rate, coupled with the large amounts of energy needed for tunnel construction, makes it constantly hungry. Deprived of food, star-nosed moles will starve to death in a matter of hours. I have also found that if temperatures drop very low and food is in short supply, these mammals have difficulty regulating their body temperatures. That such a creature exists so far north, and even thrives there, is amazing. The moles are active year-round and appear to spend more time in the water in winter than summer.

They are active day and night and spend more time on the surface of the ground than most mole species. I have frequently trapped this species in above-ground runway traps set for small rodents or under overhanging banks or in one-gallon containers buried in the ground. They are bold creatures, which would be admirable if they weren't also blind. As it is, their incautiousness makes them prey to a great many animals, including great horned owls, screech owls, red-tailed hawks, foxes, skunks, weasels, and snakes. William J. Hamilton of Cornell University has suggested that large fish may occasionally grab a star-nosed mole, and house cats take large numbers.

My general interest in the natural history and biology of this unique mammal has led me more recently to wonder about its evolution. The star-nosed mole's pectoral girdle shows it to be related to other moles but what, I wondered, had produced the extensive morphological and presumably genetic divergence of this species? Either it had not shared a common ancestor with other mole species for an extremely long time or it had evolved at a more rapid rate than the other North American species. Before I could consider the evolutionary history question, however, I had to examine the amount of vari-

ation in populations of the star-nosed mole across its range. Studies of fossorial mammals other than moles have found great interpopulational variation in morphology, chromosomes, and genes. These high levels of variation among animals of the same species have been ascribed to the lack of mobility, low reproductive rates, small population sizes, and high levels of inbreeding. I expected to find similar amounts of variation in populations of the star-nosed mole, the extent and nature of which would have to be understood before I could compare it with other species.

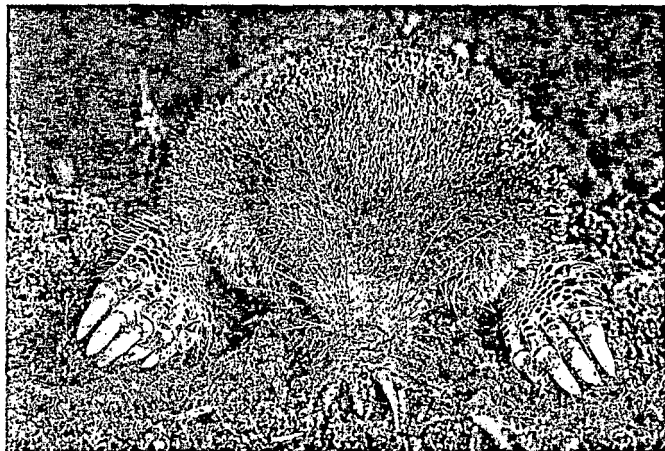
The first step, then, was to compare morphologies of 500 star-nosed moles from 300 locales. The first surprising finding was that the males are the same size as females. In all other species of fossorial moles, the males are significantly larger than the females. Whether this lack of sexual dimorphism in the star-nosed mole is the result of it being less fossorial or having a difference in social structuring cannot be determined at this time.

The second, also surprising finding was that star-nosed moles show very little morphological divergence across their range. Only two population groups can actually be called distinct geographic races and both of these occur in wide geographic regions. Most other fossorial mammals show more variation. For example, more than 200 such geographic races are currently recognized among Bolta's pocket gopher, which lives in western North America.

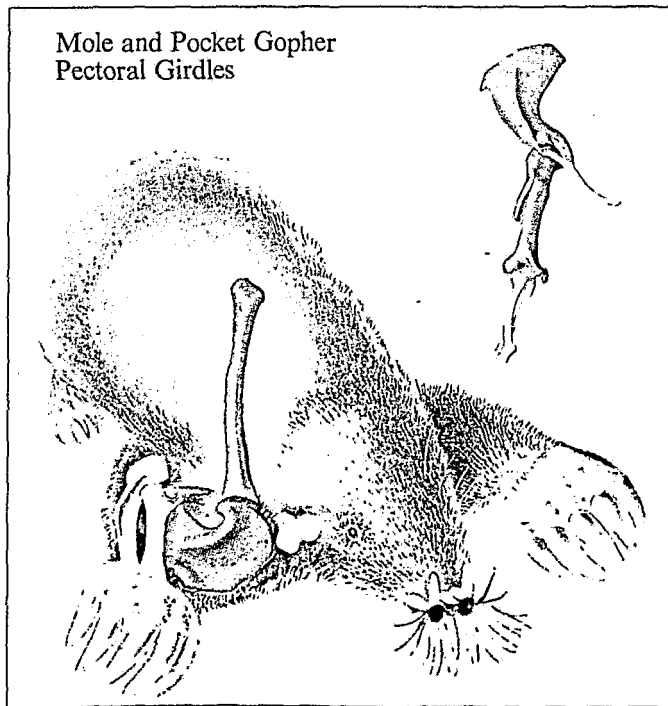
There are a number of possible explanations for the lack of morphological variation in these moles. One is that their population sizes are larger than those of other fossorial mammals and the gene flow among populations smooths out any differences among them. This seems unlikely, considering the special habitat requirements of the star-nosed mole.

Another possibility is that the environment in which star-nosed moles live is so unchanging that there has not been enough selection pressure to cause a change in phenotype. If this is true and if population sizes are similar to those of other fossorial mammals, one could reasonably assume that genetic mutations have taken place in numerous populations, but

Below: Moles dig with their forefeet held to the side, while most other burrowing animals dig directly beneath themselves. This difference is the result of a drastic modification in the mole pectoral girdle, illustrated at bottom. In most burrowing animals, such as pocket gophers, the scapula (blue) and clavicle (yellow) articulate directly with each other. But in moles, each articulates with the humerus (green), a comparatively massive bone.



Mole and Pocket Gopher
Pectoral Girdles



Douglas Cramer

independent of each other. In other words, the moles could have developed very different genes but not necessarily show any attendant morphological differences.

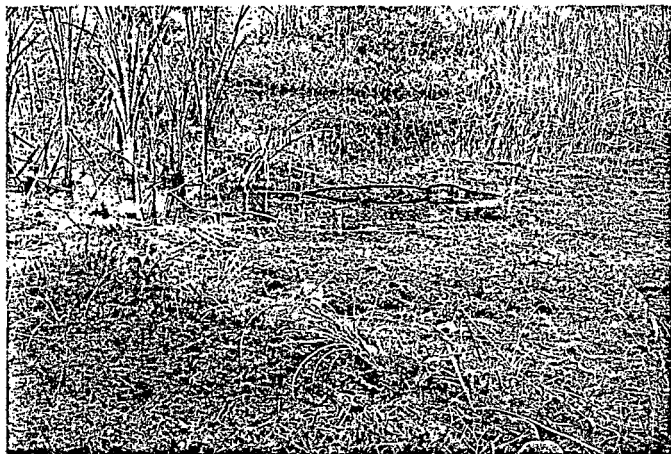
In order to test this possibility, Ira Greenbaum and I began a genic comparison between populations of star-nosed and other North American moles, using a technique known as electrophoresis. This technique, which involves passing a current through homogenized body tissues, permits a gene-by-gene comparison of individuals, populations, and species. These data can be used not only to determine relatedness but also to provide estimates of mutation rates and even rough estimates of how long two or more lineages have been evolving separately.

Our initial survey revealed very little genetic variation among the star-nosed mole populations generally, with rare allele and frequency differences from locality to locality. But the difference between the star-nosed mole and other North American species was striking. In fifteen of nineteen genes examined, we found an allele, or an alternative expression of the same gene, in star-nosed moles that we couldn't find in the other species. One of my graduate students, Dwight W. Moore, and I have expanded on this by considering other populations of star-nosed moles in the United States and additional mole species in Japan and Europe. Our results have been similar. Taken together, they seem to show many genetic differences between star-nosed moles and other moles. Based on this electrophoretic data and evidence from fossil records, I estimate that star-nosed moles diverged from other moles perhaps 30 million years ago, and somewhere in Eurasia. Ancestors of the other fossorial moles appeared in North America during the Miocene about 25 million years ago, long after their first appearance in Europe. Thus, the arrival of star-nosed moles in North America appears to be the result of an invasion separate from the one that brought other North American species here from the Old World. From a geological standpoint, their arrival may be relatively recent. Fossils of star-nosed moles dating from the middle or late Pliocene, 3 or 4 million

Although they are comfortable both wet and dry, star-nosed moles often build their burrows in marshy areas, below. This may give them the best of both worlds, but it also gives predators as varied as fish and birds a shot at them. At right, a star-nosed mole, still wet from an aquatic hunting expedition, stands on dry land with a prize worm.

years ago, have recently been discovered in Poland, whereas the oldest North American fossils of this genus date back 700,000 years. What all of this strongly suggests is that star-nosed moles didn't come to North America until the late Pliocene or early Pleistocene, when they crossed via the Bering Strait land bridge.

We don't know why they became extinct in the Old World. Perhaps they were unable to compete successfully with the fully aquatic desmans (Old World water moles) or were unable to adapt to changing climatic conditions or other factors. Whatever the reason, star-nosed moles obviously have lived, and evolved, apart from other moles in their family for a long time. Virtually untroubled by competition in the New World, these immigrants have managed to settle down comfortably in the unlikely of mole habitats. □



Do Moles Have "Optimal Chromosomes"?

The special digging musculature of star-nosed and other moles is one of the most visible features that distinguishes them from other fossorial, or burrowing, animals. But on another, less visible, level, there may be an even more important difference. Studying the levels of chromosomal variation within species has been one of the most intriguing facets of my work on moles.

The complex interrelationships among genes, chromosomes, and morphology are poorly understood. Genes are basic units of heredity that determine everything from how the body makes enzymes to overall physical appearance. Scientists have generally assumed that genes are the major factor in determining morphology and that if an animal shows variation in phenotype (its morphological appearance) it is due to variation in genotype (its genetic makeup). They have also assumed that changes in the phenotype—such as an alteration in the shape of a bone—occur over a long period of time and as a result of mutations in a number of genes.

How chromosomes fit into this scheme is even less clear. Chromosomes consist of tens of thousands of genes arranged in a specific order. When a chromosome mutates, the order of the genes, rather than the genes themselves, changes. The long-term effect of such mutations on the morphology of a species or on its evolution is a matter that moles may help clarify.

When people experience chromosomal

mutations, serious health problems often result. But most, if not all, of these mutations are restricted to individuals and don't become established in entire populations. As a result, there is not a lot of variation in human chromosomes. The chromosomes of most burrowing animal species, however, show considerable variation from one region to the next. The widely accepted explanation for this variation has been that, unlike humans, burrowing animals have small populations in which there is a lot of inbreeding. Thus, through chance, a new mutation can spread throughout the population fairly rapidly.

In all fossorial mammals studied to date, the levels of chromosomal variation support this explanation, but there is one exception—moles. In the fifteen species of moles we have examined around the world, we have not found one case of chromosomal variation within a species. The obvious question is, What makes moles different? One possibility is that moles have larger populations than the other fossorial animals. Or perhaps for some reason the rate of chromosomal change in moles is slower.

But there is another possible explanation that might in turn help explain how chromosomes affect morphology and evolution. Suppose a change in the order of genes on chromosomes sometimes causes profound changes in an animal, including changes in the phenotype. This could mean that the entire chromosomal pattern of an animal, the

karyotype, is itself open to selection. If so, animals might be able to develop what John Bickham of Texas A & M and Robert Baker of Texas Tech have called "optimal chromosomes." Bickham and Baker theorize that this can happen rapidly to a species once it enters a new way of life. Once the group develops its optimal chromosomes, evolution might slow down and proceed primarily one gene at a time. Such a "chromosome punctuated equilibrium" could be a mechanism by which the order of genes, and possibly entire developmental pathways, are altered. More to the point, it might explain the chromosomal status of moles. Quite simply, moles evolved much earlier than most burrowing mammals and have had time to develop optimal chromosomes, if such a thing exists. This theory does not rule out the possibility that random chromosome mutations could spread across an entire population of moles. It would argue only that those chromosome mutations are not open to natural selection and therefore do not result in any selective advantage or disadvantage.

Whether population size or rapid chromosome evolution explains the mole chromosome pattern is unclear. For one thing, we still don't have reliable population data on star-nosed and other moles. Such studies, along with additional chromosomal studies, will help clarify our understanding of these unique animals, their evolution, and possibly our own.



able the results of significant research to as wide an audience as possible. "Research not published is research not completed," is almost a motto at the School, where considerable effort is spent trying to raise funds to publish scholarly works for a limited, though enthusiastic audience. Among some recent titles are *Southwest Indian Ritual Drama, Chan Chan: Andean Desert City*, and *The Past Climate of Arroyo Hondo, New Mexico, Reconstructed from Tree Rings*.

The School's public programs—lectures, field trips, exhibits, and popular publications—are those most visible and well known to residents of northern New Mexico. These activities promote public education by featuring speakers such as Jane Goodall, Paul Horgan, and Richard Leakey to address SAR members and by sponsoring visits to ruins in the company of the archaeologists who excavated them. In 1983, lectures will be presented on Lewis and Clark, on the missions of the Southwest, and on Scottish prehistory; and field trips (spaces are still available as of this writing) will go to the Kino missions of Sonora and to China.

After 75 years, the School of American Research is far from senile. Scholars come, stay, move on, and often return. Manuscripts are being written.

Books are in press. Collections are being studied. New buildings are under construction. All in all, longevity seems only to have stimulated renewed life and enthusiasm. In pragmatic terms, this liveliness would have been difficult to sustain without the infusion of funds through contributions and grants. In an era of tight money and inflation, the School has been fortunate in being able to meet the challenge of growing financial needs. This year, to mark the 75th anniversary, a capital drive has been started with a goal of \$1 million. If this effort is successful, the School will have a more secure base from which to approach creative programs in the next decade. And with confidence stemming from many years of productivity, there is much optimism that continued support from both the public and private sectors will be forthcoming to help perpetuate an institution that is making a remarkable contribution to regional and worldwide anthropology.

David Grant Noble is the author of *Ancient Ruins of the Southwest and Director of Public Affairs at the School of American Research*.

"Education is what survives when what has been learnt has been forgotten."

—B.F. Skinner

gle for existence in even more detail, he is talking about the natural selection of genes and chromosomes. Often he's talking about moles. He's also talking about how humans evolved from primates, and about cancer, malaria, and the 100 or so diseases caused by genetic abnormalities.



Darwin rejected contemporary theories that individuals can adapt to changing conditions and somehow pass their adaptations along to their heirs—Lamarck's giraffe whose neck stretched to reach tidbits on growing trees was a popular example. Terry Yates rejects Darwin's theory of gradualism—slow, incremental change in a species that will be documented as soon as the missing links are found—in favor of a theory of punctuated equilibrium: long periods of stability interspersed with bursts of evolutionary change.

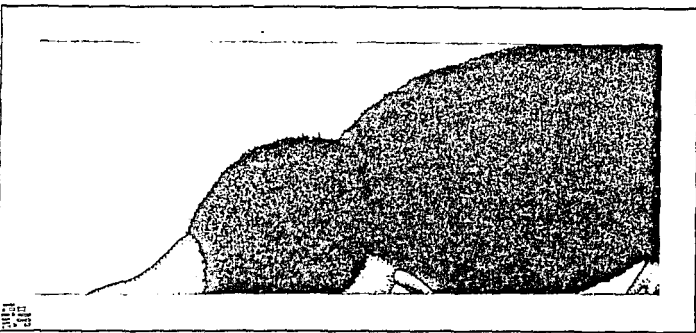
And where Darwin relied on large-scale physical evidence, Yates bases his theories on pictures of chromosomes, especially moles' chromosomes.

At 32 Terry Yates is, in the words of a National Science Foundation consultant, "one of the bright young men of biology." The NSF recently awarded Yates \$100,000 for the Museum of Southwestern Biology at UNM, where he is an assistant professor and curator of mammals. Kentucky born and Texas trained, Yates is building a national reputation for the UNM museum, for moles, and for fundamental concepts of genetic evolution.

"The classic, Darwinian idea of evolution has been that organisms are changed gradually through mutations of one gene at a time, through time, due to natural selection," says Yates. "Scientists have always been looking for missing links in the fossil record"—the furor over humanity's predecessors being a prominent example—"and it's ironic, considering the scientific method, that the missing link idea has survived, because the fossil record has never supported the idea of gradual change through time."

Yates is not the only advocate of the theory of punctuated equilibrium, but his research appears to provide strong support for it.

Moles provide much of Yates' evidence. They are at least 50 million years



In the Twinkling of a Mole's Eye

by MELISSA HOWARD

When Charles Darwin wrote in 1859, "We will now discuss in a little more detail the Struggle for Existence," he was introducing readers to the next chapter of *The Origin of Species*. But in

effect he was also setting the agenda for biology and anthropology down to the present day.

"I have called this principle, by which each slight variation, if useful, is preserved, by the term Natural Selection," Darwin wrote. He was talking about traits passed on by members of a species who are better equipped than their peers to survive and propagate.

When University of New Mexico professor Terry Yates discusses the strug-

old, with a well-documented fossil record for mammals of their size; their unique shoulder girdle makes them unmistakable, and in many species their solitary, underground existence makes them model organisms for study of genetic evolution.

Orthodox theory suggested that moles should exhibit a great deal of chromosomal variability—fundamental mutations that arise by chance and are incorporated more readily in a small breeding population. But they don't. Yates has come to believe that is because moles don't need to change.

"We had thought that natural selection operated just on the external appearance of the animal, not on the chromosome arrangement," Yates says. "Then a new theory came out suggesting that the chromosomes themselves were open to natural selection.

"The natural-selection or canalization model of chromosomal evolution suggested that the structure and form of chromosomes should become adapted very rapidly when the animal is in a new way of life, because it must change to survive and because more variability will be possible due to lack of competition.

"There should be a chromosome configuration best for being a mole, according to this theory, and how much variability we saw in moles was a function of how long these organisms had been in their particular niche.

"We're concluding that many moles are highly conservative genetically; their genes and chromosomes are not changing rapidly anymore. They underwent a rapid period of change, evolved the best type, and now any change that occurs is more likely to be detrimental."

The mole studies have led Yates to suggest that changes in the order in which genes are placed on chromosomes are important.

"Previous knowledge was that as long as the correct genes are present, their order on chromosomes is unimportant. But it now appears that if you change a whole set of genes around and put them back together in a different order, it can alter the entire developmental pathway of an organism. This may well explain how great bursts of evolution are possible in a very short time in some groups of animals."

Yates is reluctant to speculate about the impetus for evolutionary changes, but he doubts it is mere random chance. What interests him is the effect of the change.

"An important question is, can the rearrangement (of chromosomes) be tolerated?" Some help an individual to compete and survive, others are harmful, and others are neutral.

"The question is, do the mutations become incorporated in future generations? A mutation only becomes important from an evolutionary standpoint if you're fit, that is, if you have offspring and pass it on to them."

The genetic mechanisms of passing it on are fundamental to Yates' research at UNM. He is working with facts, theories, techniques, and equipment that are new in his lifetime and are changing every day.

Yates is a contagiously enthusiastic teacher. When he talks about genetic evolution he uses the second person: one minute his listener is a near-sighted African plains dweller who can't distinguish predator from prey; the next minute you're "supermole," the product of successful mutation.

To examine moles' chromosomes in his lab, Yates either extracts bone marrow or clones a piece of tissue. To study heredity he uses a technique called chromosome banding. The tech-

nique involves chemically staining certain regions in each chromosome, which allows identification of each chromosome pair. The pairs can then be compared with those from other moles.

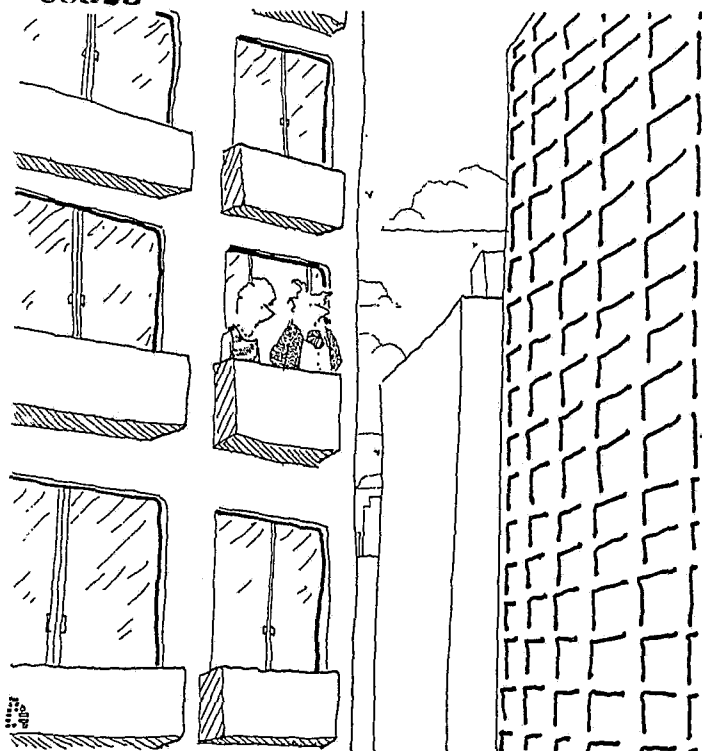
"The staining produces a chromosome that, instead of being just a black X like you see in textbooks, is a series of alternating light and dark bands," Yates says. "And the banding sequence is specific to the DNA arrangement. So we can compare the same chromosomes in two animals and if the bands match we conclude there has been no chromosomal mutation.

"If you look at every chromosome—all 46 in humans or all 34 in moles—you can see how many mutations have occurred, what kind of mutations they were, and what has been the rate and direction of change through time."

Another technique used in Yates' lab is extracting proteins from animal tissue and running electrical current through them. Proteins have electrical charge and will migrate in an electrical field based on the charge. If a mutation has occurred in the DNA which placed a different amino acid in the protein, it changes the charge and the migration



"I've heard that exaggerated shoulders are out."



"God, on days like this, I can almost smell the fresh ink on my L.L. Bean catalogue."

rate. This technique, called electrophoresis, reveals genetic mutations in different species and allows comparisons to be made at the level of the gene itself.

"Now," says Yates, "we can not only compare individuals, we can also compare species and genera. If we find a unique rearrangement of the same chromosome in two or three species, we can tell if that's a primitive condition. If it's a derived condition, we conclude the species shared a common ancestor with each other longer than they did with other species.

"So we're able to essentially unravel the evolutionary history based on these chromosome rearrangements."

Another difficult concept that is critical to understanding Yates' research is what he calls a "heterozygous bottleneck."

If some of your genes are, so to speak, dressed for success, how do you pass them on? If they are arranged on your chromosomes in a different order from

your mate's, your joint fertility will be reduced and only some of your offspring will be dressed for success. And they will find few of their own kind to mate with. That's a heterozygous bottleneck.

"If there's a small population and one animal in ten has a certain trait, the chances of mating with someone else who has that trait are greater than if you're the only one in 10 million," Yates says. "You would expect some mutations to be incorporated that way, by random chance, in small populations over millions of years.

"But chance doesn't explain the existing evidence of evolution, and it doesn't explain the mole situation."

What appears to explain the mole situation is chromosomal canalization and punctuated equilibrium. Reacting quickly to new conditions, moles assured their survival.

"Instead of looking at natural selection as a negative thing—if you don't have the right traits you're selected against—we're looking at it as a positive

thing," Yates says.

"Being able to fly is, for a bat, such a positive thing, so much better than hopping around in the trees, that the selection for it is greatly enhanced. But once you've got a bunch of bats that are really good flyers, just flying is no longer good enough. There will have to be more adaptations if you're going to compete and survive. The question is, is this kind of mutation open to natural selection, especially if it doesn't cause a physical change but alters your behavior instead?"

But, you ask, what if you're a successful mole and suddenly the climate in your forests gets much colder: do your chromosomes react? Do you grow more hair for insulation?

"That may not involve chromosomes at all," Yates replies. "It may involve genes, but we don't know. Maybe it's not that you grow more hair. Maybe the order of your genes changes. Or maybe mutations which were neutral and already present in the population are positive in the new environment.

"Your body has a bunch of genes that aren't doing anything. Maybe they were active when you were young, making you grow, and then were turned off. So maybe the adaptation is a rearrangement that allows these growth genes to make you develop faster and reproduce faster, so you get all your offspring born, raised, and into hibernation before the first winter hits."

Finally, tired of being a mole and a bat, you ask Yates if human beings are still evolving. The potential is still there, he answers, but it's also possible that we, like moles, are already well suited to our way of life.

"But it's a lot more complicated when you talk about humans," he continues, "because we manipulate our environment. We're not open to natural selection at the level most animals are.

"I think that we're evolving through our technology, our ability to become more than the sum of our genetics.

"Through learning and our ability to store knowledge and relate it to others of the species we have gone way beyond what our genetic constitution allows."

Yates seems to be suggesting that we are advancing our own evolution by studying it. Darwin, who wanted to "discuss in a little more detail the Struggle for Existence," might approve.

Melissa Howard is a free-lance writer who works part-time at the University of New Mexico Public Information Office.

CAMPUS NEWS 19(7)
17 NOVEMBER 1983

Star of article is star-nosed mole

The tousled critter with a nose like a soft pink starfish who adorns the cover of this month's Natural History magazine is a star-nosed mole, subject of an article by UNM biologist Terry Yates.

Color photographs, including some first-ever shots of the animal underwater, are included with Yates's article.

The star-nosed mole is "bizarre," writes Yates, who has studied the creature for about 10 years as part of his work on evolution. He is an assistant professor of biology and curator of the mammal collection for UNM's Museum of Southwestern Biology.

The ring of 22 fleshy appendages on the end of the nose are used to probe for worms and other food, Yates writes. "No other mammal has such a structure. Each tentacle contains highly sensitive tactile organs" which help make up for the mole's near blindness.

The star-nosed mole spends part of its time in the water and part underground or on the surface. It builds shallow tunnels, used to track food, and deeper tunnels for resting, rearing young and foraging when the surface of the ground is frozen. "One cannot help but be impressed with the amount of food these moles eat daily," Yates writes. "They consume 50 percent or more of their weight every day."

Yates has focused his research on the star-nosed mole's unique physiological and behavioral adaptations. He has learned that it differs from other moles

in the lack of size variation between males and females and in the homogeneity of physical traits among scattered populations. Because star-nosed moles live in small, isolated communities, in-breeding might have produced genetic specializations or even mutations, Yates reasoned, and the lack of such differences may mean that the pressures of natural selection have been so mild that physical changes were not necessary.

Perhaps, writes Yates, "genic mutations have taken place in numerous populations, but independent of each other. In other words, the moles could have developed very different genes but not necessarily show any attendant morphological differences."

After genetic analyses of star-nosed and other moles from North America, Japan

and Europe, Yates suggests that star-nosed moles "diverged from other moles perhaps 30 million years ago, somewhere in Eurasia," and their "arrival in North America appears to be the result of an invasion separate from the one that brought other North American species here from the Old World."

In an accompanying article, Yates speculates about the influence of chromosomes on the evolution of physiological differences.

"When a chromosome mutates, the order of the genes, rather than the genes themselves, changes," he writes. "The long-term effect of such mutations on the morphology of a species or on its evolution is a matter that moles may help clarify."

BURROWING IN

By Melissa Howard

A reclusive little animal that can't even be found in New Mexico is making a UNM biologist famous.

Terry Yates, a 33-year-old assistant professor whose drawling voice and casual manner overlie a keen intellect and tireless ambition, is fielding requests these days from the BBC, the Smithsonian, and would-be colleagues in the United States, Europe and Asia.

What inspires the world to beat a path to Yates's door? Moles.

Since his graduate-school days at Texas A&M, Yates has been studying the Talpidae family, focusing on their genetic adaptations and unraveling their evolutionary history. The world has been eager to learn about moles, apparently. And the community of evolutionary biologists was ready to hear new genetic evidence which might provide a mechanism for the "punctuated equilibrium" theory of evolution.

A star-nosed mole (a creature only a mother or a biologist could love) appeared on the cover of *Natural History* magazine in November 1983. Inside was an article by Yates about this semi-aquatic resident of eastern North America, a voracious but finicky eater and a powerful tunneler whose nose ends in 22 pink appendages that probe for food.

Yates wrote that ten years of research have convinced him that star-nosed moles have remarkably uniform genetic profiles but differ in important ways from other mole species and probably are descended, relatively recently, from a different European population than the forebears of other North American moles.

In a postscript to the *Natural History* article, Yates discussed the possibility that natural selection has produced an optimal arrangement of genes on chromosomes in moles and has made further evolutionary change unnecessary.

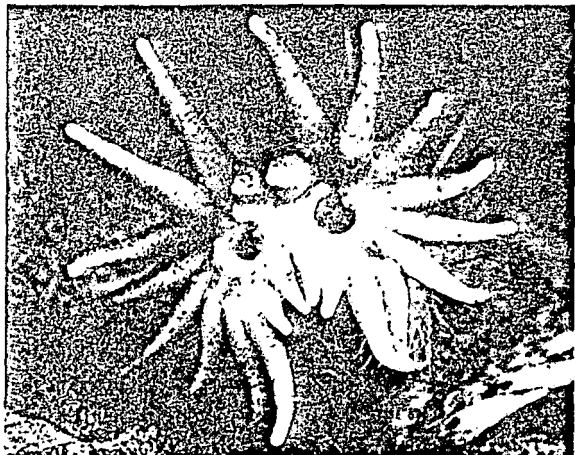
That idea, along with previously unpublished details about star-nosed moles' habits, has aroused much interest:

—The British Broadcasting Corp. wants to make a documentary about the creatures, including filming Yates wading into a Maine stream to look for them.

—The Smithsonian Institution wants Yates to write a book about moles for its new natural history series.

—Graduate students who were being recruited by Texas and California schools probably will come to UNM to work with Yates.

—An international museum commission has asked Yates to be one of its few American members.



The star-nosed mole's eyes and ears are feeble, so this super-sensitive nose is the main sensory organ. Its 22 appendages (surrounding two nostrils) locate earthworms, insects or other invertebrates. Moles eat at least 50 percent of their body weight every day and are active both day and night, in and out of the water. The swimming mole here has just captured a worm, which is dangling beneath its body. The mole's front legs, used for digging, and its powerful claws, while the back legs propel it through the water. (Photos © Dwight Kuhn)

—A Swedish journalist has requested an interview with Yates, as have United States and other foreign publications, and he has been asked to deliver talks, prepare technical articles and supply textbook chapters as well.

—A Japanese biologist has sent Yates chromosome diagrams that provide exciting evidence for his theory that Asian moles are the ancestors of the widely varying European and American species.

Most of us know nothing about moles, Yates noted in the *Natural History* article. Seven species are recognized in North America, but not a single mole has been reliably reported in New Mexico. Except for the shrew mole and the star-nosed mole, they spend much of their time in underground burrows.

To a biologist, the mole's most interesting characteristic is its highly developed digging equipment. The chest area is unique, the shoulder bone is elongated and the upper arm has a massive rectangular bone and well developed muscles. The mole digs with powerful side strokes, unlike dogs, gophers and other animals that dig underneath their bodies.

This specialized burrowing apparatus enabled moles to thrive over evolutionary time. Because moles are found in small, isolated communities, numerous genetic mutations resulting from inbreeding should be expected. Individual mutations would be incorporated quickly in small breeding populations, especially if they improved the moles' chances of surviving. But Yates has found little genetic variation within breeding populations and only limited variations among isolated groups of moles. Those facts, reinforced by analysis of moles' chromosomes, led Yates to conclude that "moles are highly conservative genetically.

"Moles' genes and chromosomes aren't changing rapidly anymore," he says. "They underwent a rapid period of change, evolved the best type, and now any change that occurs is more likely to be detrimental." This "chromosomal punctuated equilibrium" theory of evolution may account for the "missing links" of Darwinian dogma by suggesting that important genetic adaptations can occur quickly and in large increments, without leaving a fossil record of small, intermediate changes.

This kind of evolution is made possible by the influence of natural selection on the chromosomes themselves, Yates suggests.

"We had thought that natural selection operated just on the animal's external appearance," he says, but "the natural selection model of chromosomal evolution suggests that the structure and form of chromosomes should become adapted very rapidly when the animal is in a new way of life.

"There should be a chromosome configuration best for being a mole, according to this theory, and how much variability we saw in moles was a function of how long these organisms had been in their particular niche."

Chromosomes apparently respond to the forces of selection by altering the arrangement of genes, Yates says.



Terry Yates uses chromosome diagrams like the one he's holding here to compare moles. A camera attached to a microscope produces pictures of individual chromosomes that have been chemically stained to bring out banding patterns. A standardized numbering system permits comparison of the same chromosomes from different animals. Yates and his students have made about 10,000 slides of chromosomes, which will be entered into the UNM Museum of Southwestern Biology. (Photo by Michael Mouchette)

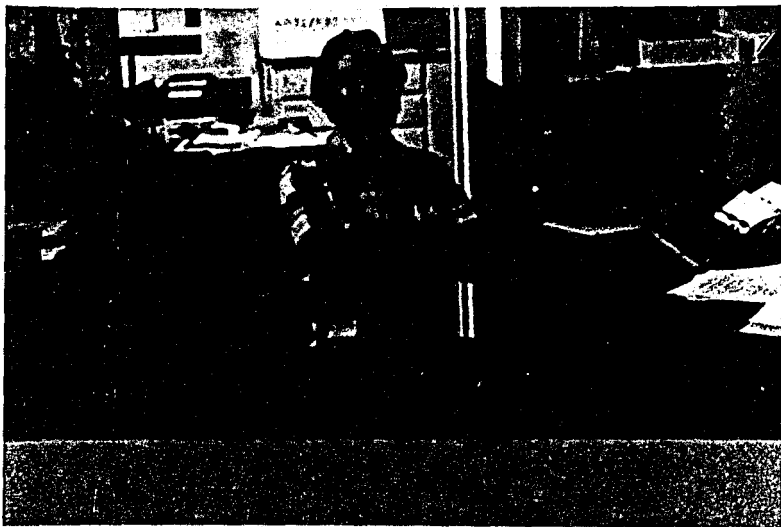
"Previous knowledge was that as long as the correct genes are present, their order on chromosomes is unimportant. But it now appears that if you change a whole set of genes around and put them back together in a different order, it can alter the entire developmental pathway of an organism. This may explain how great bursts of evolution are possible in a very short time in some groups of animals."

Moles' evolutionary history is clearer, thanks to Yates and others, than the still-murky picture of man's evolution. But knowledge gained from testing evolutionary theories using moles may explain a lot about that process. Similarly, there may be lessons for us in the reasons why moles are so well suited to their lifestyles and apparently are plagued by fewer genetic abnormalities than we are. Terry Yates is interested in moles for their own sakes, and the shy and homely creatures have rewarded him well. What they teach him could reward all of us in the future.

Melissa Howard is a writer in the UNM Public Information Office. Portions of this article appeared first in *Century Magazine*.

00543

George Orwell promised that 1984 would be a year to remember. Whether or not Big Brother is watching, biologists at UNM will continue to be recognized nationally and internationally for their accomplishments. Dr. Oz Baca provides another example of how our faculty (and students) continue to work hard and serve this state.



The American Society of Biological Chemists has recently announced the election to membership of Dr. Oswald Baca. This is quite an honor, since individuals must be nominated by at least two ASBC members, and subsequently voted on by an election board which stringently reviews the nominee's accomplishments in the field of biochemistry. This past summer, Oz presented an invited paper at a meeting conducted by the Public Health Service, Institute of Allergy and Infectious Diseases, in Hamilton, Montana. The conference dealt with the molecular biology of rickettsiae, some forms of which cause Rocky Mountain spotted fever. Rickettsiae, bacteria which are obligate introduced prokaryotic cell parasites, have been the subject of Dr. Baca's research for the past 16 years and he is a recognized authority in the field. In fact, he has been invited to chair a session entitled "Rickettsiae and Hosts" at the IIIrd International Symposium on Rickettsiae and Rickettsial Diseases, to be held in Czechoslovakia in September, 1984. Congratulations are due for these honors!

11/83

00545

Former Biology undergraduate and graduate student makes the cover of Science. Now that's news! Dr. Burt Ensley is among the growing ranks of highly successful graduates of this department.



Science is possibly the most prestigious of American scientific publications and the work of a former TAM student was a feature article and cover story of the 14 October 1983 issue. Dr. Burt D. Ensley (second from left) was a TAM undergraduate who liked Biology so well he stayed on to complete his M.S. degree with Dr. Larry Barton (far right). Burt was then awarded a fellowship that allowed him to earn his Ph.D. at the University of Georgia in bacterial physiology and afterward he was a postdoctoral fellow at the University of Texas. He is currently employed as a "high tech" scientist for Amgen in Thousand Oaks, California.

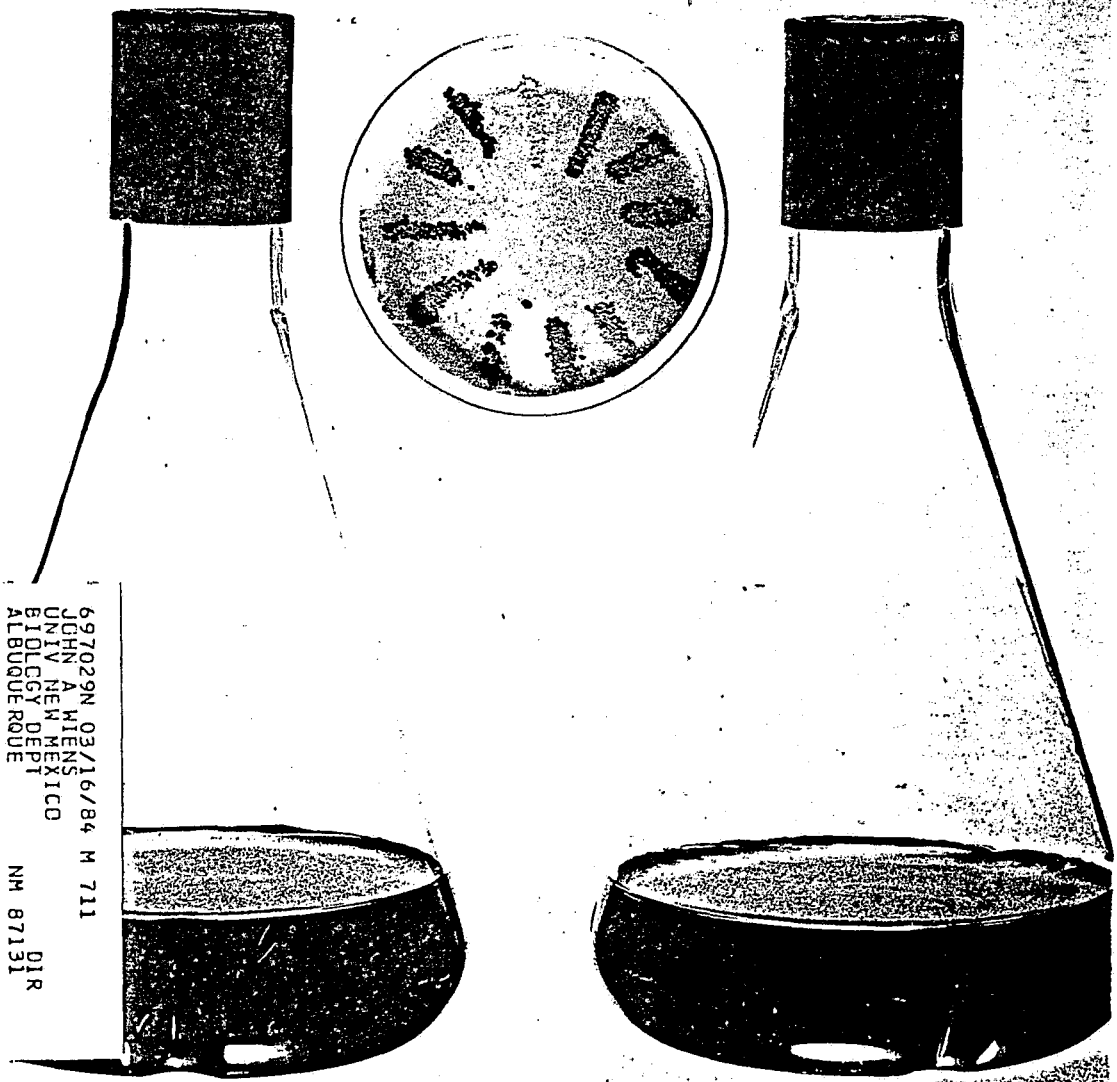
The cover photo of Science shows blue pigmented colonies of Escherichia coli. Dr. Ensley and his associates used new methods of recombinant DNA technology to get E. coli to produce the dye, indigo, which is commonly used to color wool and cotton fabrics. To author a cover feature of Science is indeed a noteworthy accomplishment. Congratulations are due Dr. Barton for getting Burt Ensley off to a great start in his professional career.

1/84

SCIENCE

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

00547



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along the front of the submarine Scarpment Escarpment. This is evident because of their excellent preservation (all except the *Ogygopsis* assemblage include soft-bodied forms) and their pencontemporaneity (all occur within the *Bathyriscus-Elrathina* biozone), and because transport before burial was short (all are close to the escarpment and include many articulated specimens). Second, the widespread distribution supports the observation that the Burgess shale faunas may be more representative of Cambrian marine communities than are assemblages of hard-shelled invertebrates (1). Moreover, it reinforces the view derived from the discovery of many Burgess shale fossils in Utah, that the Burgess shale includes "a normal Cambrian open-shelf biota" (21). This view can now be expanded to that provided by the Stephen Formation, which contains several marine faunas of the Burgess shale type that together make up a normal fore-reef faunal complex.

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2 February 1982; revised 13 May 1983

00548

Expression of Naphthalene Oxidation Genes in *Escherichia coli* Results in the Biosynthesis of Indigo

Abstract. A fragment of plasmid NAH7 from *Pseudomonas putida* PpG7 has been cloned and expressed in *Escherichia coli* HB101. Growth of the recombinant *Escherichia coli* in nutrient medium results in the formation of indigo. The production of this dye is increased in the presence of tryptophan or indole. Several bacteria that oxidize aromatic hydrocarbons to cis-dihydrodiols also oxidize indole to indigo. The results suggest that indigo formation is due to the combined activities of tryptophanase and naphthalene dioxygenase.

Indigo is one of the oldest dyes known to man. In ancient times it was obtained as a plant extract from several species of the genus *Indigofera* and to a lesser extent from the European woad plant. The dye's brilliant color led to its development as a principal item of commerce between Europe and the Far East. Baeyer's elucidation of the structure of indigo in 1883 was followed by the development of a commercially practical synthesis. Today synthetic indigo has largely

supplanted the plant-derived product, and large amounts of indigo are used for dyeing cotton and wool fabrics (1). We now report the construction of a strain of *Escherichia coli* that excretes indigo. The organism contains genes from *Pseudomonas putida* that code for enzymes responsible for the conversion of naphthalene to salicylic acid.

The oxidation of naphthalene by *Pseudomonas putida* PpG7 is catalyzed by enzymes that are encoded by a plasmid. The plasmid, NAH7, carries two gene clusters that enable the organism to grow on naphthalene as a sole carbon source (2). Several compounds produced during naphthalene oxidation, including naphthoquinone and salicylic acid (3), are widely used in the chemical and pharmaceutical industries. To determine the feasibility of utilizing microorganisms to produce these compounds, we carried out a detailed genetic and physical analysis of the NAH7 plasmid. We found that the entire pathway for the conversion of naphthalene to salicylic acid is encoded by genes that can be expressed in *E. coli*. Our results also led to the unexpected finding that a subset of these genes is responsible for the microbial production of indigo. In addition, we have shown that indigo formation is a property of the dioxygenase enzyme systems that form cis-dihydrodiols from aromatic hydrocarbons (4).

As a first step in these experiments, we cloned fragments of the NAH7 plasmid in *E. coli*. Plasmid NAH7 DNA was isolated from *Pseudomonas putida* PpG7 that had been digested with Hind III; the fragments were ligated into Hind III-cut plasmid vector pBR322 for transformation into *E. coli* HB101. Ampicillin-resistant colonies of transformed *E. coli*

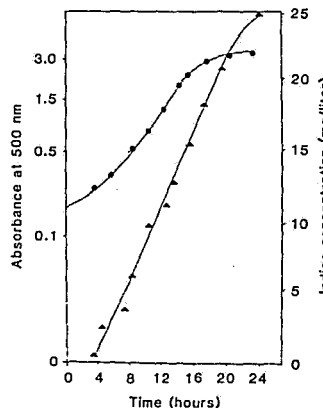


Fig. 1. Synthesis of indigo during growth of an *E. coli* containing pE317. Growth of the organism in Luria broth containing ampicillin (200 µg/ml) was monitored by measuring the absorbance of the culture at 500 nm (●). Indigo synthesis (▲) was measured by removing 1.0 ml of the culture fluid at various time intervals and extracting twice with equal volumes of ethyl acetate. The organic phases were combined and the absorbance of the ethyl acetate solution at 600 nm was determined. The concentrations of indigo were taken from a standard curve for synthetic indigo (Kodak) dissolved in ethyl acetate.

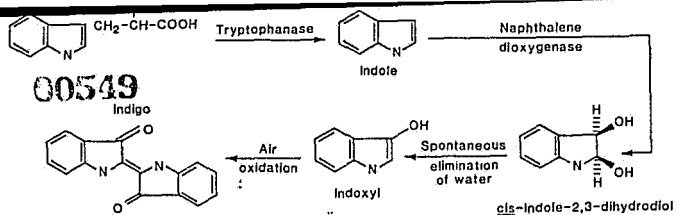


Fig. 2. Proposed pathway for indigo biosynthesis in a recombinant strain of *E. coli*. Indole is formed from tryptophan by tryptophanase, a natural enzyme in *E. coli*. Naphthalene dioxygenase formed by expression of the cloned *Pseudomonas* DNA oxidizes indole to indigo. *cis*-2,3-Dihydroxy-2,3-dihydroindole and indoxyl have not been isolated. Their inclusion is based on the known activities of aromatic hydrocarbon dioxygenases and established mechanisms for the chemical synthesis of indigo.

were selected and screened for tetracycline resistance because the tetracycline resistance gene on pBR322 is inactivated by insertions in the Hind III site (5). Of 500 tetracycline-sensitive colonies tested, one colony produced nonvolatile ¹⁴C-labeled metabolites from labeled naphthalene (6). Plasmid pH625 DNA from this colony contained a 16.6-kilobase insert at the Hind III site of pBR322. The insert was shortened to 10.5 kilobases by further digestion with Eco RI and ligated again to produce

plasmid pE317. *Escherichia coli* containing either pH625 or pE317 oxidized naphthalene to a single major metabolite having the chemical properties of synthetic salicylic acid. The enzymes coded for by pH625 and pE317 were expressed constitutively in *E. coli*, whereas the same genes are inducible in *Pseudomonas*. However, *P. putida* PpG7 oxidized naphthalene at a much higher rate than did *E. coli* containing pH625 or pE317. Either the NAH genes in *E. coli* are poorly expressed from a *Pseudomonas*

Table 1. Indigo formation by different bacterial strains. *Pseudomonads* were grown on a mineral salts medium containing 0.2 percent (weight to volume) L-arginine hydrochloride and a naphthalene supplied either as a vapor (toluene and *p*-xylene) or in the growth medium (naphthalene and *p*-cresol). The hydrocarbons selected to induce catabolic enzymes in the respective *pseudomonads* were those listed under relevant phenotype. The *Beijerinckia* strains were grown on a mineral salts medium containing 0.2 percent (weight to volume) sodium succinate and 0.05 percent (weight to volume) yeast extract. *m*-Xylene was used to induce oxygenase activity. All cultures were grown until the late exponential phase of growth was attained. Cells were harvested by centrifugation and suspended in fresh growth medium that contained 2 mM indole. After 3 hours of incubation, the cells were extracted with boiling chloroform. Indigo was identified by migration on thin-layer chromatograms and by visible spectroscopy. Abbreviations: Nah, Tol, Xyl, Cre, and Bp followed by superscript + or - refer to the ability or inability, respectively, of the organism to grow with naphthalene, toluene, *p*-xylene, *p*-cresol, and biphenyl as the sole source of carbon and energy; *tod*, A, B, and C, refer, respectively, to genes coding for ferredoxin_{TOL}, reductase, ferredoxin, and ISP_{TOL} components of toluene dioxygenase; *tod*, D and E, refer, respectively, to genes coding for toluene dihydrodiol dehydrogenase and catechol oxygenase activities; CAM, Center for Applied Microbiology, University of Texas, Austin.

Organism	Relevant phenotype	Relevant genotype of plasmid	Reference or source	<i>cis</i> -Diol* formation	Indigo formation
<i>P. putida</i> PpG7	Nah ⁺	Wild-type (NAH7)	(18)	+	+
<i>P. putida</i> NCIB 9816	Nah ⁺	Wild-type (pTX1) [†]	(3)	+	+
	Nah ⁻	nddA [‡] (pTX1)	CAM	+	+
	Nah ⁻		CAM	-	-
<i>P. putida</i> Np	Nah ⁺	Wild-type	(10)	+	+
<i>P. putida</i>	Tol ⁻	Wild-type	(19)	+	+
	Tol ⁻	<i>todD</i>	(20)	+	+
	F106	<i>todC</i>	CAM	-	-
	F102	<i>todA todE</i>	CAM	-	-
	F26a	<i>todA todB</i>	CAM	-	-
<i>P. putida</i> BG	Xyl ⁺	Wild-type (TOL)	CAM	-	-
<i>Pseudomonas</i> sp.	Cre ⁺	Wild-type	(21)	-	-
<i>Beijerinckia</i> sp. B836	Bp ⁺	Wild-type	(22)	+	+
	Bp ⁺	bddA [‡]	(22)	+	+

*Initial oxidation products derived from aromatic hydrocarbons are *cis*-dihydrodiols. [†]This strain of *P. putida* contains a single plasmid. The relation of this plasmid to plasmids in different strains of NCIB 9816 (2, 3, 24) is unknown. [‡]Strains lack active naphthalene diol dehydrogenase (nddA) or biphenyl diol dehydrogenase (bddA).

promoter sequence, or a pBR322 promoter initiates only low-level transcription of the cloned genes (7).

During the course of experiments with *E. coli* containing pE317, we observed that colonies on agar plates had blue centers and that a dark blue, water-insoluble pigment was formed during growth in liquid medium. The blue pigment was extracted from liquid cultures with chloroform and purified by chromatography over silica gel. The purified pigment was identical to synthetic indigo in its relative mobility on thin-layer chromatography and in its visible, ultraviolet, infrared, and mass spectra. The kinetics of synthesis of indigo during growth of the recombinant *E. coli* is shown in Fig. 1.

The metabolic interactions that produce indigo in the recombinant organism appear to involve the NAH7-encoded naphthalene dioxygenase and indole. Indole is produced during normal metabolic processes of *E. coli* by the activity of the enzyme tryptophanase. The contention that enzymes coded by the cloned genes are responsible for indigo production and that indole is involved is indicated by the following observations. (i) After several passages in ampicillin-free medium, the recombinant organism displayed a simultaneous loss of its ability to oxidize naphthalene and synthesize indigo. (ii) Indigo formation was enhanced if the recombinant *E. coli* was grown in a culture medium supplemented with either 10 mM tryptophan or 1 mM indole. (iii) Indigo formation was not observed in cultures containing Luria broth and 1 percent glucose. High glucose concentrations can cause catabolite repression of tryptophanase synthesis in *E. coli* (8). (iv) Indigo formation occurred when indole was added to cultures of *P. putida* strain PpG7. Unlike *E. coli*, this organism does not produce its own indole. All of these observations suggest that indigo synthesis in the recombinant *E. coli* is catalyzed by naphthalene dioxygenase (6). Further support for this hypothesis was provided by the observation that other naphthalene-utilizing *pseudomonads* also oxidize indole to indigo (Table 1). *Pseudomonas putida* NCIB 9816, strain 11, is a mutant that oxidizes naphthalene to (+)-*cis*-(1R,2S)-dihydroxy-1,2-dihydronaphthalene (*cis*-naphthalene dihydrodiol). This strain lacks the enzyme *cis*-naphthalene dihydrodiol dehydrogenase, which is the second enzyme in the degradative pathway (9, 10). The ability of strain 11 to oxidize indole indicates that naphthalene dioxygenase is the enzyme responsible for indigo formation.

The results presented in Table 1 also suggest that indole oxidation is a property of bacterial dioxygenases that form *cis*-dihydrodiols from other aromatic hydrocarbons. *Beijerinckia* strain B836 is a mutant that oxidizes biphenyl and various polycyclic aromatic hydrocarbons to *cis*-dihydrodiols, whereas *P. putida* strain 39/D oxidizes benzene, toluene, and several monocyclic aromatic hydrocarbons to *cis*-dihydrodiols (4, 11). Both of these mutant strains and their wild-type parents oxidize indole to indigo. The ability of both B836 and wild-type *Beijerinckia* strains to oxidize indole to indigo is induced by *m*-xylene. The enzyme system from *P. putida* that catalyzes the formation of (+)-*cis*-(1*S*,2*R*)-dihydroxy-3-methylcyclohexa-3,5-diene (*cis*-toluene dihydrodiol) from toluene has been resolved into three protein components that are essential for enzymatic activity (11). This enzyme system consists of a flavoprotein (ferredoxin_{IND} reductase), a two-iron-two-sulfur ferredoxin (ferredoxin_{TOL}), and an iron-sulfur protein (ISP_{TOL}). Mutations in any one of the structural genes that code for these enzymes results in a complete loss of toluene dioxygenase activity (12). These mutants—strains F106, F102, and F26A (Table 1)—are also incapable of oxidizing indole to indigo.

The reaction sequence shown in Fig. 2 accounts for the formation of indigo by the recombinant *E. coli* and the other bacterial strains used in this investigation. It also provides a possible explanation for previous reports on the bacterial formation of indigo (13–15). We have not been able to detect the formation of *cis*-2,3-dihydroxy-2,3-dihydroindole. However, the formation of this intermediate can be inferred from the results presented in Table 1. Elimination of water from the *cis*-dihydrodiol would yield indoxyl, which is a known precursor of indigo. In addition, we have detected the presence of oxindole in culture filtrates after indole transformation by *P. putida*. Oxindole, the keto tautomer of 2-hydroxyindole, is the other expected product after dehydration of *cis*-2,3-dihydroxy-2,3-dihydroindole. The sequence in Fig. 2 differs from the reactions proposed by Fujioaka and Wada (16) for the oxidation of indole to 2,3-dihydroxyindole by a Gram-positive coccus. However, these authors reported the accumulation of an unidentified blue pigment by indole-grown cells.

Our results illustrate the potential of recombinant DNA technology in the development of innovative microbial methods for the production of useful chemicals. The cloning and expression of

naphthalene dioxygenase genes in *E. coli* will facilitate studies on the regulation and expressions of genes involved in the microbial degradation of aromatic hydrocarbons. In addition, the observation that indigo formation is catalyzed by different aromatic hydrocarbon dioxygenases suggests that indole may be a valuable substrate for elucidating the mechanism of action of this class of enzymes.

Note added in proof: Another method for the cloning and expression of naphthalene oxidation genes in *E. coli* has been reported by Schell (17).

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15 February 1983; revised 25 April 1983

Anticarcinoma Activity in vivo of Rhodamine 123, a Mitochondrial-Specific Dye

Abstract. *Carcinoma cells and normal epithelial cells differ in the mitochondrial retention of a permeant cationic compound, rhodamine 123. The possibility of utilizing this difference in carcinoma chemotherapy was investigated. Rhodamine 123 exhibited anticarcinoma activity in mice, and this activity was potentiated by 2-deoxyglucose.*

Epithelial cancers, particularly those of the breast and colon, are the major causes of death due to cancer in the United States. Most of the anticarcinoma drugs in clinical use are targeted at the DNA of the cell. Carcinoma chemotherapy in which drugs are targeted at the plasma membrane, mitochondria, endoplasmic reticulum, cytoskeleton, or intermediary metabolism unrelated to DNA is largely unexplored. We discovered that a fluorescent dye, rhodamine 123 (Rh123), localizes in the mitochondria of living cells (1), probably as a result of high membrane potential across the mitochondrial membrane (2). The mitochondria of a variety of carcinomas retain Rh123 for prolonged periods (2 to 5 days), whereas normal epithelial cells

release it within a few hours (3). This unexpected finding prompted us to investigate whether this difference in the mitochondria of carcinoma and normal epithelial cells can be utilized in cancer chemotherapy. We reported earlier that Rh123 is selectively toxic to carcinoma cells in vitro (4, 5). We now report that Rh123 has anticarcinoma activity in mice and that this activity is potentiated by 2-deoxyglucose, an inhibitor of glycolysis.

Ehrlich ascites tumor cells, confirmed to be of epithelial origin by immunofluorescence with antibody to keratin, were injected intraperitoneally (5×10^5 cells) into mice. These tumor-bearing mice had a narrow range of survival times (18 to 22 days; median, 19 days), reflecting consistency in the mortality pattern (Fig. 1

Dr. Randy Thornhill's newly published book, "The Evolution of Insect Mating Systems" has received rave reviews from the scientific community. Among the published reviews, includes the statement by Dr. James E. Lloyd, "I would argue, then, that this is the most important discussion of the subject since Darwin's. Just as Darwin carries Lyell's new 'Geology' with him on the Beagle, so will this book be carried along, everywhere, for any number of reasons, and for constant reference." An anonymous reviewer called this the most important contribution to the subject in this century.

Enough said.



Dr. Randy Thornhill is the co-author of a new book published by Harvard University Press: The Evolution of Insect Mating Systems. This book, the result of three years of intensive effort, represents a marriage of two disciplines, entomology and modern evolutionary theory, and was written both for professional entomologists and for beginning students of animal behavior. The underlying theme is that the great diversity of insect mating systems can be best understood in view of the differences between the sexes in their resource investment per gamete and the differences among species in their ecological niches. Another major accomplishment by one of our distinguished faculty.

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The Evolution of Insect Mating Systems

Randy Thornhill and John Alcock



■ CAMPUS NEWS FEB 16, 1984

Book about bugs' mating systems

Insects employ a vast number of reproductive behaviors, many of which suggest a genetic strategy aimed at producing offspring with optimum survival chances, a UNM professor says in a new book.

Dr. Randy Thornhill, an associate professor of biology at UNM, is co-author, with John Alcock of the Arizona State University zoology department, of "The Evolution of Insect Mating Systems," published by Harvard University Press.

Thornhill and Alcock wrote the book to unify recent work in evolutionary theory and in entomology. They suggest that the diversity of insect mating systems reflects the differences among species and the differences in needs and resources of males and females.

"Rivalry among males and the operation of female choice (of breeding partners) combine to determine the nature of the sexual association between the males and females of a species," the book says.

"The usual result of sexual selection is to favor males that are skillful in the competition with others for the chance to fertilize the large eggs of their females," Thornhill and Alcock write. Timing of mate locating, motivation to copulate, competition in the attraction of females, selection and defense of mating sites and protection of females are among the factors discussed in the book, which includes nearly 200 illustrations.

"We have attempted . . . to analyze the diversity of insect mating systems from the perspective of individual selection theory," Thornhill and Alcock conclude. "The effort to determine how an individual can gain superior genetic representation in the next generation by, for example, being continuously receptive, or by guarding a mate after copulating, or by offering a mate food strikes us as a highly productive venture" for further research.

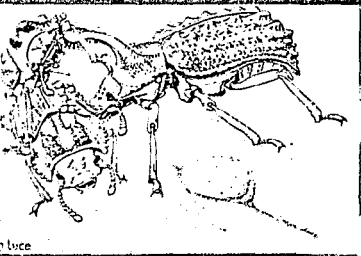
Thornhill, holder of a doctorate in zoology from the University of Michigan, has been at UNM since 1975. In recent months he has received two National Science Foundation grants—his fourth and fifth out of five applications—for more research into insect mating behavior.

Thornhill also has worked on a study of human rape that reached startling

conclusions that have attracted interest among scientists. Working with his wife, Nancy, an anthropologist, he reviewed rape statistics and the treatment of rape in many societies, then suggested that rape has persisted despite severe sanctions because it represents a viable genetic strategy, an effort by men otherwise denied the opportunity to mate.

THE MATING GAME

She wouldn't have him for a lover until he proved he could provide her with a large supply of tasty flies.



by Bruce

The female, her belly swollen with eggs ready to be fertilized, watches as her suitors slam their antlers together. The larger male seems to be winning—he has driven his rival to the edge of their fungus shelf high in the tree—and with one last lunge of his horns he turns and mounts the female. He has won her favor, and she has won the benefit of his superior genes.

The horns on a male stag beetle are actually overgrown jawbones which have only one purpose: They are weapons in the competition for mates. Their growth saps the beetle's strength, and if they get too big they get in the way and he can't feed himself. But they have evolved because they contribute to greater mating success: a long-horned beetle is more likely to win a partner, and his genes are likely to produce more long-horned beetles. The horns are evidence of sexual selection.

Kandy Thornhill, an associate professor of biology at the University of New Mexico, studies the mating behavior of insects such as stag beetles

because sexual selection is critical to evolution.

"Selection is differential reproduction of individuals," says Thornhill, coauthor of a widely praised textbook on the evolution of insect mating systems.

Selection is described in two ways. Natural selection is differential reproduction due to differences in the survival of individuals, and sexual selection, which involves the individual's choice of mate, is, in Thornhill's words, "differential reproduction in the context of competition, not just for mates but for the best mates."

The National Science Foundation recently awarded Thornhill \$77,000 for a project titled "Sexual Selection and the Heritability of its Associated Traits." It is his fifth successive NSF grant, a record equaled by few researchers. All five projects have involved insect mating behavior. The grants have totaled \$339,000 and have supported at least two dozen student researchers at UNM over the past seven years.

A male black-tipped hangingfly has captured an aphid in the early-summer woods. Hanging from a twig, he nibbles on it while waiting for a female to join him. Then he presents the prey to her as a nuptial offering. But it is too small to impress her and she flies away. The male then uses his strong hind legs to capture a housefly, and this time it works, although first he must drive off a rival who tries to steal this prize.

The female munches on the fly throughout the twenty minutes or so of mating. If she

had decided to hold out for an even better nuptial offering, she might have flown away before her first partner could deposit many sperm.

The female black-tipped hangingfly is exhibiting female choice, a crucial element in sexual selection that has been documented by Thornhill in several insect species.

"We can generalize about male-female differences across species, even across animals and plants," Thornhill says in a voice still twangy with the Alabama, Georgia and Florida of his youth. "Males and females have different strategies. For the male, the strategy is to find and inseminate as many females as possible. For the female, the strategy is to discriminate among potential sexual partners."

Males court and females choose, adds Thornhill, because they have different investments in the reproduction cycle. In insects and in many other creatures, males produce only small gametes containing genes. After fertilization they may have little or no contact with the pregnant female or their offspring. By contrast, females produce large, nutritive gametes and usually must care for them.

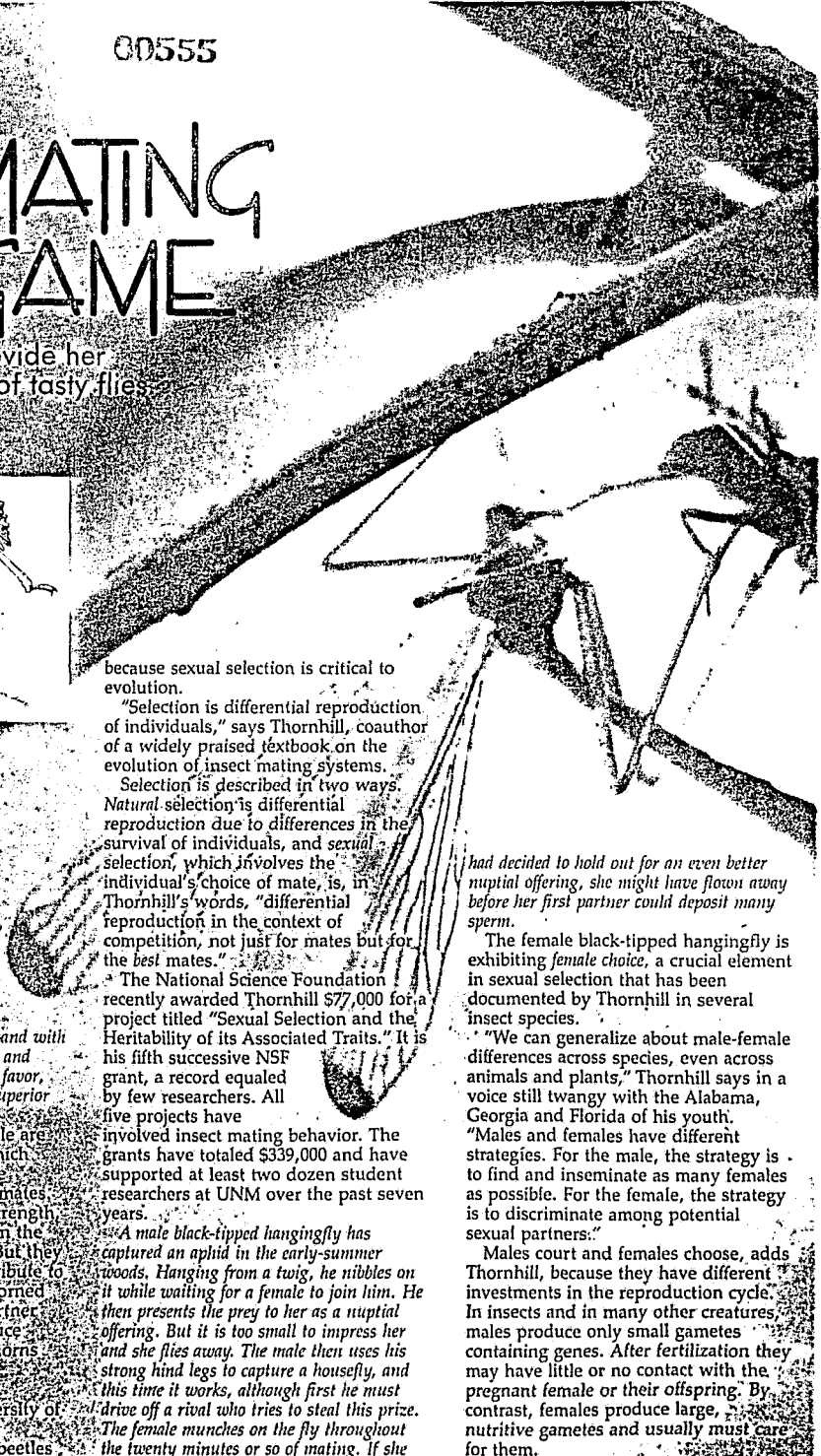




Photo: Thornhill

A male hangingly waits for a female to sample his nuptial gift when he is approached by a mimicking male. It has the same wing and abdomen postures as a female and even releases a sex hormone smell-alike. Tricked, the male surrenders his prey to the mimic, who in turn uses it to lure a mate.

"Insects don't make conscious choices," Thornhill says. "The insect is probably no more aware that its behavior serves reproduction than a flower is aware that its pollen does. All that is necessary for selection to favor a trait is that the trait contribute to greater reproduction than alternative traits."

Thornhill—who remembers being "a devoted butterfly chaser and insect watcher" as a boy—spends about 80 percent of his working time in the field. "Field work" is a tame term for days and nights of climbing, crouching, peering, noting—and swatting. "As I age I seem to have less tolerance" for mosquitoes and other biters and stingers, he says without of self-pity. "One big advantage of insect research

is that they let you watch them, not like birds or mammals that scurry away as soon as they become aware of a human's presence," Thornhill says. Some humans, however, think insect watchers are a bit nuts, running around with a net.

Thornhill is used to devoting an entire day to a small, drab, flighty, communal creature. These observations, multiplied for hundreds of individuals, grow into the generalizations that make articles for *Science*, *Ecology* and *Scientific American*. Aggregated and analyzed, Thornhill's field notes were the heart of his book, *The Evolution of Insect Mating Systems*, which a peer reviewer has called "the most important discussion of the subject since Darwin's."

The colony of scorpionflies has scavenged all the dead arthropods in the clearing, eating most of them and using a few for mating gifts. A male who wants to mate tries to manufacture a gift using material produced by his salivary glands—but it has been so long since he has eaten that he fails. Instead, he forces himself on an unwilling but smaller and weaker female. She is less likely to produce viable offspring from this union, but for today it is his best chance.

Scorpionflies demonstrate the principle of *sexual conflict*, Thornhill says.

"The evolutionary fitness interests of the sexes are different," he wrote last year in *The American Biology Teacher*.

"Males strive to maximize the number of copulations, but females gain by evaluation of the males who are superior resource providers and genetically superior.

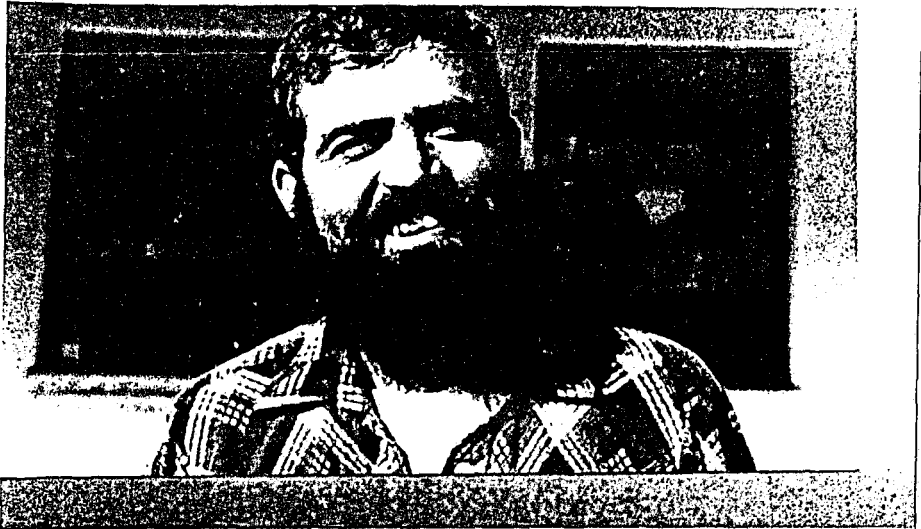
"Female scorpionflies prefer resource-providing males as mates and try to keep away from force-copulators. This is expected from the differences in female fertility following matings with males employing the different alternatives. Also, force-copulators may be inferior genetically as revealed by their inability to compete for resources."

In a few species it is the females who compete for the chance to mate and the males who are choosy. These males have a larger reproductive investment than most, usually because their sperm comes with costly chemicals necessary for females to produce eggs.

But much more often, males appear to make only a genetic contribution, via sperm, to the mating process," says Thornhill. That means sexual selection "should favor males who are the best at advertising and selling themselves as potential mates" and those whose fighting ability or superior tactics allow them to dominate other males.

"At the same time we expect the coevolution of female ability to recognize truly superior males," adds Thornhill. "Females appear to be holding out for the best genes they can get." □

The Biology Department has seven adjunct professors and these people are more than just "paper appointments" to us. They all serve our Department and UNM by performing a variety of activities (without salary) including teaching, service on committees, work with undergraduate and graduate students, publishing, and securing state and federal grants. Dr. Herb Grover has been one of our most visible adjuncts in recent months and his accomplishments promise to continue to keep us in the public eye.



Dr. Herbert Grover, an adjunct Assistant Professor who received his Ph.D. from UNM in 1982, has certainly been in the public eye lately. He has been studying the "Long-term Biological Consequences of Nuclear War" for some time and is co-author of a recent article in Science (23 December 1983). This past fall, he attended The Conference on the World After Nuclear War in Washington, D.C., and was invited (one of only about 150 scientists in America) to attend a December reception and forum on nuclear arms issues. The reception, held at the home of Senator Edward Kennedy, fostered communication between the scientists involved in the November conference, and Washington dignitaries, including numerous foreign ambassadors. The Joint American-Soviet Scientific Forum of Nuclear War entered into the Congressional Record the testimonies of both U.S. and Soviet scientists depicting the potential consequences of nuclear war. Conclusions reached by both "sides" were the same, that ecological effects of nuclear war would be suicidal, including a nuclear "winter" of several years duration, freezing of fresh water systems, burning of up to one-sixth of the world's urban areas, and other results that would lead to species extirminations of world-wide proportions.

Dr. Grover has also been invited to convene a symposium on this subject at the 1984 meetings of the Ecological Society of America, and he has been asked to contribute an article to Environment Magazine, a popular publication with a circulation of 20,000. It is obvious that Dr. Grover is deeply committed to informing not only the scientific community, but also the public, at all levels, about these critical issues. He currently teaches a special topics course in our department on the ecological consequences of nuclear war, which has received considerable attention. Herb is another of our crew helping to bring nationwide recognition to UNM's Department of Biology.

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Firestorms could follow blast

By LORING WIRBEL
Tribune Staff Writer

A University of New Mexico biologist says awesome firestorms could precede the darkness and cold of a "nuclear winter" that a group of scientists say would result from even a limited nuclear war.

Herbert Grover has racked up several credits in nuclear war analysis since finishing post-doctoral studies at Cornell University last year. The UNM scientist is one of the authors of a Dec. 23 *Science* magazine study on the biological effects of nuclear war. His work was in conjunction with the recent "nuclear winter" report prepared by astronomer Carl Sagan and others.

Grover is also serving on committees of the Ecological Society of America and the International Council of Scientific Unions, and in between his national studies, Grover teaches a UNM course on nuclear war's ecological effects.

The work has led him to the same sober conclusions reached by Sagan and his co-authors, who warned that even a small nuclear exchange would lead to a "winter" of several years' that could wipe out many species of life.

Grover's first exposure to the "big chill" argument offered by Sagan's team came in April at a conference where 60 biologists reviewed the first draft of the nuclear winter report. The study's prediction that the dust kicked up by nuclear blasts could darken and freeze the planet for several seasons shocked some researchers in attendance.

"Many of the biologists were confronted with this for the first time," Grover said.



Herbert Grover

Under the leadership of Cornell's Mark Harwell and George Woodwell of the Woods Hole marine lab in Massachusetts, Grover and several other biologists were invited to write a response to accompany the nuclear winter study. Grover's concentration on bomb-induced fires led him into uncharted territory.

"We've heard predictions from the Earth being turned to a blackened ember floating through space, to some reports that discount fire altogether," Grover said. His conclusions do not support a vision of a burned-out planet, but they are far from reassuring.

As much as one-sixth of the world's urbanized areas could be burned in a nuclear exchange, the report predicts. Large portions of the nation's grasslands and forests could be laid to waste, depending on the dryness of some regions near military targets. And that could only be the beginning.

Fresh-water systems would freeze over as the dust from bombs blotted out sunlight, Grover said. Even a one-year freeze could wipe out many species in lakes and streams. Although oceans would not freeze in the nuclear winter, the lack of sunlight could kill off plankton that provide food to many ocean animals.

The conclusions of the two studies were revealed to

the public at a Washington conference in October and a U.S. Senate forum last month convened by Sen. Edward Kennedy, D-Mass. After attending the forum and a later reception in Kennedy's home, Grover said he was surprised at the heavy participation of Soviet scientists acting with the tacit approval of their government. He said he regrets that U.S. scientists must act on their own.

Grover rejects the view of skeptics that this means U.S. scientists are being "duped" by a Soviet propaganda drive.

"American scientists are not that naive," he said. "We understand the concern that the Soviets are manipulating this, but the importance of this issue dwarfs any other concern."

"The upshot is that neither side can afford to use nuclear weapons because at any level of use you risk escalation . . . and at any level of use you risk suicidal effects on the ecosystems of the planet."

Long-Term Biological Consequences of Nuclear War

Paul R. Ehrlich, John Harte, Mark A. Harwell, Peter H. Raven
Carl Sagan, George M. Woodwell, Joseph Berry
Edward S. Ayensu, Anne H. Ehrlich, Thomas Eisner
Stephen J. Gould, Herbert D. Grover
Rafael Herrera, Robert M. May, Ernst Mayr
Christopher P. McKay, Harold A. Mooney, Norman Myers
David Pimentel, John M. Teal

Recent studies of large-scale nuclear war (5000- to 10,000-MT yields) have estimated that there would be 750 million immediate deaths from blast alone (1); a total of about 1.1 billion deaths from the combined effects of blast, fire, and radiation (2); and approximately an additional 1.1 billion injuries requiring medical attention (1, 2). Thus, 30 to 50 percent of the total human population could be immediate casualties of a nuclear war. The vast majority of the casualties would be in the Northern Hemisphere, especially in the United States, the U.S.S.R., Europe, and Japan. These enormous numbers have typically been taken to define the full potential catastrophe of such a war. New evidence presented here, however, suggests that the longer term biological effects resulting from climatic changes may be at least as serious as the immediate ones. Our concern in this article is with the 2 billion to 3 billion people not killed immediately, including those in nations far removed from the nuclear conflict.

We consider primarily the results of a nuclear war in which sufficient dust and soot are injected into the atmosphere to attenuate most incident solar radiation, a

possibility first suggested by Ehrlich *et al.* (3), and first shown quantitatively and brought to wide attention by Crutzen and Birks (1). In a wide range of nuclear exchange scenarios, with yields from 100

Summary. Subfreezing temperatures, low light levels, and high doses of ionizing and ultraviolet radiation extending for many months after a large-scale nuclear war could destroy the biological support systems of civilization, at least in the Northern Hemisphere. Productivity in natural and agricultural ecosystems could be severely restricted for a year or more. Postwar survivors would face starvation as well as freezing conditions in the dark and be exposed to near-lethal doses of radiation. If, as now seems possible, the Southern Hemisphere were affected also, global disruption of the biosphere could ensue. In any event, there would be severe consequences, even in the areas not affected directly, because of the interdependence of the world economy. In either case the extinction of a large fraction of the Earth's animals, plants, and microorganisms seems possible. The population size of *Homo sapiens* conceivably could be reduced to prehistoric levels or below, and extinction of the human species itself cannot be excluded.

MT up to 10,000 MT, we now know that enough sunlight could be absorbed and scattered to cause widespread cold and darkness [(4, 5); these papers are also collectively referred to as TTAPS]. In each of these cases the computations indicate very serious biological consequences. This is so even though all the

scenarios are well within current capabilities and do not seem to be strategically implausible (1, 2, 4-6). Furthermore, the probability of nuclear wars of very high yield may have been generally underestimated (7). We also examine the consequences of the spread of atmospheric effects from the Northern to the Southern Hemisphere (4, 5).

As a reference case, we consider case 17 of the nuclear war scenarios discussed in TTAPS. This is a 10,000-MT exchange in which parameters describing the properties of dust and soot aerosols are assigned adverse but not implausible values and in which 30 percent of the soot is carried by fire storms to stratospheric altitudes. The resulting environmental perturbations, with their ranges of uncertainty, are listed for the Northern Hemisphere and the Southern Hemisphere in Table 1, A and B.

As an average over the Northern Hemisphere, independent of the season of the year, calculated fluxes of visible light would be reduced to approximately 1 percent of ambient, and surface temperatures in continental interiors could fall to approximately -40°C . At least a

year would be required for light and temperature values to recover to their normal conditions. In target zones, it might initially be too dark to see, even at midday. An estimated 30 percent of Northern Hemisphere mid-latitude land areas would receive a dose ≈ 500 R immediately after the explosions. This dose, from external gamma-emitters in radioactive fallout, would be comparable to or more than the acute mean lethal dose (LD_{50}) for healthy adults (8). Over the next few days and weeks, fallout would contribute an additional external dose of ≈ 100 R over 50 percent of northern mid-latitudes. Internal doses would contribute another ≈ 100 R concentrated in specific body systems, such as thyroid, bones, the gastrointestinal

This article was prepared following a meeting of biologists on the Long-Term Worldwide Biological Consequences of Nuclear War (Cambridge, Massachusetts, 25 and 26 April 1983). The consensus of the 40 scientists at the meeting is presented here, assembled by a committee consisting of: Paul R. Ehrlich, Stanford University; John Harte, University of California, Berkeley; Mark A. Harwell, Cornell University; Peter H. Raven, Missouri Botanical Garden; Carl Sagan, Cornell University; George M. Woodwell, Marine Biological Laboratory, Woods Hole; Joseph Berry, Carnegie Institute of Washington; Edward S. Ayensu, Smithsonian Institution; Anne H. Ehrlich, Stanford University; Thomas Eisner, Cornell University; Stephen J. Gould, Harvard University; Herbert D. Grover, University of New Mexico; Rafael Herrera, IVIC, Venezuela; Robert M. May, Princeton University; Ernst Mayr, Harvard University; Christopher P. McKay, National Research Council Associate; Harold A. Mooney, Stanford University; Norman Myers, Oxford, England; David Pimentel, Cornell University; and John M. Teal, Woods Hole Oceanographic Institution. The findings in this article were presented at the Conference on the World after Nuclear War, Washington, D.C., 31 October and 1 November 1983. Reprint requests should be sent to the Conference on the Long-Term Worldwide Biological Consequences of Nuclear War, 1735 New York Avenue, NW, Washington, D.C. 20006.

tract, and the milk of lactating mothers (9). After settling of the dust and smoke, the surface flux of near-ultraviolet solar radiation (UV-B, 320 to 290 nm) would be increased severalfold for some years, because of the depletion of the ozoneosphere by fireball-generated NO_x . Southern Hemisphere effects would involve minimum light levels < 10 percent of ambient, minimum land surface temperatures < -18°C , and UV-B increments of tens of percent for years. The potential impacts from the climatic changes that would be induced by nuclear war are outlined in Table 2.

Thermonuclear wars that would be less adverse to the environment are clearly possible, but climatic effects sim-

ilar to those just outlined could well result from much more limited exchanges, down to several hundred megatons, if cities were targeted (4, 5). Even if there were no global climatic effects, the regional consequences of nuclear war might be serious (Table 3). We believe, however, that decision-makers should be fully apprised of the potential consequences of the scenarios most likely to trigger long-term effects. For this reason we have concentrated in this article on the 10,000-MT severe case rather than the 5000-MT nominal baseline case of TTAPS. Because of synergisms, however, the consequences of any particular nuclear war scenario are likely to be still more severe than discussed below. We

still have too incomplete an understanding of the detailed workings of global ecosystems to evaluate all the interactions, and thus the cumulative effects, of the many stresses to which people and ecosystems would be subjected. Every unassessed synergism is likely to have an incremental negative effect.

Temperature

The impact of dramatically reduced temperatures on plants would depend on the time of year at which they occurred, their duration, and the tolerance limits of the plants. The abrupt onset of cold is of particular importance. Winter wheat, for

Table 1. Long-term stresses on the biosphere in (A) the Northern Hemisphere and (B) the Southern Hemisphere following a 10,000-MT severe Northern Hemisphere exchange (4, 5). Stresses occur simultaneously. Their geographic extent and severity would depend on many factors, including the number, distribution, and yield of the weapons detonated; height above the surface of the explosions and scale of the subsequent fires; degree of atmospheric transport of soot and dust (especially from the Northern to the Southern Hemisphere); and rate of washout of soot and dust, which determines their atmospheric residence times. Stresses in (B) are estimated effects which arise from 100-MT total detonations in the Southern Hemisphere plus particulates transported from the Northern Hemisphere primarily in the stratosphere. Data are from the "baseline 5000 MT" and "100-MT city attack" cases (4, 5). The Southern Hemisphere effects could be more severe if a heavy stratospheric soot burden resulted.

Physical parameter	Perturbed value*	Duration	Area affected†	Possible range
A. Northern Hemisphere				
Sunlight intensity	$\times 0.01$	1.5 months	NML	$\times 0.003$ to 0.03
	$\times 0.05$	3 months	NML	$\times 0.01$ to 0.15
	$\times 0.25$	5 months	NH	$\times 0.1$ to 0.7
	$\times 0.50$	8 months	NH	$\times 0.3$ to 1.0
Land surface temperature‡	-43°C	4 months	NML land	-53° to -23°C
	-23°C	9 months	NH land	-33° to -3°C
	-3°C	1 year	NH land	-13° to $+7^\circ\text{C}$
UV-B radiation§	$\times 4$	1 year	NH	$\times 2$ to 8
	$\times 3$	3 years	NH	$\times 1$ to 5
Radioactive fallout exposure	≥ 500 R	1 hour to 1 day	30 percent NML land	Factor of 3
	≥ 100 R	1 day to 1 month	50 percent NML	
	≥ 10 R	≈ 1 month	50 percent NH	
Fallout burdens§§,¶	$^{131}\text{I}, 4 \times 10^5$ MCI	8 days#	NML	
	$^{106}\text{Ru}, 1 \times 10^4$ MCI	1 year	NH	
	$^{90}\text{Sr}, 400$ MCI	30 years	NH	
	$^{137}\text{Cs}, 650$ MCI	30 years	NH	
B. Southern Hemisphere				
Sunlight intensity	$\times 0.1$	1 month	SH tropics	0.03 to 0.3
	$\times 0.5$	2 months	SH tropics and SML	0.1 to 0.9
	$\times 0.8$	4 months	SH	0.3 to 1.0
Land surface temperature‡	-18°C	1 month	SML land	-33° to -3°C
	-3°C	2 months	SML land	-23° to $+7^\circ\text{C}$
	$+7^\circ\text{C}$	10 months	SML land	-13° to $+13^\circ\text{C}$
UV-B radiation§	$\times 1.5$	1 year	SH	$\times 1.2$ to 2.0
	$\times 1.2$	3 years	SH	$\times 1.0$ to 1.5
Radioactive fallout exposure	≥ 500 R	1 hour to 1 day	Near detonation sites	Factor of 3
	10 to 100 R	1 day to 1 month	SH land	
Fallout burdens§§,¶	$^{90}\text{Sr}, 300$ MCI	30 years	SH	
	$^{137}\text{Cs}, 330$ MCI	30 years	SH	

The following definitions apply: \times , multiplicative factor; R, rad = roent; MCI, megacurie. †Abbreviations. NH, Northern Hemisphere; NML, northern mid-latitude; SML, southern mid-latitude. ‡Average surface temperatures should be compared to the normal ambient value of 15°C . §From ref. 22. ¶These figures are rough estimates of whole-body gamma-ray doses and apply only to exposed organisms, particularly near or windward of the 10⁴ explosion sites. Exposures are due to fallout on "prompt" and "intermediate" time scales; ingestion of biologically active radionuclides is not so in account, but could double the dose in body organs (for instance, the thyroid for ^{131}I), where these radionuclides tend to accumulate. Doses are larger than in conventional models which scale from high-yield atmospheric tests; such models assume much more radioactivity carried into the stratosphere and decaying are falling out than is appropriate for a war with a wide mix of yields (4, 5, 40). ¶The principal modes of deposition are fallout and washout. In airbursts, the radionuclides settle out slowly over several years. In surface bursts, ≈ 60 percent falls out promptly, ≈ 40 percent over 1 to 2 years. In subsurface water bursts, ~ 100 percent is deposited in the water. During the atmospheric nuclear tests of the 1950's and 1960's, ~ 200 MT of fission yield produced an average ^{90}Sr deposition ~ 50 curies per square kilometer. #These are essentially the radionuclide lifetimes. †††Radionuclides contribute mainly to the prompt fallout exposure.

example, can tolerate temperatures as low as -15°C to -20°C when preconditioned to cold temperatures (as occurs naturally in fall and winter months), but the same plants may be killed by -5°C if

exposed during active summer growth (10). Even plants from alpine regions, *Pinus cembra* for example, may tolerate temperatures as low as -50°C in midwinter but may be killed by temperatures of

-5° to -10°C occurring in summer (11). In the TTAPS calculations, temperatures are expected to fall rapidly to their lowest levels (Table 1); it is unlikely under these circumstances that normally cold-

Table 2. Potential impacts on humans and ecosystems from climatic changes induced by a major nuclear war at various time periods after the war.

First few months	End of first year	Next decade
<p>Extreme cold, independent of season and widespread over the Earth, would severely damage plants, particularly in mid-latitudes in the Northern Hemisphere and in the tropics. Particulates obscuring sunlight would severely curtail photosynthesis, essentially eliminating plant productivity. Extreme cold, unavailability of fresh water, and near darkness would severely stress most animals, with widespread mortality. Storm events of unprecedented intensity would devastate ecosystems, especially at margins of continents.</p>	<p><i>Natural ecosystems: Terrestrial</i> Many hardy perennial plants and most seeds of temperate plants would survive, but plant productivity would continue to be depressed significantly. As the atmosphere clears, increased UV-B would damage plants and impair vision systems of many animal species. Limited primary productivity would cause intense competition for resources among animals. Many tropical species would continue to suffer fatalities or reduced productivity from temperature stress. Widespread extinction of vertebrates.</p>	<p>Basic potential for primary and secondary productivity would gradually recover; however, extensive irreversible damage to ecosystems would have occurred. Ecosystem structure and processes would continue to respond unstably to perturbations and a long period of time might follow before functional redundancies would reestablish ecosystem homeostasis. Massive loss of species, especially in tropical areas, would lead to reduced genetic and species diversity.</p>
<p>Temperature extremes would result in widespread ice formation on most freshwater bodies, particularly in the Northern Hemisphere and in mid-latitude continental areas. Marine ecosystems would be largely buffered from extreme temperatures, with effects limited to coastal and shallow tropical areas. Light reductions would essentially terminate phytoplankton productivity, eliminating the support base for many marine and freshwater animal species. Storms at continental margins would stress shallow-water ecosystems and add to sediment loadings. Potential food sources would not be accessible to humans or would be contaminated by radionuclides and toxic substances.</p>	<p><i>Natural ecosystems: Aquatic</i> Early loss of phytoplankton would continue to be felt in population collapses in many herbivore and carnivore species in marine ecosystems; benthic communities would not be as disrupted. Freshwater ecosystems would begin to thaw, but many species would have been lost. Organisms in temperate marine and freshwater systems adapted to seasonal temperature fluctuations would recover more quickly and extensively than in tropical regions.</p>	<p>Recovery would proceed more rapidly than for terrestrial ecosystems. Species extinctions would be more likely in tropical areas. Coastal marine ecosystems would begin to contain harvestable food sources, although contamination could continue.</p>
<p>Extreme temperatures and low light levels could preclude virtually any net productivity in crops anywhere on Earth. Supplies of food in targeted areas would be destroyed, contaminated, remote, or quickly depleted. Nontargeted importing countries would lose subsidies from North America and other food exporters.</p>	<p><i>Agroecosystems</i> Potential crop productivity would remain low because of continued, though much less extreme, temperature depressions. Sunlight would not be limiting but would be enriched with UV-B. Reduced precipitation and loss of soil from storm events would reduce potential productivity. Organized agriculture would be unlikely, and modern subsidies of energy, fertilizers, pesticides, and so on, would not be available. Stored food would be essentially depleted, and potential draught animals would have suffered extensive fatalities and consumption by humans</p>	<p>Biotic potential for crop production would largely be restored. Limiting factors for reestablishment of agriculture would be related to human support for water, energy, fertilizers pest and disease protection, and so on.</p>
<p>Survivors of immediate effects (from blast, fire, and initial ionizing radiation) would include perhaps 50 to 75 percent of the Earth's population. Extreme temperatures, near darkness, violent storms, and loss of shelter and fuel supplies would result in widespread fatalities from exposure, starvation, lack of drinking water, and synergisms with other impacts such as radiation exposure, malnutrition, lack of medical systems, and psychological stress. Societal support systems for food, energy, transportation, medical care, communications, and so on, would cease to function.</p>	<p><i>Human-societal systems</i> Climatic impacts would be considerably reduced, but exposure would remain a stress on humans. Loss of agricultural support would dominate adverse human health impacts. Societal systems could not be expected to function and support humans. With the return of sunlight and UV-B, widespread eye damage could occur. Psychological stresses, radiation exposures, and many synergistic stresses would continue to affect humans adversely. Epidemics and pandemics would be likely.</p>	<p>Climatic stresses would not be the primary limiting factors for human recovery. Rates of reestablishment of societal order and human support systems would limit rates of human population growth. Human carrying capacities could remain severely depressed from prewar conditions for a very long period of time, at best.</p>

tolerant plants could "harden" (develop freezing tolerance) before lethal temperatures were reached. Other stresses to plants from radiation, air pollutants, and low light levels immediately after the war would compound the damage caused by freezing. In addition, diseased or damaged plants have a reduced capacity to harden to freezing conditions (11).

Even temperatures considerably above freezing can be damaging to some plants. For example, exposure of rice or sorghum to a temperature of only 13°C at the critical time can inhibit grain formation because the pollen produced is sterile (11). Corn (*Zea mays*) and soybeans (*Glycine max*), two important crops in North America, are quite sensitive to temperatures below about 10°C.

While a nuclear war in the fall or winter would probably have a lesser effect on plants in temperate regions than one in the spring or summer, tropical vegetation is vulnerable to low temperatures throughout the year. The only areas in which terrestrial plants might not be devastated by severe cold would be immediately along the coasts and on islands, where the temperatures would be moderated by the thermal inertia of the oceans. These areas, however, would experience particularly violent weather because of the large lateral temperature gradient between oceans and continental interiors.

Visible Light

The disruption of photosynthesis by the attenuation of incident sunlight would have consequences that cascade through food chains, many of which include people as consumers. Primary productivity would be reduced roughly in proportion to the degree of light attenuation, even making the unrealistic assumption that the vegetation would remain otherwise undamaged.

Many studies have examined the effects of shading on the rate of photosynthesis, plant growth, and crop yield (12). Although individual leaves may be saturated by light levels below one-half of attenuated sunlight, entire plants that have several layers of leaves oriented at different angles to the sun and partially shading each other are usually not light-starved. Thus, while only a 10 percent reduction in light might not reduce photosynthesis in a fully exposed leaf, it might well reduce it in the entire plant because of the presence of unsaturated leaves within the canopy. Because plants also respire, most would, in fact, be

unlikely to maintain any net growth if the light level fell below about 5 percent of the normal ambient levels in their habitats (the compensation point) (12, 13). At the levels expected in the early months following a substantial nuclear exchange, plants would be severely affected and many would die because of the substantial reductions in their net productivity caused by reduced light alone.

Ionizing Radiation

Exposures to ionizing radiation in a nuclear exchange would result directly from the gamma and neutron flux of the fireball, from the radioactive debris deposited downwind of the burst, and from the component of the debris that becomes airborne and circulates globally.

The degree of injury to organisms would depend on the rate and magnitude of the exposure, with higher rates and larger total exposures producing more severe effects. The mean lethal exposure for human beings is commonly thought to be 350 to 500 R received in the whole body in less than 48 hours. Most other mammals and some plants have mean lethal exposures of less than 1000 R. If the rate of exposure is lower, the mean lethal dose rises.

The area subject to intense radiation from the fireball would also be affected directly by blast and heat (9, 14). The radius within which the pressure from the blast exceeds 5 pounds per square inch has been defined as the lethal zone (9) for blast, and the area within which the thermal flux exceeds 10 cal/cm² as the lethal zone for heat. The radius within which ionizing radiation from the fireball would be expected to be lethal for human beings is less than the radii for mortality defined by pressure or heat (1, 9). No special further consideration has been given here to the effects of ionizing radiation from the fireballs.

One estimate, based on the *Ambio* scenario (1) and similar to the TTAPS baseline case, involves an exchange of 5742 MT and about 11,600 detonations without overlapping fallout fields; it suggests that about 5×10^6 km² would be exposed to 1000 R or more in downwind areas. About 85 percent of this total exposure would be received within 48 hours. Such an exposure is lethal to all exposed people and cause the death of sensitive plant species such as most conifers—trees that form extensive forests over most of the cooler parts of the Northern Hemisphere. If nuclear reactors, radioactive waste storage facilities,

and fuel reprocessing plants are damaged during an exchange, the area affected and the levels of ionizing radiation could be even greater.

If we assume that approximately half of this area affected by fallout radiation in the range 1000 to 10,000 R is forested, there would be about 2.5×10^6 km² within which extensive mortality of trees and many other plants would occur (15). This would create the potential for extensive fires. Most conifers would die over an area amounting to about 2.5 percent of the entire land surface of the Northern Hemisphere.

The possibility that as much as 30 percent of the mid-latitude land area would be exposed to 500 R or more from gamma radiation emphasizes the scale and severity of the hazard (Table 1A). While 500 R of total exposure would have minor effects on most plant populations, it would cause widespread mortality among all mammals, including human beings. The unprotected survivors would be ill for weeks and more prone to cancer for the remainder of their lives. The total number of people afflicted would exceed 1 billion.

UV-B Radiation

In the weeks following the exchange, tropospheric and stratospheric dust and soot would absorb the UV-B flux that would otherwise be transmitted by the partially destroyed ozonosphere. But when the dust and soot cleared a few months later, the effects of O₃ depletion would be felt at the surface. In the Northern Hemisphere, the flux of UV-B would be enhanced for about a year by a factor of about 2 for the baseline TTAPS exchange and by a factor of 4 for the 10,000 MT war-treated in Table 1A. As is the case for an undepleted ozonosphere, the UV-B dose would be significantly greater at equatorial than at temperate latitudes.

Even much smaller O₃ depletions are considered dangerous to ecosystems and to people (16). If the entire UV-B band is enhanced by about 50 percent, the amount of UV-B at the higher energy end of the band, near 295 nm, would be increased by a factor of about 50. This region has particular biological significance because of the strong absorption of energy at these wavelengths by nucleic acids, aromatic amino acids, and the peptide bond. In large doses, UV-B is very destructive to plant leaves, weakening the plants and decreasing their productivity (17). Near-surface productivity

of marine plankton is known to be depressed significantly by contemporary ambient UV-B levels; even small increases in UV-B could have "profound consequences" for the structure of marine food chains (16).

There are at least four additional ways in which increased levels of UV-B are known to be harmful to biological systems: (i) the immune systems of *Homo sapiens* and other mammals are known to be suppressed even by relatively low doses of UV-B (18). Especially under conditions of increased ionizing radiation and other physiological stress, such suppression of the immune systems leads to an increase in the incidence of disease. (ii) Plant leaves that reach maturity under low light intensities are two to three times more sensitive to UV-B than leaves that develop under high light intensities (19). (iii) Bacterial UV-B sensitivity is enhanced by low temperatures, which suppress the normal process of DNA repair, a process that is dependent on visible light (16). (iv) Protracted exposure to increased UV-B may induce corneal damage and cataracts, leading to blindness in human beings and terrestrial mammals (20). Thus the effects of increased UV-B may be among the most serious unanticipated consequences of nuclear war.

Atmospheric Effects

In a nuclear war, large quantities of air pollutants, including CO, O₃, NO_x, cyanides, vinyl chlorides, dioxins, and furans would be released near the surface (4, 5, 21). Smog and acid precipitation would be widespread in the aftermath of the nuclear exchange. These toxins might not have significant immediate effects on the vegetation that was already devastated, although, depending upon their persistence, they could certainly hinder its recovery. Their atmospheric transport by winds to more distant, initially unaffected ecosystems, on the other hand, might be an important additional effect. Large-scale fires coupled with an interruption of photosynthetic CO₂ uptake would produce a short-term increase in the atmospheric CO₂ concentration. The quantity of CO₂ now in the atmosphere is equivalent to that used by several years of photosynthesis and is further buffered by the inorganic carbon reserves of the ocean (22). Therefore, if the global climate and photosynthetic productivity of ecosystems recovered to near-normal levels within a few years, it is unlikely that any significant long-term change in the composition of the atmosphere would occur. It is not beyond the realm of possibility, however, that an

event encompassing both hemispheres, with the ensuing damage to photosynthetic organisms, could cause a sudden increase in CO₂ concentration and thus long-term climatic changes. For comparison, the time scale for recycling of O₂ through the biosphere is about 2000 years (23).

Agricultural Systems

There is little storage of staple foods in human population centers, and most meat and fresh produce are supplied directly from farms. Only cereal grains are stored in significant quantities, but the sites at which they are stored often are located in areas remote from population centers. Following a spring or early summer war, the current year's crops would almost certainly be lost. Cereal crops would be harvested before a fall or winter war, but since the climate would remain unusually cold for many months, the following growing season would also be unfavorable for crop growth.

After a nuclear war, in short, the available potential supplies of food in the Northern Hemisphere would be destroyed or contaminated, located in inaccessible areas, or rapidly depleted. For nations experiencing the nuclear war di-

Table 3. Potential ecological consequences of the reference nuclear war, other than those induced by temperature and light reductions.

Stress	Intensity or extent	Mechanisms of effects	Ecosystem consequences
Local, global radioactive fallout from nuclear detonation*	≥ 100 rem average background; ≥ 200 rem over large area in Northern Hemisphere*	Direct health effects; immune system depression; differential radiosensitivities of species; genetic effects	Alteration in trophic structures; pest outbreaks; replacement by opportunistic species; genetic and ontogenetic anomalies
Enhanced UV-B	Fourfold increase over Northern Hemisphere*	Suppression of photosynthesis; direct health effects; differential sensitivities of species; damage to vision systems; immune system depression	Reduction in primary productivity; alterations in marine trophic structures; blindness in terrestrial animals; behavioral effects in insects including essential pollinators
Fire	Secondary fires widespread over Northern Hemisphere; ≥ 5 percent of terrestrial ecosystems affected	Direct loss of plants; damage to seed stores; changes in albedo; habitat destruction	Deforestation and desertification, which continues through positive feedback (39); local climatic changes; large-scale erosion and siltation; nutrient dumping; species extinction
Chemical pollution of surface waters	Pyrotoxins; release from chemical storage areas	Direct health effects; differential sensitivities of species; bioconcentration	Loss of organisms; continued contamination of surface and ground water systems; loss of water for human consumption
Chemical pollution of atmospheres	Major releases of NO, O ₃ and pyrogenic pollutants from detonations; major releases of toxic organics from secondary fires in urban areas and chemical storage facilities	Direct health effects; differential sensitivities of species; acid precipitation	Widespread smog; freshwater acidification; nutrient dumping

*See Table 1A.

rectly, food resources would become scarce in a very short time. Further, nations that now require large imports of foods, including those untouched by nuclear detonations, would suffer an immediate interruption of the flow of food, forcing them to rely solely on their local agricultural and natural ecosystems. This would be very serious for many less-developed countries, especially those in the tropics.

Most major crops are annuals that are highly dependent on substantial energy and nutrient subsidies from human societies. Further, the fraction of their yields available for human consumption requires excess energy fixation beyond the respiratory needs of the plants, depending on full sunlight, on minimization of environmental stresses from pests, water insufficiency, particulates, and air pollution, and so on. Providing these conditions would be far more difficult, if not impossible, over much, if not all, of the Earth following a nuclear exchange. Agriculture as we know it would then, for all practical purposes, have come to an end.

Since the seeds for most North American, European, and Soviet crops are harvested and stored not on individual farms but predominantly in or near target areas, seed stocks for subsequent years would almost certainly be depleted severely, and the already limited genetic variability of those crops (24) would probably be reduced drastically. Furthermore, the potential crop-growing areas would experience local climatic changes, high levels of radioactive contamination, and impoverished or eroded soils. Recovery of agricultural production would have to occur in the absence of the massive energy subsidies (especially in the form of tractor fuel and fertilizers) to which agriculture in developed countries has become adapted (25).

Except along the coasts, continental precipitation would be reduced substantially for some time after a nuclear exchange (4, 5). Even now, rainfall is the major factor limiting crop growth in many areas, and irrigation, with requirements for energy and human support systems for pumping ground water, would not be available after a war. Moreover, in the months after the war, most of the available water would be frozen, and temperatures would recover slowly to normal values (26).

Temperate Terrestrial Ecosystems

The 2 billion to 3 billion survivors of the immediate effects of the war would

be forced to turn to natural ecosystems as organized agriculture failed. Just at the time when these natural ecosystems would be asked to support a human population well beyond their carrying capacities, the normal functioning of the ecosystems themselves would be severely curtailed by the effects of nuclear war.

Subjecting these ecosystems to low temperature, fire, radiation, storm, and other physical stresses (many occurring simultaneously) would result in their increased vulnerability to disease and pest outbreaks, which might be prolonged. Primary productivity would be dramatically reduced at the prevailing low light levels; and, because of UV-B, smog, insects, radiation, and other damage to plants, it is unlikely that it would recover quickly to normal levels, even after light and temperature values had recovered. At the same time that their plant foods were being limited severely, most, if not all, of the vertebrates not killed outright by blast and ionizing radiation would either freeze or face a dark world where they would starve or die of thirst because surface waters would be frozen and thus unavailable. Many of the survivors would be widely scattered and often sick, leading to the slightly delayed extinction of many additional species.

Natural ecosystems provide civilization with a variety of crucial services in addition to food and shelter. These include regulation of atmospheric composition, moderation of climate and weather, regulation of the hydrologic cycle, generation and preservation of soils, degradation of wastes, and recycling of nutrients. From the human perspective, among the most important roles of ecosystems are their direct role in providing food and their maintenance of a vast library of species from which *Homo sapiens* has already drawn the basis of civilization (27). Accelerated loss of these genetic resources through extinction would be one of the most serious potential consequences of nuclear war.

Wildfires would be an important effect in north temperate ecosystems, their scale and distribution depending on such factors as the nuclear war scenario and the season. Another major uncertainty is the extent of fire storms, which might heat the lower levels of the soil enough to damage or destroy seed banks, especially in vegetation types not adapted to periodic fires. Multiple airbursts over seasonally dry areas such as California in the late summer or early fall could burn off much of the state's forest and brush areas, leading to catastrophic flooding and erosion during the next rainy season. Siltng, toxic runoff, and rainout of radio-

nuclides could kill much of the fauna of fresh and coastal waters, and concentrated radioactivity levels in surviving filter-feeding shellfish populations could make them dangerous to consume for long periods of time.

Other major consequences for terrestrial ecosystems resulting from nuclear war would include: (i) slower detoxification of air and water as a secondary result of damage to plants that now are important metabolic sinks for toxins; (ii) reduced evapotranspiration by plants contributing to a lower rate of entry of water into the atmosphere, especially over continental regions, and therefore a more sluggish hydrologic cycle; and (iii) great disturbance of the soil surface, leading to accelerated erosion and, probably, major dust storms (28).

Revegetation might superficially resemble that which follows local fires. Stresses from radiation, smog, erosion, fugitive dust, and toxic rains, however, would be superimposed on those of cold and darkness, thus delaying and modifying postwar succession in ways that would retard the restoration of ecosystem services (29). It is likely that most ecosystem changes would be short term. Some structural and functional changes, however, could be longer term, and perhaps irreversible, as ecosystems undergo qualitative changes to alternative stable states (30). Soil losses from erosion would be serious in areas experiencing widespread fires, plant death, and extremes of climate. Much would depend on the wind and precipitation patterns that would develop during the first postwar year (4, 5). The diversity of many natural communities would almost certainly be substantially reduced, and numerous species of plants, animals, and microorganisms would become extinct.

Tropical Terrestrial Ecosystems

The degree to which the tropics would be subjected to the sorts of conditions described above depends on factors such as the targeting pattern (1, 6), the prevalence of fire storms, the breakdown of the distinction between troposphere and stratosphere, and the rate of interhemispheric mixing as a function of altitude (4, 5). The spread of dense clouds of dust and soot and subfreezing temperatures to the northern tropics is highly likely, and to the Southern Hemisphere at least possible, so that it is appropriate to discuss the probable consequences of such a spread (4, 5) (Table 1B).

For example, the seeds of trees in tropical forests tend to be much more

short-lived than those of temperate zones. If darkness or cold temperatures, or both, were to become widespread in the tropics, the tropical forests could largely disappear. This would lead to extinction of most of the species of plants, animals, and microorganisms on the Earth (31, 32), with long-term consequences of the greatest importance for the adaptability of human populations.

If darkness were widespread in the tropics, vast areas of tropical vegetation, which are considered very near the compensation point (33), would begin to respire away. In addition, many plants in tropical and subtropical regions do not have dormancy mechanisms that enable them to tolerate cold seasons, even at temperatures well above freezing. Even if the darkness and cold were confined mainly to temperate regions, pulses of cold air and soot could carry quick freezes well into the tropics. This would amount to an enhanced case of the phenomenon known as "friagent," which is used to describe the effects of cool temperatures spreading from temperate South America and entering the equatorial Amazon Basin, where they kill large numbers of birds and fish (34). One can predict from existing evidence on cooling effects during the Pleistocene and their consequences (35) that continental low-latitude areas would be severely affected by low air temperatures and decreased precipitation.

The dependence of tropical peoples on imported food and fertilizer would lead to severe effects, even if the tropics were not affected directly by the war. Large numbers of people would be forced to leave the cities and attempt to cultivate the remaining areas of forest, accelerating their destruction and the consequent rate of extinction. These activities would also greatly increase the amount of soot in the atmosphere, owing to improvised slash-and-burn agriculture on a vast scale. Regardless of the exact distribution of the immediate effects of the war, everyone on the Earth would ultimately be affected profoundly.

Aquatic Ecosystems

Aquatic organisms tend to be buffered against dramatic fluctuations in air temperature by the thermal inertia of water. Nevertheless, many freshwater systems would freeze to considerable depths or completely because of the climatic changes after a nuclear war. The effect of prolonged darkness on marine organisms has been estimated (36). Primary producers at the base of the marine food chain

are particularly sensitive to prolonged low light levels; higher trophic levels are subject to lesser, delayed propagated effects. Moreover, the near-surface productivity of marine plankton is depressed significantly by present UV-B levels; even small increases in UV-B could have profound consequences for the structure of marine food chains (16, 37). It is often thought that the ocean margins would be a major source of sustenance of survivors of a nuclear war; the combined effects of darkness, UV-B, coastal storms, destruction of ships in the war, and concentration of radionuclides in shallow marine systems, however, cast strong doubt on this.

Conclusions

The predictions of climatic changes are quite robust (4, 5), so that qualitatively the same types of stresses would ensue from a limited war of 500 MT or less in which cities were targeted (38) as from a larger scale nuclear war of 10,000 MT. Essentially, all ecosystem support services would be severely impaired (Tables 2 and 3). We emphasize that survivors, at least in the Northern Hemisphere, would face extreme cold, water shortages, lack of food and fuel, heavy burdens of radiation and pollutants, disease, and severe psychological stress—all in twilight or darkness.

The possibility exists that the darkened skies and low temperatures would spread over the entire planet (4, 5). Should this occur, a severe extinction event could ensue, leaving a highly modified and biologically depauperate Earth. Species extinction could be expected for most tropical plants and animals, and for most terrestrial vertebrates of north temperate regions, a large number of plants, and numerous freshwater and some marine organisms.

It seems unlikely, however, that even in these circumstances *Homo sapiens* would be forced to extinction immediately. Whether any people would be able to persist for long in the face of highly modified biological communities; novel climates; high levels of radiation; shattered agricultural, social, and economic systems; extraordinary psychological stresses; and a host of other difficulties is open to question. It is clear that the ecosystem effects alone resulting from a large-scale thermonuclear war could be enough to destroy the current civilization in at least the Northern Hemisphere. Coupled with the direct casualties of over 1 billion people, the combined intermediate and long-term effects of nuclear

war suggest that eventually there might be no human survivors in the Northern Hemisphere. Furthermore, the scenario described here is by no means the most severe that could be imagined with present world nuclear arsenals and those contemplated for the near future (4, 5). In any large-scale nuclear exchange between the superpowers, global environmental changes sufficient to cause the extinction of a major fraction of the plant and animal species on the Earth are likely. In that event, the possibility of the extinction of *Homo sapiens* cannot be excluded.

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Theodore von Kármán and Applied Mathematics in America

John L. Greenberg and Judith R. Goodstein

Applied mathematics is generally regarded as having become a distinct discipline in the United States during World War II. Brown University, under Roland G. D. Richardson, formally instituted a program in applied mathematics, the nation's first, in 1941. New York University, under Richard Courant, later established its own program (1). By that time, Theodore von Kármán (1881-1963), Hungarian-born engineer and applied scientist and the first director of the

Daniel Guggenheim Graduate School of Aeronautics at the California Institute of Technology, had already spent more than 10 years struggling to make applied mathematics respectable in his adopted country. To him, the measures taken during the war represented the first concerted, nationwide effort to resolve a long-standing scientific gap in the United States.

Von Kármán figured prominently in the rise of Caltech's school of aeronautics in the 1930's, and his experience in America in the 1930's helped define the issues that would lead to the organized development of applied mathematics in

the next decade. Frequently pressed for his opinions on how to mobilize mathematicians for the war, von Kármán contributed the lead article "Tooling up mathematics for engineering," to the first issue of the *Quarterly of Applied Mathematics*, published in 1943 (2) under the auspices of Brown's program. Using the form of a dialogue, he eloquently stated the case for the applied mathematician in the service of science. He did not, however, wholeheartedly approve of the proposals for new applied mathematics institutes drafted just before Pearl Harbor, especially the "exaggerated" appeal to an "emergency" created by the war. In his review of one such proposal, he noted that the problem of applied mathematics could not be solved "through the ordinary process of supply and demand" (3, 4). Indeed, an entirely different set of imperatives guided von Kármán in the 1930's.

Mathematicians and Engineers

Shortly after he had completed his first tour of the United States in 1926, which included a visit to Caltech, von Kármán

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Yet another person, Dr. Harvery Bialy, associated with our Department has been recognized on the national scene.

Fortunately Biotechnology didn't steal one of regular faculty members, but I can see this happening in the future unless legislators change their views on aid to higher education in this state.

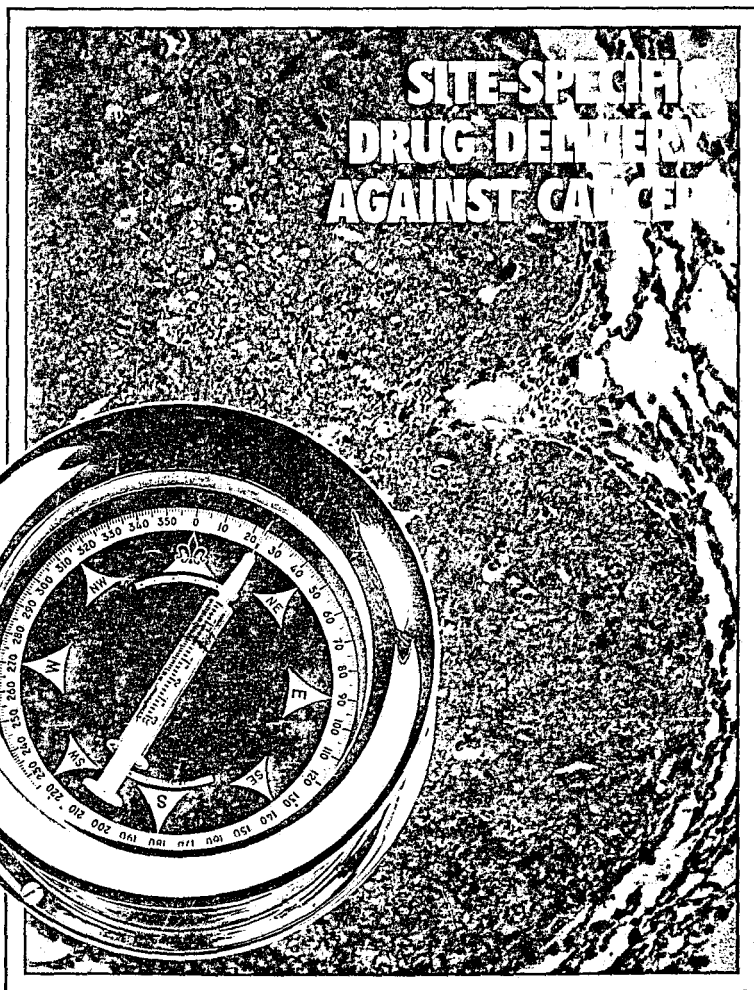


Biotechnology, the international monthly for industrial biology, covers the world of biotechnology from the research bench of academia to large-scale commercial application. The journal publishers recently named Dr. Harvey Bialy the new Science Editor. Assessing and editing original research papers and review articles, commissioning reviews and working with a world class advisory board to develop the research section of this journal (circulation 15,000), are just a few of the duties of the new Science Editor. This full-time position based in New York, represents a dramatic shift in the direction of Harvey's career, which has thusfar centered on research and teaching. Harvey is currently a Visiting Research Assistant Professor in the Department of Biology, working with Dr. Tokio Kogoma on stabilized DNA replication in Escherichia coli, and teaching Molecular Biology and Molecular Genetics. We wish him success in meeting the challenge of his new position!

2/84

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**SITE-SPECIFIC
DRUG DELIVERY
AGAINST CANCER**

**GENETICS INSTITUTE: THE VIRTUES OF GOING PRIVATE
GENETIC ENGINEERING'S CHALLENGE FOR FERMENTATION
GOVERNMENT INITIATIVES IN BIOTECH: CANADA, ITALY, SCOTLAND**

Bats!! Just the word causes some people to shiver. But this very large group of maligned mammals (second only to rodents in species and numbers) help pollinate untold numbers of plants and keep insect populations in control. Dr. J. Scott Altenbach is an expert on bat locomotor morphology and is certainly one of the world's best known bat photographers. He has worked with the BBC before, most notably on its award winning "Life on Earth" series. In addition to Scott's research ability and technical photographic and electronic skills, his teaching is continually rated as "excellent" and "outstanding" on the standardized ICES evaluation forms by UNM students.



Associate Professor J. Scott Altenbach has been an expert in the high-speed filming of bats for many years now, and his talents have not gone unnoticed. He was recruited by the BBC (British Broadcasting Company) to photograph extensive footage of Long-nosed Bats feeding on agave nectar. These bats are dependent upon the agave flower as a food source and it appears that the bats and the agave have "co-evolved". Scott's sequences were included in the BBC production, "The Bat, the Blossom and the Biologist", an episode in the excellent BBC series, "QED". This series has already been aired in Europe where it received "rave reviews", and is expected to be shown in the U.S. later this year. Don't miss it!

Dr. Altenbach's bat research at the Jornada Caves was featured recently in an article in the Albuquerque Journal (December 18, 1983). He has been working with the Jornada Mexican Free-tail bat population for about three years now, using a specialized time-lapse camera which he designed and built specifically for estimating the population size. Numbers fluctuate between 3 and 5 million bats; by far, the largest free-tail bat population in the United States.

More recognition for UNM's Department of Biology locally and inter-
nationally!

2/84

D-2 ALBUQUERQUE JOURNAL Sunday, December 18, 1983



The Bats Of Jornada

Photo Courtesy of J. Scott Altenbach

A Pallid Bat Flies From the Jornada Caves
Altenbach Designed Time-Lapse Camera To Record Flights

Caves Offer Wealth of Information

By DENISE TESSIER
Journal Staff Writer

About 40 miles outside of Socorro, in a cave that is home to New Mexico's most populous bat colony, a beetle and its voracious larvae act out an annual ritual from which scientists can gauge pollutants in the state's environment.

Up to 5 million Mexican free-tailed bats live in the Jornada bat caves, one of three kinds of bats that leave tons of guano on the cave floor.

But it is the presence of a beetle and the dryness of the caves that make the Jornada guano more valuable than fertilizer. Every year, at its population peak, the Dermestid beetle churns guano pellets into a pulve-

rized mass of powder. Newborn bats clinging to the ceiling occasionally fall to the guano and quickly succumb to Dermestid larvae, which, like hungry piranha, reduce bats to bones in a matter of minutes.

Over the years, the activity has created a mass of guano and bat remains on the cave floor, chronological layers that can be dated like tree rings and used as a gauge of environmental pollutants to the days before pesticides.

"Bat guano, under certain conditions, is a perfect repository for the history of past levels of all kinds of things," said Dr. J. Scott Altenbach, a biology

Continued on Page D-2

Jornada Caves Offer Wealth of Data

Continued From Page D-1

professor at the University of New Mexico, who has been studying the cave and its bats.

Under ideal conditions, bat guano could be used to determine pre-Industrial Revolution levels of heavy metal pollutants like mercury. But because guano has been mined for fertilizer, caves with undisturbed guano are rare; those with the Dermestidae are even more scarce.

The Jornada bat caves, first reported in 1901 by a man named Phillips, probably were disturbed by mining in the '30s, so pre-industrial research "is not possible any more," Altenbach said.

But they are still regarded at home as the oldest datable deposit in the United States, a repository for a wealth of other information — from pesticide levels to the mysteries of why the Jornada bat population is growing — and why some free-tails are immune to rabies.

It is this potential that sparked the Nature Conservancy's New Mexico field office to launch a fund-raising campaign to ensure the caves can be studied further without disturbance.

With \$5,000, the group says it can set up a management arrangement with the owner of the isolated area where the caves are found, and set up a committee to control cave visitors by requiring research proposals.

Research has shown that even the most casual visit during birthing can cause great numbers of bat deaths, as well as damage to the guano. A mother bat has a hard time getting off the ground with more than her own body weight, so offspring that fall from the ceiling — unless they are able to fly — die in the guano pile.

The Jornada is one of five areas of ecological concern on the conservation group's "critical" list. According to Marlis Hadley of the Nature Conservancy, the caves themselves are geologically rare, formed by collapses in a 250,000-year-old lava tube stretching a mile along the plains.

Along with the Mexican free-tailed bats, the caves host the largest New Mexico colony of Townsend's big-eared bats and a huge group of Pallid bats.

By Altenbach's estimates from research done in August, there are between 3 million and 5 million

free-tailed bats, and that number could be growing. By comparison, Carlsbad Caverns, which boasted 8 million bats in the 1930s, now has about a half-million.

The decline is largely attributed to DDT. After its introduction in the 1940s, the Carlsbad population dropped 97.3 percent, according to a report by former Bureau of Land Management biologist Kent Carlton. Similarly, a Mexican free-tailed population in Eagle Creek, Ariz., dropped from 25 million in 1938 to 100,000 in 1978.

Since the pesticide's ban in the early '70s, however, the Carlsbad population has increased steadily. So it is not surprising that a N.M. School of Mines student, reading

the stratified layers of guano at Jornada, found DDT levels to be highest in 1972 and less every year since.

Graduate student Brooke Connor, working under assistant professor Tom Lynch, reached those findings after taking guano core samples 5- to 6-foot deep and lifting up whole vertical sections. Lynch is currently analyzing 10 core samples retrieved by Altenbach to look for other pollutants.

Doctoral student Richard Steece, working under Altenbach, is studying rabies in the free-tailed population. "Typically, rabies kills virtually all mammals it infects," Altenbach said. But while some of the bats being studied by Steece do succumb, "others are absolutely asymptomatic," Altenbach said.

"We could benefit a lot by knowing how bats are not killed by it."

That doesn't mean the bats don't carry rabies, however. Researchers who enter the caves wear chemical respirators because airborne urine droplets can carry the virus, as well as various fungal diseases suspended as tiny spores. While the chance of breathing rabies is small, "it's not a good idea to take a chance," Altenbach said.

Altenbach also views the Jornada caves as "an ideal place" to look at the interaction of bats with other mammals in the area — coyotes, foxes and skunks — because "the population functions as near to a wild population as any you could find."

Why its population is increasing is a mystery to biologists. "Given that this is the most numerous bat in the Southwest, we know tremendously little about it," Altenbach said.

What is known is that the tiny creatures of air and darkness live 13 to 18 years, leave the caves at speeds of 25 to 35 miles an hour and reach a top speed of 60 mph.

Because of this speed, bats can travel great distances, and populations have been known to increase 20-fold in a single rainy night, Altenbach said, which makes estimates on their numbers most difficult. The increase could be due to bigger bug numbers, "or maybe they go where atmospheric conditions minimize the bat's body water loss."

Altenbach said the Jornada caves act as a halfway house for a number of migratory bats, though there is a group of females that consistently has babies there. Hibernating Townsend big-eared bats stay all winter.

Free-tailed bats arrive in New Mexico in late April or early May and leave for Mexico as soon as it gets cold and insects die off.

But just before they leave, their population "skyrockets." Altenbach plans to find out this summer how many — and possibly why — bats are attracted to the caves. To do it, he has designed a time-lapse camera to capture the spectacular daily bat oulfight at dusk. "That should reveal fluctuations in population."

Another mystery is why, so long after the ban of DDT, the Jornada population seems to be thriving. Altenbach said, DDT is still used in Mexico, where the bats winter, but Texas bat groups that migrate there seem less affected, he said.

If a bat eats an insect that ate a plant that grew in DDT-contaminated water, for example, the pesticide will lodge, harmless, in the bat's fat reserve. During nursing, however, the pesticide goes into the baby bat's body fat. This fat is consumed on migratory flights, and may not directly kill the bat, but interferes with its survival just the same by impairing its coordination, body temperature regulation or its complex sonar tracking abilities. "Pesticide toxicity symptoms have been seen in the lab," Altenbach said.

Because of this stress, Altenbach sees the free-tailed bat as precariously balanced on a line between survival and possible decline, despite its seemingly healthy numbers.

A sudden downturn in numbers would cost humanity a valuable ally in insect control, he said. The Mexican free-tail loves to eat moths, beetles and mosquitoes and consumes as much as half its body weight at a stretch. According to a report by Carlton, a half-million free-tailed bats can eat 3½ tons of insects in a single night.

"In a day and age when we find pesticides cause more problems than they alleviate... and leave the potential for destroying things they were never intended to be used upon, bats are well worth studying and preserving," Altenbach said.

"I like bats....
But what I learn
about bats will
affect very few
people. My most
important role here
is as a teacher."



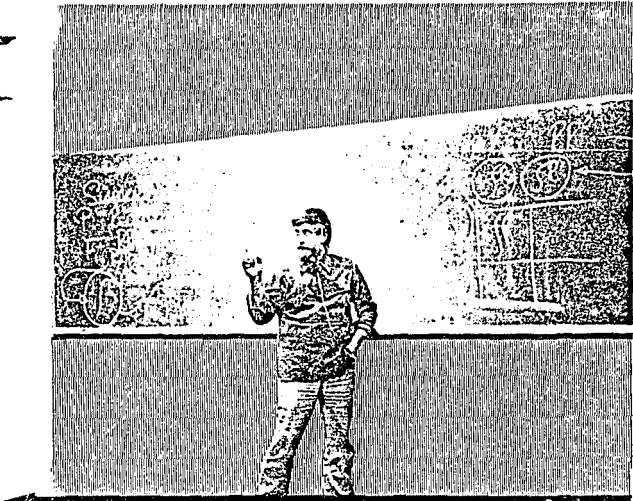
UNM—The stocky, bearded man is never still, and a thousand pairs of eyes dart from his blackboard to his pacing, gestulating figure and then down to their notebooks, while a thousand pairs of ears register unfamiliar words delivered at video-game speed.

Scott Allenbach is lecturing to an introductory biology class in UNM's Woodward Hall. He works hard to pitch himself up for the hour-and-a-quarter lecture, and he feels whipped when it's over—but he's been doing it twice a week for ten years because he loves it and he's good at it.

Half an hour into the lecture, Allenbach has a most liked the blackboard with diagrams and terms. He is using roving eye contact to gauge the general response of his listeners, repeating or restating an idea that seems to have left them puzzled but moving one questioner to visit him later instead of using class time for a digression.

Scott Allenbach's films and photographs of bats in flight have appeared on worldwide television and in the most prestigious scientific journals. His research is earning an international reputation for Allenbach and thus for UNM, but he knows he was hired primarily because he is a gifted teacher.

"I like bats," he says. "There are questions about them that intrigue me. But what I learn about bats will affect



very few people. My most important role here is as a teacher."

Allenbach along with Don Naving and Eric Toolson, teaches Biology 121 and 122 Principles of Biology. They are four-credit courses that include large lectures and small lab sections. They fulfill the laboratory-science requirement for a bachelor's degree and are required for biology, biomedicine, and pre-dentistry majors. Although 121-122 is an introductory sequence it is aimed at students with adequate study skills motivation and academic preparation. Students with low ACT scores or meager high school science backgrounds should consider taking Natural Science 100 or Biology 110-111 first.

Like all introductory courses, Biology 121-122 requires students to absorb hundreds of new terms, categorizations and generalizations. But instead of emphasizing lists of organisms and their traits, Allenbach focuses on "the unifying principles of Biology."

"I don't just give them a bunch of facts," he says. "I try to give them an appreciation of living things and how they operate. The unifying principles of biology—like the facts that all organisms are dependent on energy and that they all pass genetic information from generation to generation—apply to all living things, including human beings."

Biology 121 begins with a two-week segment that Allenbach calls "impact biology." These are "topics the students can relate to" like genetic engineering and pesticide contamination "because they have to understand the basic concepts of biology before they can make choices or solve problems." After "impact biology" there is a "crash course in the chemistry of macromolecules—and all of a sudden it gets there." Later, genetics, embryology, evolution, ecology, plant and animal physiology, and behavior are introduced in Biology 121-122 which, says the catalog course description, emphasizes "development of concepts."

"The ability to teach well is a gift, Allenbach believes. Much of it is instinctive but some elements can be sussed out and honed: staying up to date on the subject, concentrating on coherent organization of each lecture and of the overall course, maintaining the support factors like textbooks and lab sessions and "walking fine lines."

One of Allenbach's fine lines is style. A good lecturer is "enthusiastic" and to convey enthusiasm in a thousand-seat auditorium you need special skills: you need a vivid vocabulary, a well-tuned wit, chalk diagrams, a compelling physical presence—but students have sensitive antennas for boredom, so you can't overdo it.

Another fine line is the one between generating excitement and caring for the students as individuals without being a pushover, says Allenbach who gives "a succession of teaching assignments on the right side of that line."

A third fine line is meeting the students' varied preparation levels. The diversity of student backgrounds and interests complicates the introductory course, says Allenbach: "It has to be aimed at biology majors, but it also has to be applicable to someone who will never take another science course."

To make sure students are comprehending the deluge of material, Allenbach assigns ungraded practice problems—for example, what are the chances of two blue-eyed parents having a brown-eyed child?—and administers unannounced quizzes. There also are mid-term and final examinations, preceded by review sessions, composed of sophisticated multiple-choice questions and graded on the curve.

"The tests are agonizing for some students," Allenbach says. "They haven't had to think that hard before."

"One of the most important things I can do for them is convince them they have to think—it is not enough to regurgitate facts."

Students mutter (some even whine or rage) about how hard Allenbach's tests are. But he is unyielding. And grading a good test, from a student who not only knows the facts but has considered their meaning, is one of the rewards of good teaching. It is not the only reward though: watching Scott Allenbach lecture in Woodward Hall tells you that good teaching can be its own reward.

Teaching and research are really one and the same!

UNM uses a voluntary evaluation system for instructors and courses. Although the ratings forms are not distributed in every class, the system does produce a list of teachers who are considered excellent. In the fall 1993 semester the UNM biology department had eighteen instructors listed among them: Allenbach.

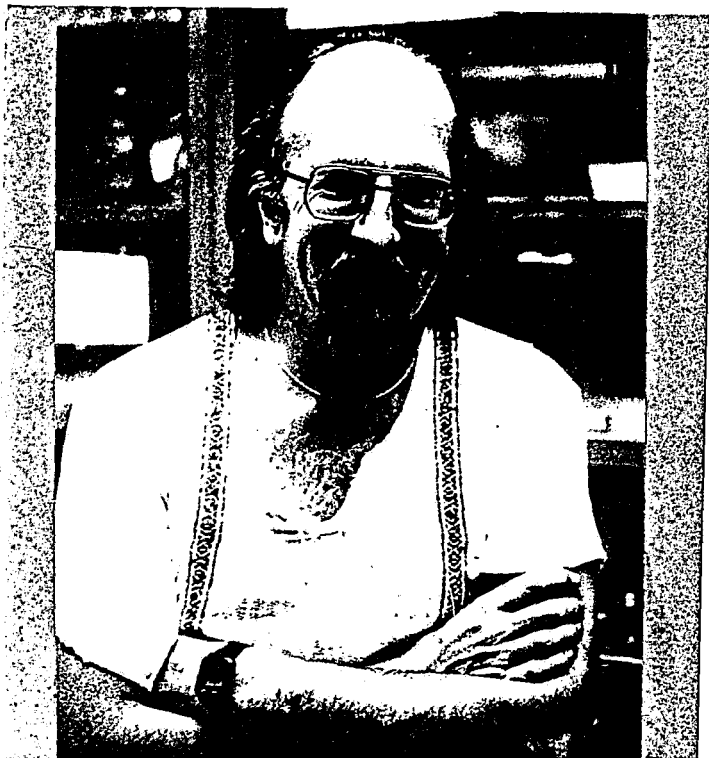
Teaching, research, and public service are the primary activities of a university—and the duties of every professor. Few can succeed without working hard at all three and often the best researchers are the best teachers.

"Teaching and research are really one and the same," says Randy Thornhill, an assistant professor of biology who teaches evolution, ecology, and sociobiology. "They are so complementary they can't be separated."

Thornhill—coauthor of a widely praised book on insect mating systems and a pioneering theoretician on the motivation for rape—says ideas for research often come from teaching.

"You have to rethink the basic concepts so students can understand them, and that often leads you to new ideas," he says. Moreover, researchers who stay abreast of developments in their field can give their students the most up-to-date information and speed the process of discovery. And research findings published in scholarly papers will find their way into textbooks if they are accepted by authorities in the field.

This National Science Foundation award to Dr. Toolson is the second renewal Eric has received on this project since 1981. It brings to \$166,200 the amount he has received from NSF over the last five years to study the mechanisms of water loss in insects and arachnids.



The National Science Foundation has recently awarded Dr. Eric Toolson \$33,000 to continue his research on "Water relations and epicuticular lipid composition in Drosophila psuedoobscura." Drosophila are the tiny flies that one finds buzzing around aromatic bananas or other ripe fruit. These and other insects exhibit a high degree of variability in the amount of water they lose through the cuticle (i.e., their hard external skeleton) especially in dry environments such as deserts. Eric is attempting to define the underlying causes of this variability in their adaptation to particular microenvironments. Thus, he hopes to assess the relative importance of "genotype vs. environment" in determining the observed variability in epicuticular water loss in these animals. This type of work is at the forefront of wildlife research on variation and adaptation.

Sarah George is in the news again. I predict Sarah will do a lot to continue to bring recognition to UNM after she finishes her Ph.D. with us this summer (1984).



Professors are not the only individuals from the Department of Biology bringing international recognition to UMS. Sarah George, a doctoral student working with Dr. Terry Yates, has recently returned from a four week visit to India. While in Calcutta she presented two papers entitled: "Collection methods for small mammals" and "Recent advances in mammalian systematics." The papers were presented at the First International Workshop on Management of Zoological Collections. Sarah was an invited member of the United States delegation that included, among others, representatives from the Smithsonian and Carnegie Museums.

3/84



ZOOLOGICAL SURVEY OF INDIA
First International Workshop
ON MANAGEMENT OF
ZOOLOGICAL COLLECTIONS:
RECENT MAMMAL COLLECTIONS
IN TROPICAL ENVIRONMENTS

CALCUTTA
INDIA
19-25 JAN. 1984



00581

Dr. Randy Thornhill needs no formal introduction. His work on sexual selection in insects and humans has focused a great deal of international attention on UNM. Obviously, he's well thought of in Washington D.C.



Dr. Randy Thornhill recently received his fifth grant from the National Science Foundation since he joined our Biology faculty in 1975. This most recent award is for research Randy is doing on "Sexual selection and the heritability of its associated traits." Research in sociobiology and investigation of the underlying genetic factors that determine how organisms function is at the forefront of worldwide interest in this rapidly expanding field. To date, Randy has secured nearly \$310,000 from NSF to support his research activities on this and related topics.

3/84

00583

Biology graduate students are continuing to compete successfully for good jobs. Dr. Dave Redaker finished his Ph.D. with me in February, but even before completing the requirements we were notified that he was the successful applicant for a very attractive postdoctoral position at Montana State University. Two other of our doctoral students who will finish in May have already received postdoctoral offers.



David Reduker finished the requirements for the Doctor of Philosophy degree in Biology in February and in less than a week left for Bozeman, Montana to take a postdoctoral position in the Department of Veterinary Science at Montana State University. Dave studied the coevolution of intestinal protozoan parasites and their rodent hosts for his doctoral research. His research was very original in that it was the first time anyone has tried to propose host-parasite phylogenies using both electrophoretic and structural data sets for both the host and its parasites. Dave was selected for this hard-money postdoctoral position specifically because of the training he received at UNM. Considering the extreme competition in today's restricted job market, Dave deserves our hearty congratulations.

3/84

00585

John Wiens, as our Distinguished Ecologist, continues to focus the attention of others on UNM. Just a few of his numerous recent accomplishments and PR activities are highlighted this week.

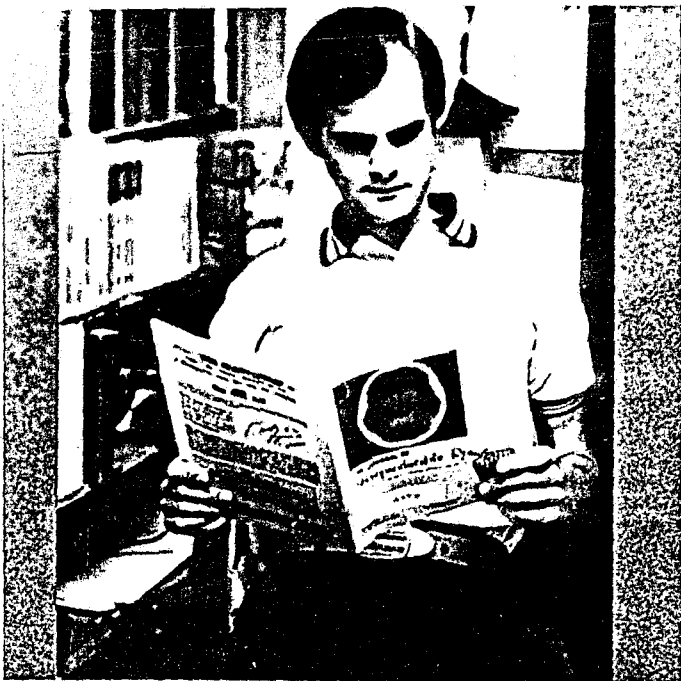


In February 1984, Dr. John Wiens spent two weeks in Canada presenting a series of lectures in the Department of Biology, The University of Calgary and in the Department of Zoology, The University of Alberta. The theme of his lecture series was entitled, "The Competition Controversy: Paradigms, Problems, and Perspectives in Community Ecology." In Calgary, Dr. Wiens was honored as the University's "Visiting Ecologist for 1983-84" while his stay in Edmonton as Visiting Professor of Zoology was as collective choice of the graduate students in their Ecology-Evolutionary Biology Program. Interactions with students and faculty from other universities by members of our Biology Department strengthens our program, establishes intellectual bonds and allows for a transfer of information that could not occur by other avenues.

3/84

00587

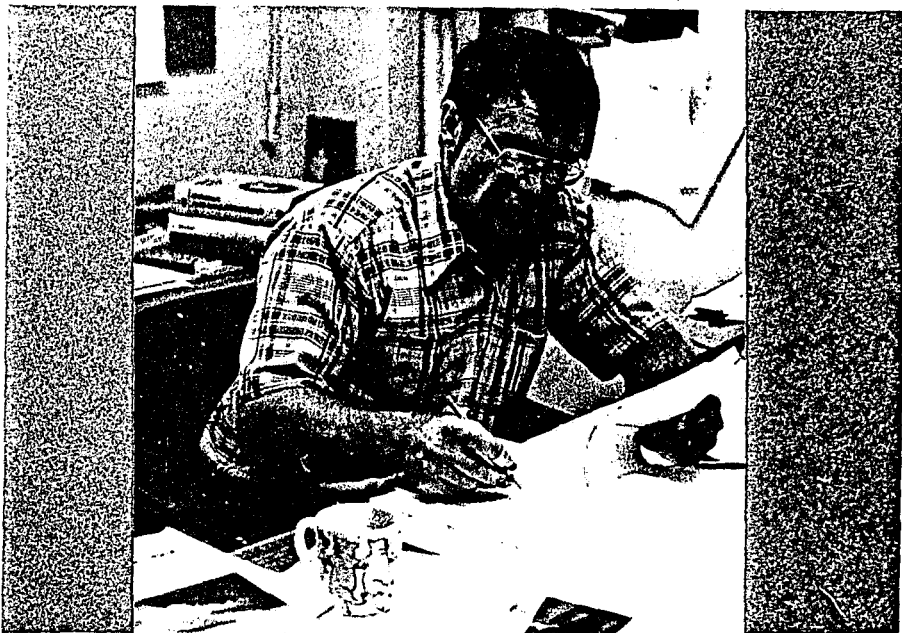
We have a lot of good graduate students who have been making their presence known this semester and Gary Dodson is one of them. The following is self explanatory.



Mr. Gary Dodson was awarded second place in the Best Student Paper competition at the 32nd Annual Meeting of the Entomological Society of America, Southwest Branch, held 13-15 February in Oklahoma City. Gary's paper, "The significance of sexual dimorphism in the mating systems of two species of tephritid flies (*Aciorina bigeloriae* and *Valentibulla* n. sp.)" received \$100 from the ESA and represents part of his dissertation research. Gary is one of our most active students and in addition to his doctoral research he has published five other papers over the last 18 months, including a book chapter, "Mating behavior of the primitive orthopteran genus *Cynphoderris* (Haglidae). In: Orthopteran Mating Systems: Sexual Competition in a Diverse Group of Insects (D.T. Gwynne and G.K. Morris, eds.). Gary is one of Dr. Randy Thornhill's doctoral students and should finish all degree requirements in December 1964.

4/64

This may be one of the most important announcements in the last decade at UNM! Dr. Jim Gosz has accepted the position of Program Director of the Ecosystems Studies Program at the National Science Foundation in Washington, DC. This is the largest of all Natural Sciences programs at NSF and unquestionably will focus a great deal of national attention on UNM and our Biology Department. Jim's appointment reflects positively on the quality of the program that has been developing in The Biology Department over the last few years. And it's only going to get better!



It's official! In August 1984, Dr. James R. Gosz will begin his new job with the National Science Foundation in Washington, D.C. During the next two years, while he is on leave of absence from UNM, Jim will be the Director of the Exosystems Studies Program at the NSF. This position will give him primary responsibility for awarding about \$20 million in grants each year. The Ecosystems Studies Program is the largest in the Natural Sciences at NSF and is concerned with studies of water pollution, acid rain, land disturbance, nutrient cycling and the like. Jim joined the Biology Faculty in 1970 and since then has secured about \$2 million in state and federal grants for his various research activities. We all wish him luck in his challenging new position.

4/84

UNM Ecologist Gets Post at National Science Foundation as Research Chief

The University of New Mexico is losing a top biologist to the professional challenges of the National Science Foundation.

Professor James Gosz will start work in August as director of the NSF's Ecosystems Studies Program in Washington, D.C., and is looking forward to "the opportunity to direct research" in the field that has shaped his career.

Gosz, 43, is an ecologist who specializes in forest systems. He estimates he has received \$2 million in research grants since joining the UNM faculty in 1970.

At the foundation, Gosz will have primary responsibility for awarding up to \$20 million a year in grants. The Ecosystems Studies Program involves "basic science," he said,

focusing on environmental problems and the effects of change.

Research through the program involves total ecosystems and includes such topics as land disturbance, acid rain, water pollution, nutrient cycling and soil fertility. Much of the work is aimed at "developing a predictive basis for what happens when natural systems are disturbed," Gosz said.

Granted a two-year leave of absence from UNM, Gosz is co-author of *Water Resources in the Southern Rockies and High Plains*, published last year by the UNM Press.

He also has published numerous articles and chapters on interactions of biogeochemical cycles, sediment chemistry, water pollution, impacts of recreation development on forests

and other ecosystem topics.

He also has pioneered in the use of strontium isotopes to analyze forest ecology.

Gosz and biology graduate students also have studied ski resorts in northern New Mexico and concluded that forests, streams and other resources have not been severely damaged by traffic, building and other development.

A Wisconsin native, Gosz studied forestry in Michigan and earned a doctorate in ecology at the University of Idaho. He has served on the New Mexico Governor's Committee on Technical Excellence subcommittee on radioactive waste disposal and on a committee studying environmental aspects of economic progress for the Governor's Council of Economic Advisers.

CAMPUS NEWS 29 MARCH '84

Biologist to take NSF post

A top UNM biologist is taking a two-year leave of absence to meet the professional challenges of the National Science Foundation.

Professor James R. Gosz will start work in August as director of the NSF's Ecosystems Studies Program in Washington, D.C., and is looking forward to "the opportunity to direct research" in the field that has shaped his career.

The 43-year-old Gosz is an ecologist who specializes in forest systems. He estimates that he has received \$2 million in research grants since joining the UNM faculty in 1970.

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This is the 50th newscast since I started this series in the fall of 1982 and the 15th that has identified a significant accomplishment by one of our graduate students. One of the unique characteristics about graduate students in Biology is that financially austere times seem to bring out the best in them and many have applied for, and received, grant money on their own to carry on their individual research activities. Gary Miller is another such student.



Gary Miller has recently been awarded a grant of \$3500 from the Boone and Crockett Club Conservation Committee to continue his research on the "Ecology of the desert bighorn sheep in western Arizona." Gary has been studying the foraging ecology of the desert bighorn (Ovis canadensis mexicana) since 1981. The study area contains the largest desert bighorn sheep population in the country, and due to the unique desert habitat in which they live this population appears to be the most highly stressed of all "populations. The primary emphasis of Gary's current proposal is to investigate by chemical analysis, plants that the sheep prefer to eat, and will include, contrary to most work done by contemporary range scientists, an analysis of the non-forage plants. This is being done to discover the reasons why some sheep prefer one type of food plant over another. Gary is a doctoral candidate working in Biology with Dr. John Wiens.

3/84

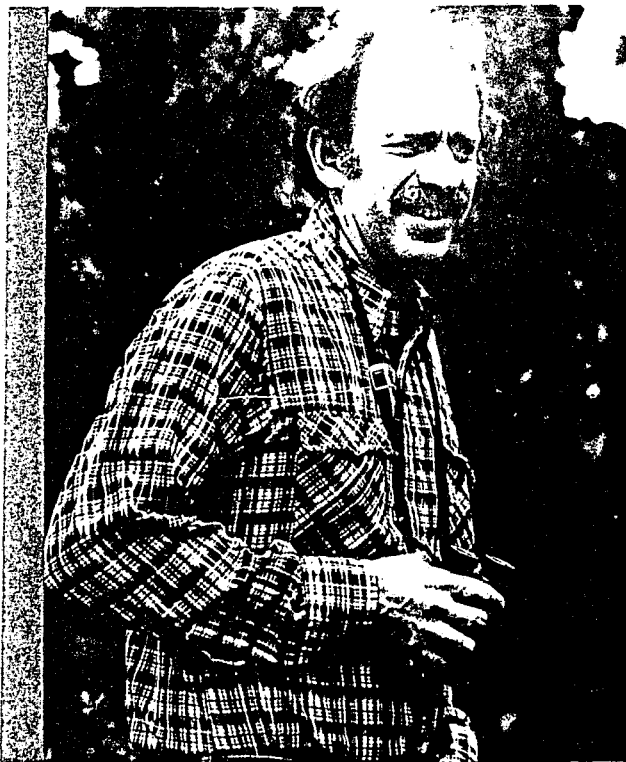
Dr. Rex Cates continues to support this department and UNM through extramural funding. This week's Newscast reports on another grant that has been awarded to his research program. Nice job Rex.



Dr. Rex Cates, one of the Department of Biology's most productive ecologists, has recently received yet another grant. This one is from the U.S. Forest Service and totals \$46,474 for a study of "Induced chemistry of loblolly pine with regard to phenology, host resistance, and suitability to the SBP - fungal complex." This work, along with other projects that Dr. Cates and co-workers have underway deals with major problem areas of forest ecosystems. Understanding the relationship between chemicals produced by forest plants and their insect pests is an important step in discovering some of the ways that forest ecosystems operate. Since 1975, Dr. Cates and his co-workers have brought to UNM approximately \$1.75 million for basic research on forest ecosystems.

5/84

Here's a face you won't see in FY 1984-85 because John Wiens will be spending the year in Australia as a Fulbright Fellow. John has done as much as any one person to bring visibility to Biology's program at UNM. Certainly, he will continue to be a good ambassador during his sabbatical year in Australia.



John Wiens, our Distinguished Ecologist well known for his iconoclastic ideas on competition and community structure, has had a great fiscal year (1983-84). He received notice in late August 1983 that the National Science Foundation awarded him \$110,784 to support his study on, "Patch Dynamics in Shrubsteppe Ecosystems: Plant Chemistry, Arthropod Distributions. This award is effective from 1 September 1983 through 31 January 1985. In September 1983 he was informed by the Council for International Exchange of Scholars that they had nominated him for a Fullbright Research Award for FY 1984-85 in Australia. Finally, on 26 January 1984 the Australian-American Educational Foundation announced that Dr. John Wiens had received the only American-Australian Fullbright Award in Natural Science for FY 1984-85.

3/84

00598

APPENDIX I

DATA REPORTING FORM, 1984
DEPARTMENT OF BIOLOGY

Name _____

This form should be returned with your completed Annual Biographical Sketch some time in early January 1985, but before the beginning of Spring Semester on January 14. Failure to submit this completed form on time may result in a total score of -10 for you when faculty salaries are determined during Spring Semester. Please record all activities from 1 January through 31 December 1984.

I. SCHOLARLY ACTIVITIES

A. BOOKS AND TEXTBOOKS. Please list all you published during this year and the previous two years. Give complete citations including coauthors (in correct order), date published, title, publishing company, pages.

B. EDITED VOLUMES. List the volumes that you edited (or co-edited) during this year and the previous two years. Give complete citations as in A, above.

C. CHAPTERS/MAJOR REVIEW ARTICLES. List those you published during this year and the previous two years. Include high-prestige, non-reviewed articles (e.g., Scientific American, Natural History, etc.). Give complete citation as in A, above. Attach reprints or a copy of chapter or article.

D. SCHOLARLY ARTICLES. List refereed papers published (not in press) this year and last year (1983). Include reprint or copy of paper and give complete citations including authors (in correct order), date, title, journal, volume, pages.

E. ABSTRACTS, NOTES, BOOK REVIEWS, AGENCY TECHNICAL REPORTS. This section is for all non-refereed publications. Please give complete citations.

F. GRANT PROPOSALS SUBMITTED. List all grant and contract proposals submitted, including those awarded, not awarded, and still pending. Give title, agency, date submitted, amount, duration.

G. FUNDED GRANTS. List all grant proposals, contracts, non-competitive grants Funded This Year (i.e., you began spending money during 1984). Give title, agency, date funded, amount, AND duration. In succeeding years be sure to list grant number and renewal amounts.

H. RESEARCH PAPERS/POSTERS PRESENTED. List research papers/posters presented under appropriate category. Give complete citations including authors, title, meeting, location, dates.

1. Non-invited papers read or posters displayed (please give full citations).

2. Invited papers/symposium presentations (please give full citation).

I. JOURNAL EDITOR. Name the journal(s) of which you are the editor, managing editor or subject area editor.

J. EDITORIAL BOARD MEMBER. Name the journal(s) on which you serve as a member of the editorial board.

K. OFFICER/REVIEW PANEL MEMBER. List the societies in which you are an elected officer (President, V.P., Secretary, Treasurer) or governing board member and the state and federal agencies (NSF, NIH) which you serve as a review panel member.

- L. PROFESSIONAL SERVICE ACTIVITIES (only). Please list the professional (i.e., your profession) services under the most appropriate section below.
1. Appointed positions held in professional societies (e.g., committee membership). List society and position.
 2. Seminars presented in/at other departments/universities or to government agencies. (Please do not double-dip -- invited symposium presentations go under category H, above).
 3. Other (science fair judge, professional consulting, etc.)
- M. SPECIAL CATEGORY. List high prestige professional activities not covered by any of the above categories (e.g., distinguished appointments or lectureships, honorary doctorates, membership in National Academy of Sciences, career development award, etc.).
- N. List the journals and the number of papers you refereed for each during the past year.

- O. List the granting agency and the number of proposals you refereed for each during the past year.
- P. Graduate Student Honors. List the papers published, grants received, awards received, papers presented, etc. by your graduate student exclusive of those with your name.

II. TEACHING ACTIVITIES

- A. List the bona fide courses and sections of courses you taught during each semester of 1984, and the approximate enrollment of each course. Indicate new courses (for you) with an asterisk (*).
- B. List the names of the 499 and 551 students you supervised during each semester of 1984.
- C. List the names of students who signed up for 599 and 699 credit with you during each semester of 1984.

- D. List the names of students who finished their thesis or dissertation under your direction during 1984.

III. SERVICE

- A. List graduate student committees on which you served, not as chairman, only if the student took an oral exam this year. Name student and dates.
1. Member of doctoral committee semester comprehensive exam or final exam was administered.
 2. Member of master's committee semester final oral exam was administered.
- B. List noteworthy departmental and community service with short explanation (building tours, Parent's Day, etc.).

COLLEGE OF ARTS AND SCIENCES
THE REPORT OF THE DEPARTMENT OF CHEMISTRY

July 1, 1983 to June 30, 1984

Riley Schaeffer, Chairman

I. General Departmental Information

A. Significant Achievements During the Academic Year 1983-84

The Department has been making considerable efforts during the last three years to develop a stronger research and graduate education base. Despite the problems arising from the extreme budget limitations that existed this year, the department has made significant progress towards this objective. Two new faculty arrived in the fall, Dr. J. Vincent Ortiz and Dr. Peter Ogilby, and both have made very good progress towards establishing their independent research programs. Both were funded by SURP grants and have also made application for national funding. In addition, Dr. Mark Ondrias and Dr. Carlos Bustamante (our appointments in the fall of 1982) have both been successful in their first applications for NIH funding. The priority score that Dr. Ondrias received placed him in the top five percent of applicants. It is a pleasure to also record the fact that Dr. Bustamante was appointed as a Searles Scholar with an award of \$157,500 to support his research over the next three years.

The Department last year received a grant from the National Science Foundation providing matching funds for the purchase of a high field nuclear magnetic resonance spectrometer. Following a careful review of available instruments, we ordered a Nicolet 360 megahertz instrument which was installed in late spring. There have been some start up difficulties but it is now operative.

The Third Annual Milton Kahn lecture was delivered May 4 by Dr. Robert Penneman who has been until recently the group leader of INC4 at Los Alamos as well as deputy division leader. The lecture was well attended by both local people and by associates of Prof. Kahn's from Los Alamos. A reception and dinner followed the lecture and was attended by fifty people including guests. A new custom was started this year at this dinner. Students receiving awards from the department were invited to the dinner as guests of the Department and the awards were presented after dinner. It is a pleasure to report that Professor Kahn was able to attend both the lecture and the dinner.

One of the most important activities that the Department carries out in conjunction with graduate education is the active series of seminars (including special lectures such as that mentioned above) by which both students and faculty are introduced to current research as carried out in both this country and abroad. Visitors to this Department during the past academic year came from other universities, as well as industrial

and governmental laboratories. They came from as far as Australia and Germany and as close as Albuquerque. A list of seminar speakers is given in Appendix A.

Due in part to pioneering experimental and theoretical work being done in this department on the interaction of circularly polarized light and chiral matter, Dr. Carlos Bustamante and Fritz Allen organized an international workshop on applications of circularly polarized radiation that was held in Albuquerque May 18-22. The conference was attended by approximately forty scientists from the US, Germany and Italy. The papers and discussions in the workshop centered around the production and utilization of circularly polarized light and hard X-rays to investigate the properties of chiral matter in and outside external fields. These novel applications of synchrotron sources promise to become a very active field of research with both experimental and theoretical applications in chemistry, biophysics, physics and material sciences.

The organization of this conference at the University of New Mexico is a clear recognition by the scientific community of the leadership role of our department in this field of activity. The proceedings of the conference will be published as a reference book by Plenum Press and should appear later this year. It will be edited by Professors Allen and Bustamante.

During the 1983-84 year six students were graduated with a

B.S. degree in chemistry; four of our graduates were men and two were women. Two male students graduated with a B.A. degree in Chemistry. In addition to the eight chemistry majors, thirteen men and sixteen women took a minor in chemistry. At the graduate level, two men and one woman were awarded the M.S. degree and six men and two women were awarded the Ph.D. in Chemistry. Students receiving degrees in Chemistry are listed below.

Students receiving the B.A. Degree in Chemistry in 1983-84

David R. Stevenson Phillip J. Glass

Students receiving the B.S. Degree in Chemistry in 1983-84

Pelayo F. Fernandez	Louis A. Iacolette	Sylvia M. Montoya
Eric E. Allen	Mark H. Wall, Jr	Denise L. Worthen

Students completing the Master's Degree in Chemistry in 1983-84

Hwei-Chen Yang	William H. Hood	Chaojiong Zhang
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Students completing the Doctor of Philosophy Degree
in Chemistry in 1983-84

Scott M. Bowen	Staff Scientist, EG&G Idaho
Linda J. Caudle	Staff Scientist, Los Alamos National Lab
Robert L. Hill	Staff Scientist, Colgate-Palmolive
Albert A. Leon	Post Doctoral Fellow, UNM Medical School
Kern L. Nuttall	Student, UNM Medical School
Joanna P. Petridou	Post Doctoral Fellow, Pomona College
Ian R. Silverman	Post Doctoral Fellow, Stanford Univ.
Rajesh H. Turakhia	Post Doctoral Fellow, Univ. of Minnesota

A number of the students receiving the bachelors degree will go on for advanced study. One of these will go to Dental School, one will pursue graduate studies in this department, one will undertake graduate studies at CalTech, and a third one will enter graduate studies at Indiana.

The Department of Chemistry presented the following awards for academic excellence to majors during the 1983-84 year:

Mr. William Hood was presented the Graduate Scholarship in Chemistry given each year to an outstanding student in the Graduate Program.

Mr. Daniel Daube was named recipient of the Steven A. Bernitsky Memorial Presidential Scholarship which is awarded each year to a senior Presidential Scholar who is majoring in Chemistry. Mr. Eric Allen and Mr. Mark Chavez shared the Mike Millican Prize.

Ms. Denise Worthen was presented the Ann Kahn Award and an award from the American Institute of Chemists as the most outstanding senior. Mr. David Johnson was awarded the Dean Uhl Fellowship for being the next outstanding junior chemistry major. A second Dean Uhl Fellowship was given to Mr. Rhett Alden as the Sophomore having the highest grade point average and currently doing research.

Ms. Kelly Joyce was presented the Riebsomer Award for being the top organic student. Ms. Daina Avizonis was given the Merck Index Award as the organic student with the second best record. Ms. Cecilia DeBlasi and Ms. Kathryn Graham shared the John D. Clark award for the most outstanding B.S. Freshmen chemistry majors. The Chemical Rubber Company Handbook was presented to Mr. Lars M. Wells for being the outstanding non-major chemistry student.

A list of the current faculty, staff and graduate students is given in Appendix B.

B. Significant Plans and Recommendations for the Near Future

One of the most crucial activities of the Department with respect to its growth in research and graduate education is the recruitment of graduate students. This continues to be one of the most significant barriers to the further development of the Department. A summary of our graduate student recruiting is given in Appendix C.

"The Department faces a number of severe problems in the near future that promise to curtail or even reverse the substantial strides it has made in the last few years. The most serious involve the need for additional laboratory space (a matter which was treated at some length in the last annual report) and the need to provide for maintenance of equipment." This statement was made in the annual report for 1982-83 and we regret the need to report that no progress was made on either front during the last year. We seek here to update the statement of need in this area for the equipment repair problem. It hardly appears worth further comment on the space problem which continues.

In our annual report for 1982-83 we noted that there was dire need for provision of repair funds for equipment added in the last few years. Taking into account only the major pieces of

equipment (over \$10,000 purchase price) purchased in the years from 1977 through 1983, a total inventory of \$1,322,200 was represented at that time. Since that report we have added the following major pieces:

Major Equipment Additions 1983-84

1984	Tectronix Digitizer	23,000
1984	Quanta-Ray Nd: yag laser	58,000
1984	Spex Triplamate Spectrograph	20,000
1984	Tektronix Oscilloscope	16,000
1984	Newport Optical Table w/accessories	13,000
1984	Princeton Applied Research Detector	22,000
1984	Perkin Elmer Spectrophotomatic	10,000
1984	DEC Data System	29,000
1984	Contract Info Systems Computer System	18,000
		209,000

The current inventory of major equipment less than seven years old now exceeds one and a half million dollars. No, I repeat NO, provision is made in the Department's budget for maintaining this equipment. Conventional practice in all scientific laboratories would be to estimate a 5-6% annual repair cost based on acquisition costs and that is a common figure for service costs contracts on major instruments. Such a cost would consume sixty percent of the TOTAL department supply budget for this purpose alone. From another point of view, it would require the total overhead generated by all departmental research contracts and grants (not just the 15% allocated to the Department). There appears to be a feeling in some quarters of the administration that somehow this cost can be met by direct charges to grants; this will NEVER be the case in a modern research oriented department and failure to appreciate this fact is a matter for

considerable discouragement. In research universities throughout the country this problem is met either through direct support for repairs by contract or most often through the maintenance of adequate electronic and mechanical shop facilities which can carry out in house repairs. We are woefully understaffed to allow the latter option. It does not seem possible to carry on a useful dialog with the administration concerning this point.

As stated last year, the Department has now reached the stage where it has become necessary to discard highly valuable equipment simply because the department cannot pay to have it repaired and cannot afford the space to store nonfunctioning equipment. An excellent case in point is the XL-100 NMR spectrometer. It is an older instrument (about fifteen years old) that nevertheless could still serve a most valuable function if it were in operating condition. It would have cost about \$25,000 to \$40,000 to place it in good operating condition and such funds were not available within any Departmental budget. Requests for University support for this purpose have often not even been answered let alone granted. IT HAS NOW BEEN DISCARDED. Many of the above instruments were obtained with partial support from the NSF under the specific and expressed condition that the University assume responsibility for maintaining it in good operating condition. We cannot in good conscience continue to apply for Federal support for instrument purchases if the University is in fact unwilling to accept the responsibility it has agreed to.

The need for additional laboratory space persists. It is to be hoped that this problem will be addressed by the higher administration in the coming year. If plans are not started in the immediate future, the growth of the Department planned in 1981 will not be possible. In such event, we would almost certainly regress by loss of some of the outstanding young faculty added in the last three years.

C. Appointments to Staff

Ms. Beth Williamson joined the staff as a half time storekeeper on 29 June 1984. Her schedule of work is the late afternoon and evenings so that the main storeroom can be open longer hours to accommodate our research activities. Ms. Barbara M. Mosiello joined the staff on 19 October 1983 as an Editorial Assistant II.

D. Separations

We regret to report the death of Professor Guido Daub on June 4, 1984. Dr. Daub spent his entire academic career at UNM and his death deprives the department of an infinite source of wit and wisdom. Prof. Robert Tapscott resigned on June 15, 1984 to accept a position with NMERI.

Ms. Pamela N. Finger resigned effective 29 June 1984 and Ms. Marlene E. Johnson resigned on 13 October 1983.

E. Sponsored Research

The Department has become increasingly aggressive in the search for outside funds to support its research program. In the 1981-82 academic year the Department had active grants in the amount of \$1,150,719. During the present reporting year this figure has risen to \$2,035,166. Furthermore, grant request proposals for over \$4,500,000 were submitted. Sixteen of the faculty submitted one or more proposals during the year and eighteen faculty had some grant support during the past year. This corresponds to about three quarters of the faculty with grants.

GRANTS ACTIVE DURING THE 1983-84 FISCAL YEAR

281	230	1	Walters	6/30/84	Sandia	42,945
281	251	1	Walters	12/14/83	AFOSR	12,000
281	170	1	Walters	9/30/84	AF	70,125
282	643	2	Tapscott	8/31/83	MBS	19,941
281	258	1	Schaeffer	5/31/84	ONR	71,000
281	078	1	Schaeffer	7/31/83	NSF	47,599
281	194	1	Satterlee	8/31/83	NIH	67,050
281	194	2	Satterlee	8/31/84	NIH	73,167
281	239	1	Satterlee	9/15/85	Sloan	25,000
281	268	1	Satterlee	7/31/84	NSF	200,000
282	636	2	Park	12/31/83	MBS	15,347
281	049	1	Park	9/1/83	DOE	121,166
282	636	3	Park	12/31/84	MBS	9,870
282	635	2	Papadopoulos	12/31/83	MBS	16,135
281	632	1	Papadopoulos	OPEN	Am. Cyan	12898
281	023	1	Paine	8/31/84	Am Chem	45,000
281	009	3	Paine	5/30/84	Sandia	77,029
281	827	3	Paine	5/30/84	DOE	73,971
281	273	7	Ortiz	10/31/84	SURP	22,000

020 812 3	Ondrias	6/15/84	RAC	1,920
281 195 3	Ondrias	9/30/84	Sandia	29,951
281 296 1	Ondrias	9/30/83	Res. Corp.	7,900
281 232 3	Ondrias	7/15/84	BRSg	1,500
281 273 1	Ondrias	10/31/84	SURP	29,988
281 285 1	Ondrias	12/31/84	PRF	9,000
282 664 3	Ondrias	12/31/84	MBS	21,085
020 812 3	Ogilby	6/15/84	RAC	2,000
281 321 1	Ogilby	9/30/84	PRF	15,000
281 273 6	Ogilby	10/8/84	SURP	29,995
281 311 1	Ogilby	OPEN	Research	15,000
287 780 1	Ogilby	6/30/84	NM Comm.	136,000
282 633 2	Niemczyk	12/31/83	MBS	15,672
282 633 3	Niemczyk	12/31/84	MBS	10,575
020 812 3	Morrow	6/15/84	RAC	2,000
281 824 3	Morrow	8/31/83	NIH	34,467
282 631 2	Morrow	12/30/83	MBS	24,575
282 631 3	Morrow	12/30/84	MBS	24,575
281 270 1	Morrow	6/30/84	NIH	8,348
281 195 2	Maple	9/30/83	SURP	30,000
695 080 1	Maple	OPEN	AGENCY	8,000
281 195 2	Maple	9/30/84	Sandia	29,995
020 812 3	Litchman	6/15/84	RAC	1,900
282 628 2	Litchman	12/31/84	MBS	16,571
020 812 3	Hollstein	6/15/84	RAC	1,600
282 624 2	Hollstein	12/31/83	MBS	17,021
282 523 2	Hollstein	OPEN	MBS	12,604
281 156 1	Holder	8/31/84	AMCHEM	45,000
020 812 3	Bustamante	6/15/84	RAC	1,350
020 812 3	Bustamante	6/15/84	RAC	4,862
281 196 3	Bustamante	9 30 83	SURP	19,984
281 217 1	Bustamante	Open	Research	10,000
281 326 1	Bustamante	Open	Searle	157,500
281 254 1	Bustamante	6/30/84	NIH	95,584
282 659 3	Bustamante	12/31/84	MBS	14,946
281 273 2	Bustamante	10/30/84	SURP	29,997
281 232 2	Bustamante	7/15/84	BRSg	1,500
281 253 1	Allen, Bust. Ond	7/17/84	DOD	102,087
281 871 3	Allen	12/31/83	NIH	37,586
282 611 2	Allen	12/31/83	MBS	15,285

2,035,166

Grant Applications 1983-84

Allen	ARO	246,450.00
Allen	ARO	246,450.00
Allen	ARO	61,600.00
Bustamante	PRF	15,000.00
Bustamante	NSF	266,127.00
Bustamante	DHHS-PHS	73,233.00
Bustamante	BRSO 10R	3,500.00
Daub	LANL	1,500.00
Daub	A. Cancer Society	18,750.00
Holder	ACS	4,000.00
Hollstein	NIH	99842.00
Hollstein	EPA	131,604.00
Morrow	HHS-PHS	225,402.00
Niemczyk	NSF	317,844.00
Niemczyk	Air Force OSR	324,726.00
Niemczyk	Office of Naval Research	324,726.00
Niemczyk	U.S. Army Research Office	21,480.00
Niemczyk	AFOSR/DOD URIP	146,843.00
Ogilby	Sandia National Lab	29,998.00
Ogilby	Research Corp.	20,000.00
Ogilby	Department of Energy	0.00
Ogilby	U.S. Dept. of Energy	0.00
Ogilby	DOD-Univ Res. Instr. Prog.	223,608.00
Ogilby	Army Research Office	20,000.00
Ondrias	Research Corp	7,900.00
Ondrias	Department of Defense	238,180.00
Ondrias	BRSO 10R	2,550.00
Ortiz	Sandia - SURP	29,782.00
Ortiz	NSF	218,888.00
Ortiz	Jet Propulsion Lab	35,930.00
Paine	Lawrence Livermore	4,438.00
Paine	Department of Energy	72,988.00
Paine	Amer. Chem. Soc. PRF	52,500.00
Park	Gas Research Institute	176,085.00
Satterlee	NSF	333,079.00
Schaeffer	Searle Scholars Program	157,470.00
Schaeffer	NSF	369,000.00
Schaeffer	NSF Presidential Young Invest.	25000.00
Tapscott	NIH	113,227.00
Walters	AFWL-AFSC	34,887.00
		4,428,460.00

APPENDIX A

Seminar Speakers Fall 1983

Dr. John Gilje August 17, 1983	University of Hawaii	"Organouranium Chemistry of Phospho- lides"
Dr. Jens Fraum August 23, 1983	Max Planck Institute of Biophysical Chemistry, Germany	"Biomedical NMR at Goettengen: Preliminary Results on NMR Imaging Spectroscopy"
Dr. Paul T. Cunningham September 9, 1983	Los Alamos National Lab	"An Overview of Analytical Chemistry at Los Alamos"
Dr. David Case September 23, 1983	University of California	"Dynamics of Ligand Binding to Hemo- globin and Myoglobin"
Dr. Peter Jutzl October 4, 1983	University of Bielefeld West Germany	"Cyclopentadienyl Compounds of Main Group Elements: Syntheses, Structures and Dynamic Behavior"
Dr. Dennis Lichtenberger October 7, 1983	University of Arizona	"Valence and Core Electron Spectros- copy of Organometallic Compounds"
Dr. Thomas G. Back October 11, 1983	University of Calgary Canada	"Organoselenium Chemistry: Novel Synthetic Applications and Mechanisms"
Dr. Robert Nielsen October 21, 1983	Texas Christian University	"Silylated Phosphorus Compounds: New Monomers and Polymers"

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Dr. Mark Paffett October 28, 1983	Los Alamos National Laboratory	Redox Chemistry of Aqua Molybdenum Ions"
Dr. Donald McQuarrie November 4, 1983	University of California- Davis	"Theory of Ionic Systems: From Dilute Solutions to Fused Salts"
Dr. John Nelson November 11, 1983	University of Nevada-Reno	"Penta Coordination: Platinum and Palladium"
Dr. David Nesbitt 15, 1983	Miller Fellow at University	"High Resolution Infrared Flash November of California-Berkeley Kinetic Spectroscopy of $^{13}\text{CH}_2$ "
Dr. Jerold Zuckerman December 2, 1983	University of Oklahoma	"Where are the Lone Pair Electrons in Main Group Subvalent Compounds?"
Dr. Jean Pemberton December 9, 1983	University of Arizona	"Surface Enhanced Raman Scattering from Mixed Metal Surfaces in Electrochemical Systems"

Seminar Speakers Spring 1984

Dr. John Shelnett February 10, 1984	Sandia National Labs	"Anionic Metalloporphyrins for for Efficient Energy Conversion"
Dr. James Demas February 24, 1984	University of Virginia	"Photochemistry and Photophysics of Transition Metal Complexes in Organized Media"

Dr. Jean LeGall March 2, 1984	University of Georgia and National Center of Scientific	"Characteristics of Nickel Coordination in Bioactive Molecules" Research, Marseilles, France
Dr. Deon Ettinger March 9, 1984	Argonne National Laboratories	"Gas Chromatography-Matrix Isolation- Infrared Spectrometry: Development of a New Analytical Technique"
Dr. Gary Molander March 22, 1984	University of Colorado- Boulder	"Aspects of Organometallic Chemistry in Organic Synthesis"
Dr. Michael A. Cusanovich March 23, 1984	University of Arizona	"C-Type Cytochromes. New Insights into their Mechanism of Action"
Dr. John L. Markley April 6, 1984	Purdue University	"Studies of Single Amino Acid Replacements in Proteins by 2D NMR"
Dr. H. Nöth April 16, 1984	University of Munich	"The Chemistry of Dicoordinate Boron and Related Aspects"
Dr. Robert G. Michel April 20, 1984	University of Connecticut	"Progress in Analytical Atomic Fluorescence Spectrometry"
Dr. Robert A. Penneman May 4, 1984	Los Alamos National Lab	"Transplutonium Chemistry--Status and Future"
Dr. Th. Van der Knapp May 11, 1984	Vrije Universiteit, Amsterdam	"Reactivity of Phosphaalkenes"

APPENDIX B

FACULTY AND STAFF OF THE DEPARTMENT OF CHEMISTRY

FULL PROFESSORS:

CATON, Roy D., Ph.D., 1963, Oregon State University
DAUB, Guido H., Ph.D., 1949, University of Wisconsin
HOLLSTEIN, Ulrich, Ph.D., 1956, University of Amsterdam
PAINE, Robert T., Ph.D., 1970, University of Michigan
SCHAEFFER, Riley, Ph.D., 1949, University of Illinois
TAPSCOTT, Robert E., Ph.D., 1968, University of Illinois
VANDER JAGT, David, Ph.D., 1967, Purdue University

ASSOCIATE PROFESSORS:

ALLEN, Fritz S., Ph.D., 1969, University of Illinois
HOLDER, Richard W., Ph.D., 1970, Yale University
LITCHMAN, William M., Ph.D., 1965, University of Utah
MCCLAUGHLIN, Donald R., Ph.D., 1965, University of Illinois
MORROW, Cary J., Ph.D., 1970, Tulane University
NIEMCZYK, Thomas M., Ph.D., 1972, Michigan State Univ.
PAPADOPOULOS, E. Paul, Ph.D., 1961, University of Kansas
PARK, Su-Moon, Ph.D., 1975, University of Texas, Austin
WALTERS, Edward A., Ph.D., 1966, University of Minnesota

ASSISTANT PROFESSORS:

BUSTAMANTE, Carlos J., Ph.D., 1981, Univ. Calif., Berkeley
MAPLE, Jon R., Ph.D., 1980, Northern Illinois University
OGILBY, Peter R., Ph.D., 1981, Univ. Calif., Los Angeles
ONDRIAS, Mark R., Ph.D., 1979, Michigan State Univ.
ORTIZ, Joseph V., Ph.D., 1981, Univ. of Florida
SATTERLEE, James D., Ph.D., 1975, Univ. California, Davis

INSTRUCTORS:

DECK, Lorraine, M.S., 1968, University of New Mexico
MALM, Miriam, M.S., 1964, University of New Mexico

EMERITUS PROFESSORS:

KAHN, Milton, Ph.D., 1950, Washington University

ADJUNCT PROFESSORS:

ROSENBLATT, Gerd M., Ph.D., 1960, Princeton University
WHALEY, Thomas W., Ph.D., 1971, University of New Mexico

Appendix B (Continued)

STAFF SCIENTIST:

DUESLER, Eileen, Ph.D., 1973, Univ. Calif., Berkeley

CHEMICAL ANALYST:

JU, Ruby K.Y., B.S., 1956, Univ. of Illinois

GLASSBLOWER (AND PART-TIME LECTURER III)

ROENSCH, Arno, B.S., 1953, Highlands Univ.

ELECTRONICS TECHNICIAN

Miller, Jay III, B.S.E.E. 1982, Univ. of New Mexico
A.S.E.E.T, NAII, Albuquerque

EXPERIMENTAL TECHNICIAN

GEORGE, Earle, B.S.M.E., 1945, Stevens Tech

OTHER STAFF

CERECERES, Carmen, Bookkeeper

HALLETT, Russell, Storekeeper

HILTON, Carl, Storekeeper

MOSIELLO, Barbara, Editorial Asst.

KARTCHNER, Wanda, Editorial Asst.

ORTIZ, Leonard, Storekeeper

RUE, Ruth, Departmental Secretary

SCHNOEBELEN, Albert, Administrative Assistant

WILLIAMSON, Beth, Storekeeper

GRADUATE STUDENTS

		Source
BEACH, D		MBS
BEESON, H	TA	
BIZZARI, N	TA/RA	NIH
BLAHA, S	GA	
CARSON, S	GA/RA	SANDIA
CHANG, P	TA	
CLAASSEN, A	GA	
CONSTANTINIDIS, I	RA	NIH
COOPER, M	TA	
CRULL, G	TA	
DOBRY, M	GA	
DUBOIS, D	TA/RA	DOE
EDEN, G	TA	
ERIDON, J.	TA/RA	NIH
FERNANDEZ, P	TA	
FINDSEN, E	TA/RA	
FRAATZ, R	GA	
GARGOUM, A	TA	
HILL, R.	GA	
HONIG, C	GA	
HOOD, W	TA	

Appendix B (Continued)

HORNUNG, S	TA	
HUI, E	TA	
IU, K	TA	
IWATA, Y	RA	ONR
JANIK, J	TA	
JIANG, F	TA	
KIM, M.	TA/RA	
KOCH, C	RA	ACS
LEE, H	GA	
LEON, A	TA	
LII, F	TA	
MARIATEGUI, F	RA	ONR
MARTINEZ, D	RA	MBS
MAY, J	TA/RA	
MC CABE, D	TA/RA	DOE
MC NAMARA, W	RA/TA	DOE
MENDOZA, P	GA	
MICKOLS, W	GA	
MINTOROVITCH, J	TA	
NEWMAN, C	RA	
NEWMAN, J	RA	USAF
NUSSER, B	GA	
NUTTALL, K	GA	
NYHLEN, P	TA	
PACE, C	TA/RA	
PALMER, M	GA	
PAULTER, N	GA	
PETRIDOU, J	TA	
PYUN, C	TA/RA	DOE
RATEL, F	TA	
RODACY, P	GA	
SCHLOM, P	TA	
SEE, F	RA	SANDIA
SHACKLETT, A	TA	
SILVERMAN, I	TA	
STILWELL, D	RA	DOE
THOMPSON, B	GA	
THORNBERG, S	GA	
TIKKANEN, M	GA	
TURAKHIA, R	GA	
UHLAND, D	GA	
USSERY, D	RA	SANDIA
UTAMAPANYA, S	GA	
VICKERS, M	TA	
WELLS, S	RA	
WILLIAMS, M	GA	
WOOD, G	GA/TA	DOE
YANG, S	TA	
YIN, I	TA	
ZADEII, J	TA	
ZHANG, C	TA	
ZIETZ, P	TA	

Appendix C

Applications Received for Graduate Study in Chemistry
1983-1984

State	APP	APR	DIS	INC	ENR
Arizona	4	2	1	1	2
Colorado	8	8	0	0	2
Idaho	1	0	1	0	0
Illinois	4	2	2	0	1
Indiana	3	1	0	2	0
Iowa	1	0	0	1	0
Kansas	1	1	0	0	0
Louisiana	1	0	0	1	0
Massachusetts	2	2	0	0	0
Michigan	3	2	1	0	1
Minnesota	1	0	1	0	0
Montana	1	0	1	0	0
Nebraska	1	1	0	0	0
New Jersey	1	0	1	0	0
New Mexico	4	2	0	2	1
New York	3	2	1	0	1
North Carolina	2	1	1	0	0
Ohio	1	1	0	0	0
Oklahoma	1	1	0	0	1
Oregon	2	2	0	0	1
Pennsylvania	2	2	0	0	0
Texas	4	2	0	2	0
Utah	1	1	0	0	0
Washington	1	0	0	1	0
Wisconsin	1	0	1	0	0

TOTALS:

GRADUATES OF US SCHOOLS: 54 33 11 10 10

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Appendix C
(Continued)

Applications Received for Graduate Study in Chemistry
1983-1984
International Student Applications

Algeria	2	0	0	2	0
Bangladesh	2	0	1	1	0
Canada	1	0	0	1	0
China	1	0	1	0	0
Colombo	1	0	1	0	0
Ghana	2	2	0	0	1
India	7	0	4	3	0
Iran	1	0	1	0	0
Iraq	1	0	0	1	0
Korea	4	2	2	0	1
Kuwait	2	0	1	1	0
Mexico	1	0	0	1	0
Pakistan	1	0	0	1	0
Sri Lanka	1	0	1	0	0
Taiwan	8	2	5	1	1
Turkey	1	0	1	0	0
TOTALS:					
<u>GRADUATES OF FOREIGN SCHOOLS:</u>	36	6	18	12	3
GRAND TOTALS:	90	39	29	22	11

APP = Applied

APR = Approved

DIS = Disapproved

INC = Incomplete

ENR = Students that we anticipate will enroll

DEPARTMENT OF COMMUNICATIVE DISORDERS
COLLEGE OF ARTS AND SCIENCES
ANNUAL REPORT
July 1, 1983 - June 30, 1984
Richard B. Hood, Chairperson

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I Significant Achievements

- A. Graduate Unit Review. The review was performed in May, 1983.

The report was received in the 1983-84 academic year, and stated, in part:

"The general goals of the Department of Communicative Disorders (CD) of the University of New Mexico (UNM) seem to parallel those of the university, namely, education, service, and research. The primary emphasis in the CD program . . . has been placed upon the educational and service components of the program, . . . The program's quality is evidenced, for example, by the success of its undergraduates in graduate training programs at other universities and the unusually high average scores of its own graduates on the national examination for certification. The faculty, staff and students seem aware of and pleased with this orientation. The CD program at UNM is the only state university program in New Mexico to hold accreditation from the Education and Training Board of the American Speech-Language-Hearing Association, and thus holds the enviable position of being the premier graduate educational program in speech-language pathology and audiology in the state. Further, the service program housed within CD has acquired a positive image within the university community and the geographic region for providing quality clinical services. These services are particularly well recognized in diagnostic and therapeutic programs for children.

. . . . The program also is showing some growth in the clinical services provided to communicatively handicapped individuals. Special arrangements have been developed with a variety of agencies, including several outside the Albuquerque city limits, that afford students the opportunity for a variety of clinical services. These are positive directions for enabling the program to educate well-qualified clinical practitioners."

- B. Department Organization. Richard Hood replaced Lloyd Lamb as Chairperson in December. Mary Bolton was promoted to Director of Clinical Services in Speech-Language Pathology in May.

- C. Sign Language Interpreting Major. This undergraduate major within our department was approved last academic year and started with nine majors in the fall. Five of the new courses were taught during this academic year. Fortunately, we obtained Jeff Davis, an intern from Gallaudet College completing his master's degree in Linguistics, to teach two of the courses in the spring semester.
- D. Computer Acquisition. Last fall we purchased a DEC computer (\$10,000) with the generous assistance of the N.M. Elks. Since then we have purchased about \$3,000 worth of software and accessories, with the generous assistance of the Dean of Arts and Sciences. Dolores Butt is using the computer for language research, and other faculty members are using it for various research activities.
- E. Auditory Brainstem Response Unit. This unit, which was purchased two years ago, is being used for testing the hearing of high-risk infants in the Neonatal Intensive Care Unit and other patients at UNMH, thus enhancing graduate education of our audiology graduate students. It is also used for research projects by Professor Lloyd Lamb.
- F. Continuing Education.
1. Our department has recently been approved by the American Speech-Language-Hearing Association (ASHA) as a sponsor of continuing education. Our sponsorship will enable speech-language pathologists and audiologists to obtain continuing education units (CEU's) for ASHA

by taking some of our existing courses. We also plan to offer one-credit courses taught in summers by visiting professors and by our faculty members.

2. All of our faculty and professional staff members have attended several local and out-of-state conferences, workshops and meetings in order to keep abreast of their specialities.

G. Publications.

1. Thomas, Paula D., Hunt, William C., Garry, Phyllip, J., HOOD, RICHARD B., Goodwin, Jean M. and Goodwin, James S., Hearing Acuity in a healthy elderly population: Effects on emotional, cognitive, and social status. J. Gerontology, 38, 321-325, 1983.
2. BUTT, D.S., Readable Reports, New Mexico Division of Educational Diagnosticians, 4:6-8, 1983.
3. BUTT, D.S., Deteriorating Language Scores, New Mexico Speech, Hearing and Language Association Journal, 5:3 1983.
4. RIENSCHKE, L.L., and Baker-Grumprecht, K., Status Report on the Research and Clinical Use of Time-Compressed Speech Stimuli. The New Mexico Speech and Hearing Association Journal, 4, 1, 1983.
5. RIENSCHKE, L.L., Wohlert, A., and PORCH, B.E. Aphasia and Rate-Altered Speech. The British Journal of Disorders of Communication, 18, 1, 39-48, 1983.
6. RIENSCHKE, L.L., Stahl, C., Cravens, C., and LAMB, L.E. Children's Item and Order Errors on Time-Compressed, Sequenced Rhyming Words. The Journal of Auditory Research, 23, 1-8, 1983.
7. RIENSCHKE, L.L., Bearley, D.S., and Orchik, D.J. Time-Variied Speech. In Clinical Phonetics: Investigatory Techniques in Speech Pathology. Chris Code and Martin J. Ball (Eds.) Croom Helm Ltd., 1984
8. Lass, N.J., RIENSCHKE, L.L., and Beasley, D.S., Applications of Time-Altered Speech in Speech-Language Pathology and Audiology. In Communicative Disorders: A Journal for Continuing Education, 9, 2, 1984.
9. WILCOX, PHYLLIS, Schema Theory and Language Interpretation: A Study of Sign Language Interpreters, Southwest Journal of Linguistics, 6(1), 1983, 56-63.

H. Service

1. University Service.

- a. Dolores Butt was elected to the Faculty Senate in the spring of 1984.
- b. Richard Hood is a volunteer for the University Outreach Program, was on the Arts and Sciences Promotion Committee, and is an active member of the University Speakers Bureau.
- c. Linda Riensche is a volunteer for the University Outreach Program, is a member of the Student Standards and Grievances Committee, the Arts and Sciences Graduate Committee, and the Arts and Sciences Committee on Academic Standing, and is an active member of the Speakers Bureau.

2. Other Service. All of us are active in service to the community and to professional organizations. Some highlights of the past year are as follows:

- a. Richard Hood coordinated and supervised the complimentary hearing testing of approximately 1000 Albuquerque Public School children and 300 senior citizens. He also administers the practical examination to all applicants for the N.M. Hearing Aid Dispensing License bianually.
- b. Lloyd Lamb presented an in-service on tympanometry to personnel serving Indian children on the Navajo Indian Reservation and two lectures on industrial hearing conservation to the N.M. Chapter of the

American Society of Safety Engineers.

- c. Dolores Butt continues to be the Director of the N.M. Elk's Cerebral Palsy Program and a consultant to Albuquerque Public Schools in special education of children and in computer usage.
- d. Linda Riensche was a judge for two national and one state science and engineering fairs.
- e. Mary Bolton is one of the two elected Legislative Councilors from New Mexico in the American Speech-Language-Hearing Association (ASHA). The other is Carol Westby, who has a letter of appointment in our department. Bolton also gave two workshops in communicative disorders to N.M. Headstart groups.
- f. Judy Williams was president of the New Mexico Speech Language-Hearing Association for two years, ending in October 1983. She is also the Vice President of the Board of Regents of the New Mexico School for the Deaf.
- g. Phyllis Wilcox is very active in national and local organizations which concern service to deaf people, certification of sign language interpreters, and improvement of instruction in sign language.
- h. Judi Barnes is on the Advisory Council to the New Mexico School for the Deaf. Both she and Patti Elledge assist Mary Bolton in giving workshops and demonstrations on speech and language stimulation

and improvement for teachers of Headstart children.

II. Significant Plans for the Near Future

- A. Interdisciplinary Teaching. In a cooperative effort with State Department of Education, the UNM Department of Special Education and Albuquerque Public School administrators of special education, we have developed a curriculum for the recently approved teaching credential for classroom teachers of communicatively disordered children. The credential requires an approved program of 15 semester hours beyond the master's degree. The first students will start in the fall of 1984. Dolores Butt is our primary liason person and instructor of several of the courses. The Department of Special Education has recently hired one of our graduates who taught such children as the clinical supervisor of these new students.
- B. Departmental Teaching. We were fortunate to receive some part-time instructional money to hire Jeff Davis one-half time for nine months to teach courses in the Sign Language Interpreting major for the 1984-85 academic year. Also, Irma Correa-Chavira has been awarded a graduate fellowship primarily to assist Phyllis Wilcox in the Sign Language Interpreting major for 1984-85.
- C. Clinical Teaching.
1. Practicum with Adults. One of the recommendations of the Graduate Unit Reviewers was to increase our emphasis in practicum with adults. Starting July 1, 1984, we

have increased Bruce Porch from .25 to .35 FTE, and he will now spend approximately six hours a week supervising our students in clinical practicum with adult aphasics, in addition to teaching two of our courses.

2. Hearing Aid Dispensing. The audiology graduate students will soon gain experience in hearing aid dispensing, which is a steadily-increasing function of professional audiologists. Provost Hull has recently approved our request to dispense hearing aids, and we anticipate that our students will be acquiring that experience by January 1985.

D. Research.

1. Research by professional staff. In order to increase our productivity, the supervisors have unreluctantly agreed to spend approximately one-tenth of their time participating in research projects beginning in the fall of 1984. These people are Judi Barnes, Patti Elledge, Jan Lewis, and Judy Williams. Further, I have submitted to Personnel new job descriptions which include participation in research in those positions.
2. Increased use of computers. We plan to increase the use of our DEC computer and to purchase microcomputers to be used in both research and clinical work.

- E. Space and Location. The Graduate Unit Reviewers recommended that our facilities (with the exception of the audiology clinic at UNMH) be housed in a single structure (rather than our three small, temporary buildings) on or near the main

campus, so that our efficiency would be increased and so that interdisciplinary relationships with other main-campus departments and the College of Education would be facilitated. Also, our current space is inadequate for research purposes. This is not a plan for the near future, but we hope the university administration will plan a relocation of our department sometime in the future.

III Appointments and Separations from Staff - None

IV Sponsored Research and Other Projects

A. USDE Grant. Our annual training grant from the U.S. Department of Education was for \$71,340. Most of the money was used for two and one-fifth professional staff members and one secretary. Some was used for one graduate student stipend, supplies, and travel.

B. Non-oral Communication Grant. In January, Dolores Butt received \$15,000 from the N.M. Elks and \$2,000 from APS for equipment to start collaborative research with the Albuquerque Public Schools on the effectiveness of non-oral communication systems. She applied to an agency for \$59,000 for the same purpose, but it was not funded.

C. Headstart Grant. Mary Bolton, Patti Elledge, and Judi Barnes have a small grant to study the effectiveness of paraprofessional training of headstart teachers to facilitate speech and language development of children enrolled in rural headstart programs.

D. RAC Grant. Edward Shirkey has received \$1,100 from the UNM

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Research Allocations Committee for 1984-85 to support a study in generalization patterns of the speech of children who receive articulation (speech sound) therapy.

- E. AQHA Grant. Ruth Dismuke, formerly Research Associate in our department, had a grant from the American Quarter Horse Association to study the effectiveness of treatment of communicatively disordered children. That grant is terminated.
- F. Service Grant. Judi Barnes has received a service contract from the New Mexico School for the Deaf to provide supervision of speech and language services by our graduate students to approximately 15 children in the satellite school in Albuquerque.

Department of Economics
Annual Report
July 1, 1983 - June 30, 1984
Alfred L. Parker, Chairman

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A. Significant Achievements During the Academic Year

There are at least three areas in which the Department of Economics has achieved results that are worthy of note.

First, in the area of sponsored research the department has achieved significant improvement in its performance. As stressed in this department's Annual Report in each of the last three fiscal years, the Economics Department is very much dependent upon release-time money generated by sponsored research to provide support for our undergraduate and graduate programs. The cut in research funds available to the social sciences from NSF, DOE, EPA, Los Alamos National Laboratories and others in the 1980s thus impacted on this department in a number of significant ways -- limiting the financial support available for graduate students, limiting the number of TAs available to cover lab sections of principles courses, limiting the funds available for secretarial staff and more.

As indicated in Table 1 the amount of sponsored research generated during the 1983-84 academic year represents a modest recovery. Although these projects generated little "overhead" money (most were funded by state agencies or were "special" arrangements) they did generate release time money badly needed to provide financial support for students in our graduate programs. It now appears likely that 1984-85 will show continued recovery in the dollar amount of sponsored research generated by the department.

Table 1 Summary of Sponsored Research

1979-80	\$1,371,552
1980-81	997,210
1981-82	194,826
1982-83	57,591
1983-84	103,533

Second, In order to provide undergraduate students with an opportunity to learn more about employment opportunities for Economics majors in New Mexico a guest speaker program was initiated in 1983 under the sponsorship of the Economic Student Council (ESC). The ESC invited speakers from various sectors of the New Mexico economy to come to the campus to meet in informal sessions with interested students. The speakers were asked to discuss employment opportunities, to provide an indication of the kind of work that the undergraduate Economics major would be doing in an entry level position in their industry and to indicate the university courses that would be most helpful in preparing the student for a career in their industry.

Guest speakers appearing as a part of this program during the 1983-84 academic year included:

Mr. Pat Keene, Director of Rates and Regulatory Affairs,
Gas Company of New Mexico

Mr. Wilbert McKesson, Albuquerque Federal Savings and
Loan Association

Mr. Steve Martin, Economist, Public Service company of
New Mexico

00636

Ms. Kellen Livermore, Coordinator of Co-op Programs,
University of New Mexico

Ms. Kathryn Parker, Sakowitz Department Stores
Houston, Texas

Third, efforts to find additional financing for the Southwestern Review of Management and Economics has resulted in firm financial commitments from two state universities, the University of Colorado and the University of Arizona. Efforts are continuing to get one or two additional universities to participate in the sponsorship of this journal. While subscription expansion has been severely hampered by Printing Plant delays, we remain optimistic about the future of this journal.

B. Significant Plans and Recommendations

In recent years employers who have contacted this department seeking undergraduate or masters level graduate students, have in almost every case indicated an interest in students with some background in econometrics and statistics. In order to ensure that our students have an opportunity to develop the skills and knowledge being sought by these employers, we have developed a new undergraduate course in Econometrics (Econ 309) and we are in the process of revising/upgrading an upper division Economic Statistics course (Econ 409).

Recognizing that both of these courses should include instruction on and experience with micro-computers a proposal has been developed to obtain 5 (five) PCs on loan from IBM Corporation. We currently do not have any micro-computers that are available for classroom use. The availability of such equipment is critical to the

educational objectives of these courses.

Very large enrollments in upper division courses continues to be a serious problem in the undergraduate economics program. During the 1983-84 academic year the following enrollments were experienced in upper division courses taught by economics faculty:

Fall Semester 1983

Econ 300.001	55 students	(Gisser)
300.002	52 students	(Oslund)
300.003	69 students	(Gregory)
300.007	51 students	(Oslund)
Econ 315.001	151 students	(Parker)
315.002	70 students	(Chung)
Econ 350.001	56 students	(Boyle)

Spring Semester 1984

Econ 300.004	57 students	(Gregory)
315.001	124 students	(Chung)
315.002	55 students	(Gisser)
315.003	53 students	(Gisser)
Econ 350.001	48 students	(Therkildsen)

Given the level of student demand for these courses and the resources available to the Department of Economics, this problem is going to continue through the 1984-85 academic year.

C. Appointments to Staff

Mr. Tim R. Sass will join the UNM Economics Department in August of

1984. Mr. Sass is completing his Ph.D. in Economics at the University of Washington. His major fields of interest are Microeconomic Theory, Industrial Organization and International Trade. We are confident that Mr. Sass will be an excellent addition to our faculty.

D. Separation from Staff

None

E. Sponsored Research or Other Projects

Eight (8) of the department's eighteen (18) full-time faculty submitted proposals to outside agencies. This represents 44 percent of the full-time faculty of this department.

Four (4) faculty who submitted proposals to outside agencies were successful in obtaining awards. A listing of projects funded during the 1983-84 academic year is provided in Table 2.

TABLE 2

Funded Research

Department of Economics

Principal Investigator	Project Title	Grant Amount
Brown, Lee	Contract Assistance in the Development of Water and Environmental Research Programs for John Muir Institute	\$ 57,839.00
Norton, Roger	Stanford University Binational Agricultural Workshops	16,694.00
Burness, Stuart and Cummings, Ron	Methods for Assessing Economic Returns from State-Supported Energy Research," New Mexico Energy Research and Development Institute.	29,000.00
TOTAL		\$103,533.00

The Report of the Department of English

July 1, 1983 - June 30, 1984

Hamlin Hill, Chairman

I. GENERAL INFORMATION

A. Honors: In 1983-84, Rudy Anaya continued on his Kellogg Fellowship. Morris Eaves and Mike Fischer received a grant to co-direct an NEH Summer Seminar for College Teachers. Jim Barbour and Hugh Witemeyer were our exchange faculty at Heidelberg and Wurzburg; Tony Marquez was awarded a Fulbright Lectureship to Argentina and David Dunaway to Kenya. Gene Frumkin will be on exchange at the University of Hawaii for 1984-85; Mary Power, in Wurzburg; and Peter White, in Heidelberg.

B. Personnel: Herwig Friedl and Rudigar Kunow were our visitors from Heidelberg and Wurzburg in the Spring of 1984. Peter Page, Rick Eden, Sharon Barba, and Ron Swigger left at the end of the academic year; and Scott Sanders, Louis Owens, and Anne Dunn all accepted our offers to join us beginning with Fall semester, 1984. Jim Thorson was promoted to Full Professor during the Spring.

C. Curriculum: Changing 201 to 150 in order to attract freshmen was our big curriculum experiment for 1984-85. Early enrollment statistics for Fall, 1984, suggest the change will be a success.

II. REPORTS OF STANDING COMMITTEES

A. Freshman English Program

Interim Director: Joseph Zavadil

Assistant Director: Joyce Emert

Freshman English Committee: Joseph Zavadil, Chair, Joyce Emert (General College), Gail Gilliland (graduate student), Sharon Lewis (graduate student), Rick Eden, Lynn Beene, Greg Candela (Branch representative), Wayne Erickson (Lecturer representative).

According to the view from HB 215, academic 1983-84 has been a rather peaceful year for Freshman English:

1. The transfer of English 100 to General College continued smoothly with most of the financial support for the course now coming through General College. Successful coordination of English 100 with the rest of the Freshman English Program, in curriculum and staffing, was secured primarily through the appointment of Joyce Emert as Assistant Director of Freshman English. Professor Emert supervised efficiently and accomplished smooth liaison between General College and the Department throughout the year. This administrative arrangement should be continued, with the appointment of the Assistant Director rotating among the very capable General College English faculty, probably in two-year terms. In addition, the Department should also retain some of the funding for English 100, so that regular English faculty and Teaching Assistants can continue to teach at least a few sections each year.

2. English 101 and 102 continued to show their strength of design and purpose--and teaching staff. Although more than twenty of the teachers of these courses were new to the program this year, those with previous teaching experience elsewhere found the goals and emphasis defined in the syllabi clear and sensible enough to focus on easily, while both English 537 and the new "Experienced Teacher" program helped the nine new MA-level TAs through the year with less distress and more success than usually mark the rookie season. The veteran staff knew what they were doing too. Mid-term

and final examinations were prepared and effected with no more than moderate fuss; problems and complaints from students were few. It seemed particularly important that English 102 move smoothly because of its new status as a University-wide graduation requirement. With the redoubtable Lynn Beene always on hand to do the hard stuff and to energize us all, 102 accomplished its several purposes with a healthy measure of respectability.

3. The Freshman English Office itself (HB 211) has been the essential and reliable base of operations all year. Student problems of all sorts have been resolved--or at least "handled"--there; teachers have been assisted, advised, and consoled there; the physical structure (schedule, duties, deadlines, paperwork, etc.) of the entire program has emerged from there. Jo Anne Altrichter has been an incredibly capable manager, a colleague of admirable tact and good humor, and probably the chief reason why Mike Hogan returns to order rather than confusion.

Although 1983-84 has been a year of careful maintenance rather than living dangerously, some exploration did occur:

1. We fooled with the ICES Evaluation Form, revising the list of local questions. The results, however, have not been easy to interpret. This standard student evaluation system seems important to maintain, since it provides assurance that students generally approve of the program and our teachers. (According to one interpretation of the figures, the rate of approval by students

during the fall semester can be calculated at about 85%.) Yet we will need more data from the particular instrument now being used before we understand what the numbers signify. At best with the change this year, we may have slightly improved what is basically a system poorly suited to our purposes.

2. To a considerable extent we discussed the status of part-time Lecturers in the program--again not very encouraging results. Although we seem to be depending more and more on the experienced talent of these Lecturers, we cannot find simple ways to improve their lot. However, since twenty were re-appointed in the spring semester this year to teach two courses, it should be possible to increase the number of Lecturers who are given nine-month letters of appointment next year. Only two of the twenty received such letters last year; so an increase to at least ten seems conservative.

3. The one original accomplishment for the year was the essay competition among students in English 102. The suggestion originally came from Mary Power, and it was endorsed by the Freshman English Committee early in March. In April teachers of 102 were asked to submit at least one good essay from each section, and we received twenty-seven essays for judging. Of this total, five were given honorable mention, and four received prizes of \$25.00. The prize winners were Judy Roark, Mary Baca, Ariana D'Oyen, and Byron Manning, and we applauded their writing, of course. Yet the judges were also much impressed by the

quality of all the essays entered. Thus encouraged, the Freshman English Committee plans to continue the competition in future semesters.

B. Undergraduate Studies

Director: Paul Davis

Undergraduate Committee: Paul Davis, Chair, Michael Fischer, Lee Bartlett, David Dunaway, Fred Warner, Mary Bess Whidden (leave), Mary Power.

The major and minor programs showed continued signs of returning to health this year. Although we did not have another 27% increase in the number of majors like the one last year, we did hold about even, indicating that the increase last year was not a fluke. Interest in all the major concentrations, except comparative literature, remains strong.

Over the next year or two we expect to develop a proposal for a major in professional writing. Professor Scott Sanders, who will join the faculty in the fall, is already developing a curriculum for such a program.

The Committee suggests some changes in the English minor. We have recommended a modification of the minor program to accommodate students who decide to major in English after taking several lower-division courses. Our present minor limits the number of lower-division elective courses to one. Many students become interested in English after taking two, three, or even more courses like 201, 206, 211, and 220, and they are discouraged from taking an English minor when they discover that only one such course will count. This problem will probably become even more common when students enter the study of English

through the new 150 course. The Committee has recommended that students be allowed to count the two lower-division electives toward the minor. This change was approved by the P & P Committee and will be brought to the Department in the Fall.

The two new specialized minor programs, in professional writing and medieval period studies, are both well underway. The Professional Writing Minor currently has about ten students, several of whom will be doing an internship either this summer or next fall. Peter White, interim director of the program, reports that the program has "attracted wide interest from within and without the University." We have not published the minor heavily this year, because we are awaiting the arrival of Scott Sanders who will take over the direction of the Technical and Professional Writing program in the fall.

Five or six students have either entered the medieval studies minor or indicated a strong interest in it. Student interest in the period has also made it possible for us to offer several new courses in medieval literature: Introduction to Medieval Culture, Old Norse Language and Literature, and, next fall, Arthurian Legends.

The Undergraduate Committee devoted most of its attention this year to the lower-division general literature program. While most other areas of the undergraduate program have turned around from their low point in enrollments about three years ago, lower-division literature courses have shown the fewest signs of recovery. While we expect some small gains as a result

of the introduction of English 150 and the proposed changes in the minor, we will not see the effects of these changes for a year or two. Significant enrollment increases, in freshman and sophomore general literature courses, however, would seem to depend on a change in the national attitude toward the humanities--there seem to be some faint cracks developing in the current vocational mindset--and on UNM or some of its colleges introducing a general literature requirement comparable to those at most other major universities.

The report of the General Education Task Force of the College of Arts and Sciences, currently under consideration in the Curriculum Committee of the College, makes such a recommendation. Included as part of a core curriculum that would be required of all A & S students is a two-semester "Western Literature" course that would be taught by faculty from English, philosophy, and modern languages. The Undergraduate Committee, expanded by the addition of Joe Zavadil from Comparative Literature, Russell Goodman and, occasionally, Howard Tuttle from Philosophy, spent several meetings developing a reading list for such a course. Although the debate was lively and occasioned several "reconsiderations" along the way, we did arrive at a clear consensus. At least among philosophers and literary scholars there remains some fairly clear notion of a core of knowledge, concepts, and classics that are central to our culture. We concluded the discussion of the western literature curriculum believing that such a course could be developed and that a cooperative effort between philosophy and English would

be a rewarding one for both of us.

A general philosophic issue remains for the Department in considering the Task Force proposal. "Literature," as understood in the proposal, is something closer to Matthew Arnold's notion of "the best that has been thought and said" than it is to our more usual operating definition which tends to limit literature to imaginative writing and fiction. If we support the Task Force proposal, we opt for a general humanities requirement and give up the current requirement which encourages students to take genre or period courses in imaginative literature. In our departmental discussion of the general education proposal we will need specifically to consider these alternatives.

Currently the Committee is engaged in the related task of developing a list of works that we expect reasonably educated students to know when they arrive at UNM. In this endeavor we are responding to requests from high school teachers for such guidance. This list is proving to be more difficult to develop than the curriculum for the western literature course. Not only are we trying to list the indispensable works of our culture that one should know by age 18, but also we are trying to decide which works we would rather introduce a student to than have him know when he arrives. We have developed a rough list with which to begin our discussions in the fall; we expect to have this Pandora's box ready for departmental discussion before the end of the first semester. Our goal is not to produce some official ultimatum that UNM can hand out to the

secondary schools in the state, but simply to suggest a list that we can unofficially offer to teachers or schools that request it as our current best thinking on the subject.

Several of our undergraduate majors deserve mention for outstanding work:

Departmental honors were awarded to Chris Leche and Patricia O'Conner.

The Lena M. Todd essay contest, judged by Peter White and Paul Davis, awarded three prizes: first place, Mark Schroeder, a tie for second place: Bob Johnstone and Laura C. Archer.

We have some very capable majors, many with high grade point averages, but many of our best majors do not make Phi Beta Kappa because they have not taken math during their undergraduate career. We need to encourage our best students to take math so that they will be eligible to be considered for Phi Beta Kappa. Perhaps we also need to work on Phi Beta Kappa to rethink this particular requirement.

13 CREATIVE WRITING PROGRAM

Director: Lee Bartlett

Creative Writing Committee: Lee Bartlett, Chair, Rudy Anaya, Gene Frumkin, David Johnson, Tom Mayer, Pat Smith, Harvena Richter.

This was again a lively and fruitful year for the UNM Creative Program. After last year's major revamping of the program, no changes were made this year, though minor tune-ups

(changing the undergraduate thesis to c/nc option, for example) were discussed. The number of students enrolled in both the undergraduate and graduate Creative Writing programs continue to increase, and the demand for workshops continued to grow. The new theory of fiction and poetics courses, required of graduate Creative Writing students, continue to draw, along with the workshops, a number of graduate students from outside our program, as well as auditors from the community. As of the end of the spring semester, we have again admitted a number of new students into the program.

Denise Chavez, John Capute, Mary Dougherty, and Nancy Gage successfully completed their oral examination and theses for the M.A. in creative writing this year; additionally, eight undergraduates finished theses for the major in creative writing.

Under the sponsorship of the English Department, the Creative Writing Program, the Graduate Student Association, and ASUNM, the reading committee offered a number of readings this year: besides noon readings by graduate students and faculty members, readers included William Everson, Diane Wakeski, John Nichols, Clayton Eshleman, Brian Swann, Carolyn Wright, Theodore Enslin, Kenneth Irby, Clark Coolidge, Michael Ondaatje, George Szante, and James Laughlin. Further, the committee undertook a massive lobbying campaign for funds from ASUNM and GSA, and both organizations substantially increased their contributions for the 1984-85 series.

This year the D. H. Lawrence Fellowship went to Thomas

McGrath who was forced to decline the offer because of ill health. We therefore offered the Fellowship to the runner-up, Percival Everett, a novelist, who happily accepted. The competition drew about 400 letters of inquiry and about 100 applications. Gene Frumkin, Pat Smith, and Lee Bartlett served on the selection committee.

Chris Leche won the Academy of American Poets contest, with Robin Tawney and James Mackie taking second and third places; the contest was judged by Wendy Bishop.

This year marks Sharon Barba's last term on the Creative Writing faculty. Louis Owens, a fiction writer and American Literature scholar, will join the faculty next fall. He comes from teaching three years at the Cal State Northridge, and will teach both fiction workshops and theory of fiction.

While individual faculty member's achievements are outlined in another section of this report, I'd like to note that once again a number of the Creative Writing faculty were at the top of the English Department's "point rating scale"; further, this year Rudy Anaya continued on his Kellog Foundation Grant, while Pat Smith continued to do research and travel on her Rockefeller Grant.

Penguin Dust, the Creative Writing newsletter, appeared four times this year, produced by Elida Lechuga. Arrangements have been made, finally, for one issue of New America per year to be a creative writing issue, produced by the Creative Writing program (starting fall, 1985).

By all indications, the Creative Writing Program continues to thrive.

Graduate Program

00551

Graduate Director: Barry Gaines

Graduate Committee: Bill Balassi, Lee Bartlett, Robert Fleming,
Pat Gallacher (Addition to the Examining Committee: Ivan Melada)

In 1983-84 there were over seventy students enrolled in the English Graduate Program. Rosalie Otero (a.k.a. Peralta)

completed her dissertation "The Novels of Nadine Gordimer" and received her Ph.D. in the fall. Wayne Erickson joined others of our recent graduates who have gotten academic jobs. He was hired by Georgia State University in Atlanta. Three candidates passed the doctoral comprehensives this year: Maijan Al Ruwaili and Mohammad Atae in the fall and Erika Smilowitz in the spring.

And our new Ph.D. students took the first Ph.D. Diagnostic Examination to indicate the range of their background outside of their fields of major concentration. Especially fine exams were written by Chapel Petty and Chuck Campbell.

There were also some impressive performances on the M.A. examination, and the following received degrees: Kris Osnes, Eric Shaffer, Sutari Harifin, Robin Thevenet, Linda Oldham, Susan Miller, Jeanie Korish, Barbara Guth, and Mimosa Finley in the fall, and Karen Ahlefelder in the spring. In creative writing Elizabeth Tiller, Luci Tapahonso, Nina Galen, and Marcy Gage completed their theses and received their degrees. Mary Bartlett, Denise Chaves, and John Capute have also completed and successfully defended their theses in creative writing and are awaiting graduation. Finally, Dixie Lee Larson received the Graduate School Tuition Remission Fellowship.

**UNM Annual Report
Geography Department
July 1, 1983 to June 30, 1984**

prepared by
Stanley A. Morain
Chairman

UNM Annual Report
Geography Department
July 1, 1984 to June 30, 1984

1.0 Overview

The academic year was an active and productive period for both the Department as a whole and most of the individual faculty. There were at least five significant achievements at the Departmental level including our first external review, a revision of our undergraduate major requirements, an expansion of the Intern program, expansion of facilities into Bandelier East, and, perhaps most importantly for the program, the filling of two vacant positions. At faculty level one book was published; two people successfully underwent review or promotion and tenure consideration; and one faculty member resigned. Additional electronic data and word processing equipment was procured to promote more efficient research and to ease the shortage of clerical staff.

2.0 Departmental Achievements

2.1 External Review

After almost 20 years since the creation of the Department, and 15 since the inception of the MA program, our progress and programs were evaluated by a team of two external, and one internal, reviewers. The Department's self-study revealed that in most respects our performance has been average or slightly above in comparison to other A & S units. We seem to have no outstanding strengths, nor any striking weaknesses, which means there is room for improvement across all fronts. The history of the Department, prepared for the self-study, is included here as attachment #1. The reviewers spent two days in February visiting the Department. Their major conclusions and recommendations are itemized below.

1. The Department's mission, objectives and goals are in the mainstream of modern geography and are appropriate for our region;
2. There seems to be good rapport between faculty, staff and students;
3. The Department's aspiration for a PhD program should be postponed and carefully reviewed in terms of viability, competition for students, and their career prospects after graduation;
4. The Department should encourage greater participation of its faculty in other "applied geography" activities, especially those of the AAG special interest group. There may also be scope for creation of an applied geography consortium in the Southwest to strengthen mutual interests among institutions.

2.2 Undergraduate Program Revision

The undergraduate major requirements were modernized and expanded to be comparable to other programs in the region, as well as to better reflect our curriculum objectives. The number of credit hours required for graduation will be increased from 37 to 40-42, and beginning in the Fall 1985 Semester students will be required to "sample" the entire scope of the discipline by taking courses in five subject areas. Within each of these areas, however, students will be allowed greater freedom of choice in course selection. The rationale and justification for our remodeled program are given in the excerpt below, as approved by the curriculum committee.

Requirements for the Bachelor of Arts in Geography

The major in Geography requires 40-42 credit hours of lower and upper division coursework. Geography 101, 102, and 105L are required of all majors. In addition, the student must enroll in at least two (2) courses from each of four (4) topical/systematic groups and complete at least one (1) course in regional geography. The topical/systematic groups are: Group A - Geographical Methodology; Group B - Physical Geography; Group C - Human/Economic Geography; and Group D - Environmental Geography. All courses in these groups require Geography 101 or 102 as prerequisites, or consent of the instructor. In order to allow students an option for either completing a general geography degree or beginning a focus in one of the four topical/systematic groups, each major must complete six (6) credit hours of electives selected from groups A through D.

2.3 Expansion of the Intern Program

Since its initiation in 1982/83 the Intern program has gained wide popularity in the employer community as well as among graduate and undergraduate students. Dr. Jerry Williams was granted a reduced teaching load to allow time for program development, and as a consequence, solid relationships seem to have evolved with the federal Bureau of Land Management and the City of Albuquerque. Several large projects coordinated between prospective employers, student aid, and the Department have been discussed but not finalized.

During the year 6 students were enrolled in the Intern program. Drs. Williams, Fitzsimons, and Morain have all participated as advisors, although Dr. Williams deserves the major credit for program development. In 1984/85 the Department will solidify and define the major goals and policies of the program in order to strengthen and promote its status in the Department's curriculum. It is through the Intern program, among other means, that we may gain some insight into demand for PhD geographers in the State and region. It is perhaps also through the program that a workable common denominator can be found for the three-state applied geography consortium.

2.4 Expansion Into Bandelier East

In June the Physical Plant began remodeling Bandelier East for dedicated Geography classroom space. Additional space in Bandelier West 104 has also been converted for use as an Introductory Geography (Geog. 105L, 106L) laboratory. Our move into these new facilities during summer 1984 will nearly complete the move and consolidation of the Department after it moved from Hodgkin Hall in 1981. A new cartographic facility, darkroom, photo interpretation, and remote sensing laboratory, and mid-sized lecture hall are the main features of the design.

2.5 Faculty Replacements

Positions vacated by the death of Dr. Richard Murphy in 1982 and resignation of Dr. Stuart White were filled in the Spring semester by Drs. Stephen Thompson and Susan Place respectively. Dr. Thompson is an environmental geographer with a specialization in hydrogeography. His degree is from University of Colorado 1984. Dr. Place is a 1980 graduate from UCLA with a specialization in economic development and Latin America. With these faculty positions filled, departmental enrollment should increase and we should be better able to service our major and MA programs. Dr. Place will add substantially to our affiliations with Latin American development programs at UNM and in the region while Dr. Thompson adds significantly to our physical/environmental geography curriculum.

3.0 Faculty Achievements

3.1 Publications

Dr. Stan Morain published a book during the year and Dr. Jerry Williams nearly completed the revision of his atlas, New Mexico in Maps, which will be published by the UNM Press. Dr. Morain's book, Systematic and Regional Biogeography is published by Van Nostrand Reinhold Inc. Other creative efforts by the faculty are given below.

Barrett: Tierra Adentro: Settlement and Society in Colonial Durango. Book Review in The Professional Geographer, 35(3). August, 1983.

Cullen: "Energy Assistance for the Poor: An Evaluation and Alternative Allocation Procedure," submitted to International Energy Journal, September, 1983.

"Regional Considerations in the Corporate Relocation Decision Making Process," Applied Geography Conference, Toronto, Canada. October, 1983.

Fitzsimons: "Base Data on Thematic Maps," accepted for publication in The American Cartographer, September, 1983.

An Atlas on Irish History, book review in The American Cartographer October, 1983.

Morain: Systematic and Regional Biogeography, New York: Van Nostrand Reinhold Inc., 335 pp.

"Report on Commission VI of the International Society of Photogrammetry and Remote Sensing (ISPRS)," Photogr. Engr. & Rem. Sens. 49(10):1486-1487.

"Forestry Surveys: Monitoring Tropical Deforestation by Remote Sensing In Latin America," Proceedings of the 1983 National Conference on Resources Management Applications. In Press.

"Commercialization of Remote Sensing Technology," Paper presented at Space Technology Conference and Exposition, Zurich, Switzerland, and submitted for publication in the International Journal of Remote Sensing.

3.2 Advancements/Resignations/Temporary Assignments

Dr. Jerry William was promoted to Associate Professor with tenure during the year, and Dr. Dennis Fitzsimons survived a Code 3 tenure review. Dr. Fitzsimons subsequently resigned, but more because of a better offer than from professional dissatisfaction at U.N.M. Dr. Rodman Sneed spent the Spring Semester as an exchange professor at University of Otago in Dunedin, New Zealand. Dr. William Brochie served as his exchange and did an excellent job teaching Introductory Geography and Geomorphology.

4.0 Additions/Separations

4.1 Additions

Dr. Susan Place, PhD 1980, University of California, Los Angeles. Code 2 Assistant Professor, Fall 1984.

Dr. Stephen Thompson, PhD 1984, University of Colorado, Boulder. Code 1 Assistant Professor, Fall 1984.

4.2 Separations

Dr. Dennis Fitzsimons, PhD 1982, University of Kansas, Lawrence. Code 3 Assistant Professor, Summer 1984.

5.0 Funded Research

The Department had no externally funded research during the year. This is perhaps our greatest collective shortcoming and an area for obvious improvement.

6.0 Goals for 1984/85

Departmental goals for the coming academic year include a variety of tasks that will strengthen the program and improve our internal and external relations. The major foreseeable items include:

1. Creation of a set of "Rules of Governance" for Departmental operations. Among the items that might or should be included in these rules are: (a) the type and structure of committees; (b) procedures for faculty review; and (c) guidelines for determining faculty increases;
2. Creation of a departmental newsletter that can be circulated throughout the geography community, as well as our undergraduate and graduate alumni. Our supplies and expenses budget is extremely limited, and postage will be a major factor in the success of this venture, but it could be money well spent;
3. Participation in meetings to initiate the Applied Geography Consortium. College funds have already been approved for attending the "kick-off" meeting in Tempe, Arizona, in September;
4. Creation of a set of policies and procedures for the Intern program;
5. Writing and submittal of proposals to acquire external funding to broaden the scope of research and attempt to modernize the equipment base of the Department; and,
6. Remodeling the MA program.

HISTORY OF GEOGRAPHY AT UNM

00658

1917 - 1983

A. The Informal Years (1917-1940)

Courses having geographic content or the word "geography" in their title first appeared in the 26th Annual Catalog dated February 1917. In that year, Professor C.T. Kirk listed Climatology, Geography of New Mexico, Commercial Geography and Interpretation of Maps as part of his curriculum for a major in geology. It can be anticipated that his goal was to produce students with a practical background, who could seek employment either with the State or with the many private mining companies then present in the region. These early informal years reveal that the scope and content of geography were serving the needs of other disciplines, especially, but not restricted to, geology.

The essentially "service" role of geography within the geology curriculum remained static for some 23 years. Minor alterations in course offerings and personnel took place, and from time to time new offerings appeared in other departments of the Arts and Sciences. In 1919, "meteorology" replaced "climatology" in the geology curriculum (30th Annual Catalog p. 93), and Geography of North America replaced Geography of New Mexico. In 1922 no geography courses were listed in the catalog, but this fact may simply indicate that Professor Ellis (who replaced Professor Kirk in 1919) had no plans to offer geography in 1922/23. These two courses reappeared in the 32nd Annual Catalog (1923, p. 90), and remained in the curriculum throughout the remainder of Professor Ellis' tenure.

Dr. S.A. Northrop was added to the geology faculty as Assistant Professor in 1929, and in 1932 added Geomorphology and Geomorphology of the United States to the curriculum. In 1934 Conservation of Natural Resources was also added. Finally, in 1937, the year of Professor Ellis' death, the Geology Department offered "Principles of College Geography." Dr. Bostwick joined the faculty in that year to round out the 5 courses being offered: Geography of North America, Principles of College Geography, Conservation of Natural Resources, Geomorphology and Geomorphology of the United States. Meteorology had, by this time, been transferred to the Physics Department.

These informal years ended with the 1940/41 academic calendar. Plans were underway that year for organizing a number of courses that had gradually been added to various departmental curricula.

B. The Minor Years (1941-1960)

The 50th Annual Catalog for the academic year 1941/42 (p.107) introduced geography as a separate listing and described a series of courses comprising a geography minor for anthropology, geology, and economics. Altogether some 15 courses from five A & S departments, and involving seven faculty, comprised this minor.

Courses included:

<u>Department</u>	<u>Course</u>
Anthropology	Anthropo-Geography (2 semesters)
	Human Geography of New Mexico
	Climatology
	Races and Cultures of Europe
	Cultural Geography: Old World
	Cultural Geography: Latin America
Biology	Physiographic Ecology
	Plant and Animal Geography

Economics

Economic Resources

Geology

Geography of North America
 Principles of College Geography
 Geomorphology
 Geomorphology of the U.S.

Physics

Descriptive Meteorology
 Meteorology

Apparently in these early years there was no particular goal or mission in mind other than to provide students an opportunity to formulate what today would be referred to as a "distributed minor." Geography as a discipline was just beginning to emerge in the collective awareness of the University, but was still regarded as a service function. The scope of course work was general and made little effort to go beyond description to analytical or predictive geography.

The minor degree was based on 20 credit hours. Selection of courses varied from year to year and in some years whole departments withdrew from the program. In 1942, the Anthropology Department added Geography of the Pacific Area in response to the WWII Pacific Theater operations, and physics added Synoptic Meteorology (possibly also a response to war-time efforts). In 1943, anthropology again revised its offerings and included a new course titled Maps and Charts. The Economics Department added Economics and Trade of Latin America, but the Geology Department apparently withdrew all of its offerings from the minor. In 1944, geology again participated with a new course called World Economic Geography. In 1945, the Biology Department replaced its two courses with one titled General Ecology, and geology reinstated Geography of North America and Principles of College Geography.

In 1947, there was a serious setback and the minor was deleted. The following year, 1948, the 57th Annual Catalog listed three courses in a geography curriculum, but stressed that neither a major nor a minor were being offered. Most of the courses that had once comprised the minor were still offered within the various departments. The three courses listed under the rubric of geography were: Physical Geography of Latin America; Cultural Geography: Old World; and Cultural Geography of Latin America. They were all anthropology courses and it seems odd that they should have been singled out from among 8 or so geographically oriented courses then being offered in that department. On the surface of it there was no reason for students to enroll in geography classes outside of anthropology, because the credits did not count toward any degree requirements.

After suffering this "false start" toward a recognized geography program, the 59th Annual Catalog (1950, p.112) for the first time named a person (Assistant Professor Kelley, Geology) to coordinate a series of geography courses that would at least serve as "group requirements" in the Arts and Sciences. Such courses did not, however, constitute a major or a minor. Courses satisfying group requirements for that year were listed under geography as follows:

- 1 General Geography (3)
- 2 General Geography (3)
- 54 North America (3)
- 63 Economic Resources (3)
- 101 South America (3)
- 102 Middle America (3)
- 111 Land Utilization (3)
- 188 Cultural Geography: Old World (3)
- 189 Cultural Geography of Latin America (3)

1952 was a pivotal year for geography at UNM. The 61st Annual Catalog (p.115) describes the discipline as a division within Arts and Sciences. According to the University's Annual Report for 1949/50, "the Division of Geography which had been inactive since World War II was reactivated to meet a growing demand for the subject" (p.23). Assistant Professor Kelley offered the curriculum given above as a separately recognized, non-distributed minor. Concurrently, other academic units began dropping courses from their curriculum that had "geography" in their titles (see, for example, the geology curriculum in the 62nd Annual Catalog for 1953). These combined events were critical in the sense that the discipline acquired an identity that was independent of other academic units. As in the origin of species, isolation of the geography population was essential to its further, and future, development. The educational niche into which this new geography minor was focused was "...to meet the educational requirements for 'geography' in the United States Civil Service (62nd Annual Catalog, 1953, p.100)."

For 8 years following its establishment, the division enjoyed relative stability and gradual growth. A course on Conservation was added to the course descriptions in 1953, and in 1956 the first "problems" courses were offered. Assistant Professor B.L. Gordon assumed command of the program in that year. No further changes occurred until 1959 when Yi Fu Tuan joined Dr. Gordon in the instructional program. By this time the minor consisted of a selection of 13 courses, most of which could be used to satisfy A & S group requirements.

- 1 General Geography
- 2 General Geography
- 51 Physical Geography (A&S Group V Science Req.)
- 63 Economic Resources (A&S Group IV Soc Sci Req.)
- 101 South America (A&S Group IV Soc Sci Req.)
- 102 Middle America (A&S Group IV Soc Sci Req.)
- 103 North America (A&S Group IV Soc Sci Req.)
- 111 Land Utilization (A&S Group IV Soc Sci Req.)
- 131 Eastern Asia (A&S Group IV Soc Sci Req.)
- 132 Western Europe (A&S Group IV Soc Sci Req.)
- 151 Problems
- 179 Conservation (A&S Group V Science Req.)
- 251 Problems

The Alumni Association lists Mr. Jack Keely as geography's first graduate in 1960, although the University's Annual Report for 1958-59 lists one graduate in 1958 and two in 1959. The era ended on the continuing theme that geography was a "service" discipline to the University. Its curriculum was oriented heavily toward regional geography and natural resources.

C. The Major Years (1961-1968)

1961 witnessed the birth of geography as a major discipline at UNM. The 70th Annual Catalog (p.263) describes requirements for a major degree to consist of geography 1, 2, 51, anthropology 1, geology 1, and 22 credit hours of upper division coursework, to include one "problem". Instruction was offered by Drs. B.L. Gordon and Y.F. Tuan. Geography of the Soviet Union and Eastern Europe was added to the curriculum.

Dr. Richard Murphy joined the faculty in 1965 as Professor and Chairman, and in 1966 Dr. Iven Bennett, then Associate Professor, teamed with Dr. Murphy to carry out the instructional program. By 1967 the list of courses had grown to 17, and the modern course numbering system was inaugurated (100 & 200 level = lower division; 300 & 400 level = upper division; 500 & 600

level = graduate). Three lower division courses were offered, 13 upper division, and one graduate level "problems". A significant variation on the theme of geography as a service discipline can be seen in the 1967 listing. Regional geography courses accounted for only about 40% of the total list and only 54% of the upper division courses. Almost half of the upper division courses represented systematic or topical interests in the discipline. They included Systematic Climatology, Regional Climatology, Political Geography, Geographic Writings and Analysis, Conservation and Problems.

By 1968 Drs. Murphy and Bennett had enlisted the support of faculty from other departments to add to the breadth and completeness of the department's curriculum. Dr. Huzarski (civil engineering) offered Cartography, Dr. Dittmer (biology) offered Conservation and Dr. Wengerd (geology) offered Geomorphology. This brief interlude in the history of the department ended with a curriculum of 19 courses, 3 full-time faculty and 3 non-departmental faculty. It was a period of rapid growth and diversity.

D. Graduate Program (1969-1983)

Geography advanced to graduate status offering a master's degree in 1969 (78th Annual Catalog, p.335-337). Drs. Murphy and Bennett were joined by Drs. Snead and Visiting Assistant Professor Ayala in 1966 and, together with Drs. Huzarski, Dittmer and Wengerd offered an instructional program of some 27 courses. In 1969 Dr. Barrett was added to the faculty, and in 1970 seminars were first listed. By 1971, with the

addition of Drs. Campbell and Dyerson, the curriculum had expanded to 35 courses. Data in Figure 1 indicate the rapid growth in coursework experienced between 1970 and 1983. This trend partly reflects instability in staffing the instructional program. Four out of eight faculty appointed between 1970 and 1980 (see below) ended in resignations, yet all of these instructors added courses to the curriculum. Throughout the decade of the seventies, the department continued in its role

History of the Graduate Faculty

<u>Faculty Member</u>	<u>Appointed to Faculty</u>	<u>Status</u>
Dr. Richard Murphy	1965	Died Oct. 1982
Dr. Iven Bennett	1966	Full Professor
Dr. Rodman Snead	1969	Full Professor
Dr. Elinore Barrett	1969	Full Professor
Dr. Robert Campbell	1970	Emeritus Professor
Dr. Delbert Dyerson	1971	Resigned 1973
Mr. Douglas Gordon	1973	Resigned 1978
Dr. Stan Morain	1974	Associate Professor
Dr. Wes Redfield	1975	Resigned 1977
Dr. Alastair Shedden	1978	Resigned 1981
Dr. Jerry Williams	1977	Assistant Professor
Dr. Bradley Cullen	1980	Assistant Professor
Dr. Dennis Fitzsimons	1981	Assistant Professor

as a "service" discipline to the University, but in addition graduated almost 100 majors and minors* and produced about 25 Masters of Geography.** So far in the 1980's it has graduated just under 30 majors and close to 10 Masters of Geography.***

* The UNM Alumni Association has addresses for 82 people who graduated between 1970 & 1979, and 23 people since 1980. They "think" the list is perhaps 80% complete.

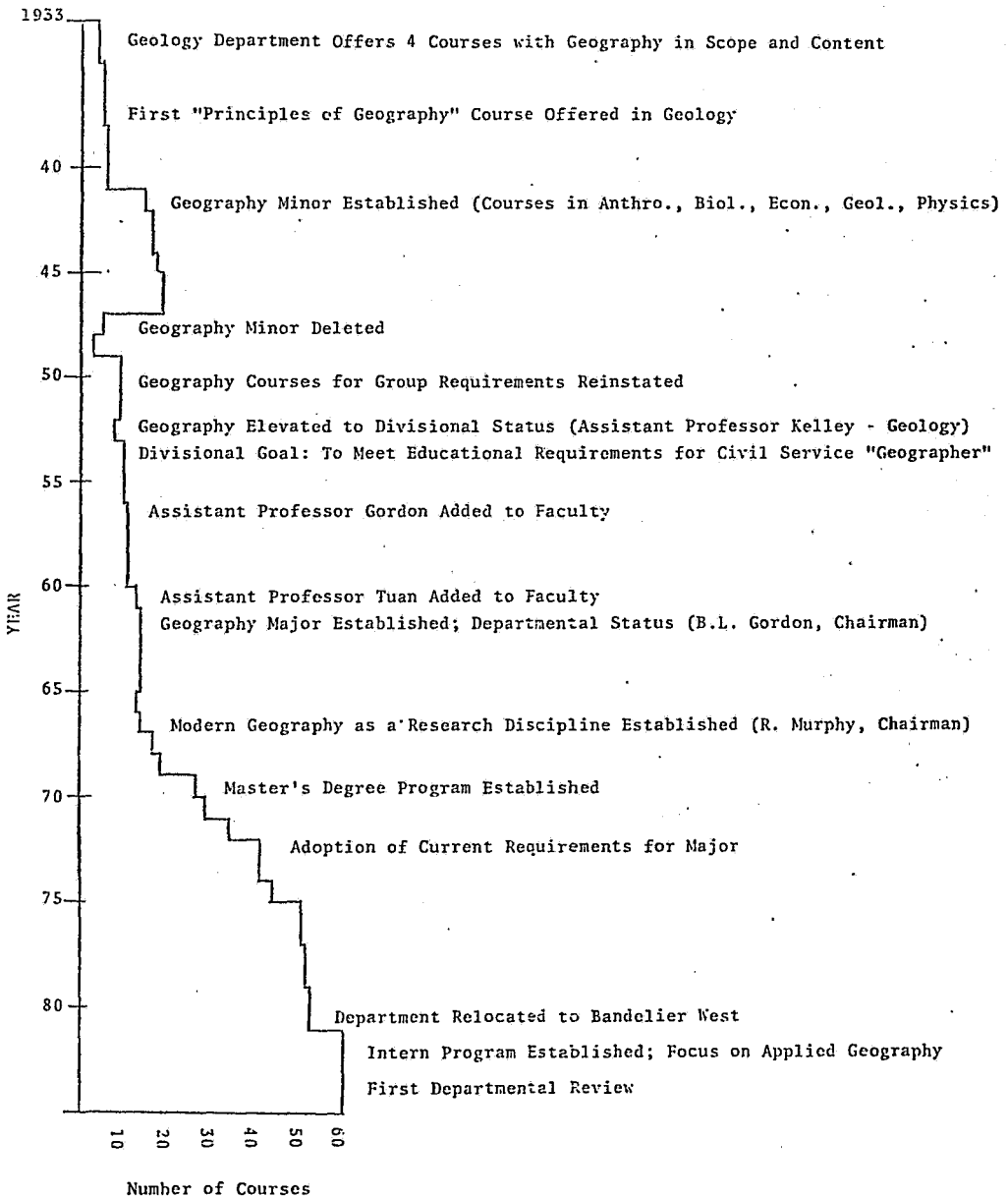
** A complete list is given in Section IV-E, Table 29 of this report.

*** Source: Association of American Geographers, 1980-81, 1981-82, 1982-83, Guide to Graduate Departments, Washington, D.C.

Figure 1

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MILESTONES IN GEOGRAPHY 1933 - 1983



As would be expected, student production has lagged behind program development. It appears however, that Geography at UNM has evolved into a viable research discipline capable of attracting students and serving the needs of the University. With continued administration support there is every good reason to expect steady growth in the 1980's.

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Department of Geology
University of New Mexico
July 1, 1983 - June 30, 1984

The Report of the Department of Geology

July 1, 1983- June 30, 1984

Rodney C. Ewing, Chairman

Barry S. Kues, Assistant Chairman

FACULTY AND STAFF OF THE DEPARTMENT OF GEOLOGY

FULL PROFESSORS:

Roger Y. Anderson, Ph.D., Stanford University, 1960.

Douglas G. Brookins, Ph.D., Massachusetts Institute of
Technology, 1963.

Wolfgang E. Elston, Ph.D., Columbia University, 1953.

Klaus Keil, Director, Institute of Meteoritics, Ph.D., Mainz
University, 1961.

Lee A. Woodward, Ph.D., University of Washington, 1962.

ASSOCIATE PROFESSORS:

Jonathan F. Callender, Ph.D., Harvard University, 1975.

Rodney C. Ewing, Ph.D., Stanford University, 1974.

Stephen P. Huestis, Ph.D., University of California-San
Diego, 1976.

Albert M. Kudo, Ph.D., University of California-San Diego,
1967.

Barry S. Kues, Ph.D., Indiana University, 1974.

Stephen G. Wells, Ph.D., University of Cincinnati, 1976.

ASSISTANT PROFESSORS:

- Jeffrey A. Grambling, Ph.D., Princeton University, 1979.
Leslie D. McFadden, Ph.D., University of Arizona, 1982.
Kenneth D. Mahrer, Ph.D., Stanford University, 1979.
Robyn Wright, Ph.D., Rice University, 1984.
Crayton J. Yapp, Ph.D., California Institute of Technology,
1980.

PROFESSORS EMERITUS:

- J. Paul Fitzsimmons, Ph.D., University of Washington, 1949.
Vincent C. Kelley, Ph.D., California Institute of
Technology, 1937.
Stuart A. Northrop, Ph.D., Yale University, 1929.
Sherman A. Wengerd, Ph.D., Harvard University, 1947.

ADJUNCT PROFESSORS:

- Adjunct Associate Professor Edward C. Beaumont, M.S.,
University of New Mexico, 1948.
Adjunct Associate Professor Frank D. Gorham, B.A.,
University of Missouri, 1943.
Adjunct Associate Professor Rodney J. Holcombe, Ph.D.,
Stanford, 1973.
Adjunct Assistant Professor, Spencer G. Lucas, Ph.D.,
Yale, 1983.
Adjunct Professor William C. Luth, Ph.D. Pennsylvania State
University, 1963.

Adjunct Associate Professor John Shomaker, M.S.,

University of New Mexico, 1965.

Adjunct Associate Professor Lawrence W. Teufel, Ph.D.,

Texas A&M, 1979.

RESEARCH ASSOCIATES AND POST-DOCTORAL FELLOWS:

Bryan C. Chakoumakos, Ph.D., Virginia Polytechnic

Institute and State University

Cyrena A. Goodrich, Ph.D., Cornell University

John Husler, Senior Staff Chemist, M.S., University of New
Mexico.

Alfred Kracher, Ph.D., University of Vienna, Austria

Edward R. D. Scott, Research Scientist, Institute of
Meteoritics; Ph.D., University of Cambridge (U.K.).

Jefferey G. Taylor, Senior Research Scientist, Institute of
Meteoritics, Ph.D., Rice University.

STAFF:

Ruth Briggs, Editorial Assistant II

George Carnako, Department Preparator

George Conrad, Microprobe Specialist

Elaine Faust, Drafting Technician

Earl George, Electronics Technician

Gerald Gomez, Thin Section Preparator

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Sally Hayes, Bookkeeper

Robin Kratschmer, Department Secretary

Lucy Landis, Department Secretary

Marguerite Swanson, Administrative Assistant

Holly Wouters, Editorial Assistant I

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GENERAL DEPARTMENTAL INFORMATION

SIGNIFICANT ACHIEVEMENTS

This report provides a detailed summary of the activities and accomplishments of the faculty, staff and students of the Department of Geology. The Department of Geology has continued to increase and improve its teaching at the undergraduate and graduate level, expand its research efforts, and to provide for the technical needs of the State of New Mexico in its efforts to develop its natural resources and preserve the quality of its unique environment.

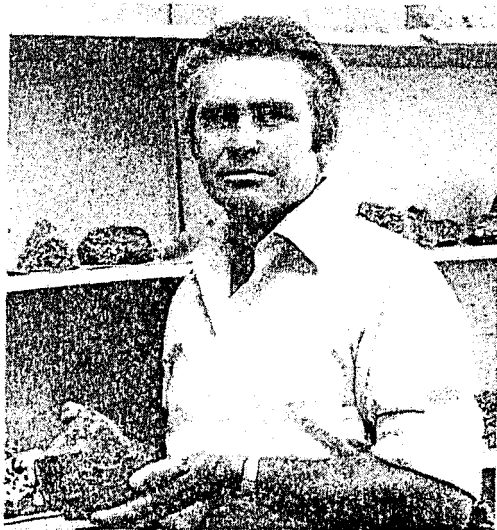
Highlights of these activities include:

1. The Department has hired Robyn Wright (Ph. D. Rice University) as an assistant professor to fill the stratigraphy-sedimentology position. She joined our faculty the Spring semester of 1984. Robyn brings a diverse and field-oriented background to our program, and she will be an excellent addition to the developing program in Quaternary Studies. Robyn has served as a geological oceanographer in the United States Antarctic Research Program since 1978, and her Ph.D. dissertation was a study of the sedimentology and paleoenvironments of the upper Mancos Formation and lower Mesaverde Group of the San Juan Basin.

2. The Department has hired John Geissman (Ph.D. University of Michigan) as an assistant professor to fill the geophysics position. John will join the faculty for the Fall

semester of 1984 and will teach exploration geophysics. He brings an active program in the application of paleomagnetic techniques to a diverse range of geologic problems. The Department will provide support for the creation of a paleomagnetism laboratory.

3. Professor R. H. Vernon of Macquarie University in Australia has been appointed the next Caswell Silver, *Distinguished Professor*, effective June 1, 1984.



R. H. VERNON, Caswell Silver Distinguished Professor 1984-1985

Professor Vernon's principal interests are the application of microstructural studies to selected problems in petrology and structural geology. He is co-editor of the Journal of Metamorphic Geology and the Honorary Editor of the Journal of the Geological Society of Australia and author of the well-known book Metamorphic Processes. He will teach an advanced seminar on microstructures during the Fall, 1984, semester. We look forward to his interaction with students and his contributions to on-going research projects on the Precambrian of New Mexico.

4. Dr. Claude Abry, an independent consultant from Houston, was appointed the Distinguished Visiting Professor of Petroleum Geology for the Spring semester, 1984. He taught two courses: Petroleum Geology and Application of Computer Techniques to Petroleum Exploration. Both courses had full enrollments and were well received.

5. Student enrollments at the undergraduate and graduate levels were essentially constant (although there was a slight decrease, 2 percent, in the total number of student credit hours generated, there was an increase in the number of geology majors). During the past year, the Department awarded 6 Bachelor of Arts Degrees, 19 Bachelor of Science Degrees, 15 Master of Science Degrees and no Doctor of Philosophy Degrees (Appendix I).

6. Applications for admission to our graduate program increased dramatically (Appendix VI). The Department received nearly 2,000 requests for application materials, and 323 completed applications were reviewed by the faculty for Spring and Fall, 1984.

The Department accepted approximately one-fifth of the applicants and based on previous experience, we expect 20 to 25 percent of these students to enroll in our program. This will bring our total graduate student enrollment to approximately 80 - which is at the Department's maximum capacity, considering the size of our faculty, financial resources and the space in Northrop Hall. Based on GRE scores the average accepted student placed in the 79th percentile on the verbal; 81st, quantitative; 81st, advanced geology.

7. A major hallmark of the Department remains a dedication to research and the incorporation of that research into the instruction of students at the undergraduate and graduate level. Our fifteen full-time faculty published over 140 papers, technical reports, abstracts, maps and books (this does not include papers in press or in preparation). Indeed, based on the Dean's ranking of departmental productivity, the Department of Geology ranks number one among the 20 departments in the College of Arts and Sciences. The total value of contracts in effect during calendar year 1983 in which Geology faculty are participants is over \$2,155,000 (Appendix II). This generates a return to the University of New Mexico of over \$300,000. A detailed list of the research programs is provided in the chapter entitled "Research Projects or Creative Work in Progress." A detailed list of the publications (many with student authors) is provided in the chapter entitled "Publications."

8. The University completed Phase III renovation of the basement of Northrop Hall and the large lecture hall (Room 122).

This phase of the renovation will provide the Department with space for curated collections, a new stratigraphy/sedimentology laboratory, and modern lecture hall facilities. The lecture hall will be christened by the Meteoritical Society's Annual meeting at UNM at the end of July. Plans for Phase IV renovation are pending.

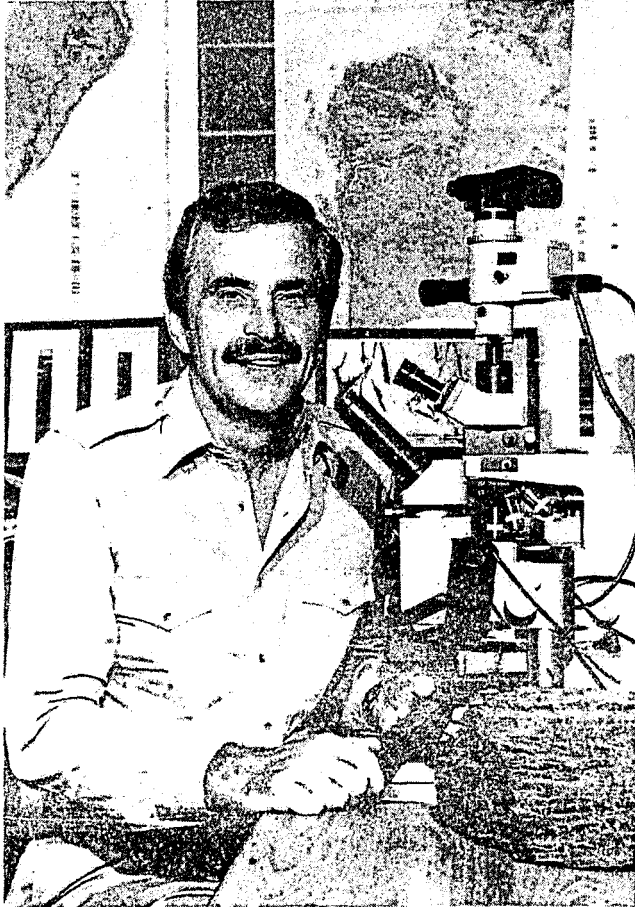
9. The Department continued to up-grade its analytical facilities with the purchase of a JEOL 2000 EX transmission electron microscope. The Department also hired Ian MacKinnon as a research scientist to be in charge of the microscopy laboratory. We expect Ian to join the staff, and the delivery of the microscope, by the end of October. The electron microscope will be housed in newly renovated laboratories in the basement. Crayton Yapp has raised matching funds (\$70,000) from NSF for the purchase of a Finnigan Delta-E gas source isotope ratio mass spectrometer for C, O, and N. The Department will also purchase an automated x-ray powder diffractometer with an anticipated delivery in the early Fall of 1984.

10. Alumni support for the department continues to be a mainstay for the Department. The support of the Caswell Silver Foundation, funds available through the Alumni Fellowship Program and the Energy Exploration Education, Inc. program in Petroleum Geology prosper only through the efforts of the alumni and industry supporters. The Department hosted an alumni cocktail party at the annual meeting of the Geological Society of America in Indianapolis, and Pat Gratton organized and hosted an alumni cocktail party at the annual meeting of the American

Association of Petroleum Geologists in San Antonio. Both events were a great success and warming testimony to the accomplishments of the graduates of the Geology Department program.

11. The Department continues an active program of Public Service, hosting more than 3,000 visitors to the Department's Museums and over 750 visitors to the Harding Pegmatite. Faculty and staff participated in programs or projects for Parent's Day, UNM Academic Mart, Senior Day, UNM Outreach Program, Saturday Science Academy, the Museum of Natural History, the Albuquerque Parks and Recreation Department, and the International Science Fair.

Finally, the Department of Geology has been successful in its search for an external chairman. I am pleased to announce that the next chairman of the Department of Geology will be Cornelis ("Kase") Klein who will join us from Indiana University. Kase brings active programs in metamorphic petrology, mineralogy and economic geology to the Department. He is also a member of the Precambrian Paleobiology Working Group which links the efforts of an international group of scientists. The Department faculty were unanimous in their selection of Kase. He has our support and our high expectations for the future.



Dr. Cornelis "Kase" Klein, new Chairman of the Geology
Department

SIGNIFICANT PLANS AND RECOMMENDATIONS

Future plans and recommendations will be more explicitly determined by Professor Kase Klein after he assumes the chairmanship in September of 1984. Important areas of activity, however, would include the following:

1. Jon Callender has resigned his position with the faculty of the Department of Geology in order to assume the position of Director of the New Mexico Museum of Natural History. He will continue as a member of the faculty as an Adjunct Professor; however, the Department will replace him with a structural geologist at the assistant professor level. Advertisements will appear in Geotimes in the August, September, October and November issues. The position will be filled for the Fall, 1985, semester.

2. Through the efforts of Professor Klein, the Department has received an additional faculty line. After discussion with the faculty on the specialty to be selected, this position will be filled for the Fall, 1985, semester.

3. Phase IV renovation of Northrop Hall should be approved and completed. This renovation will complete the basement area (particularly, those areas which contribute to the Materials Characterization Center, i.e. the x-ray diffraction and sample preparation laboratory). The renovation will also include classroom space, the paleomagnetism laboratory, the Quaternary

Studies and Paleontology laboratories and the main office area on the first floor.

4. The Department will continue to emphasize areas of special and recent importance. This includes the Quaternary Studies Program and further development of analytical facilities (electron microscopy and x-ray diffraction) in support of the Materials Characterization Center and the University's efforts in high technology materials.

5. The Department will establish curated collections in paleontology, mineralogy and petrology. These collections will emphasize materials that have been part of research projects by members of the faculty and students. The new curator, Spencer Lucas, will supervise these collections.

6. The Department must continue its efforts to establish contact with its alumni and to encourage their support for our programs. The Alumni Fellowship Fund, the Distinguished Visiting Professorship in Petroleum Geology, and the Caswell Silver Foundation are all efforts that rely almost entirely on the generosity of our alumni.

7. With a grant from the UNM Foundation, the departmental fossil, mineral and rock museum will be renovated. Work will commence during the summer and finish in spring, 1985.

APPOINTMENTS TO STAFF

Cyrena Goodrich, Post Doctoral Fellow, August 1, 1983

Ruth Briggs, Clerical Specialist V, August 15, 1983

Holly Wouters, Editorial Assistant, October 24, 1983

Sally Hayes, Bookkeeper, December 1, 1983

Robin Kratschmer, Department Secretary, December 1, 1983

Bryan Chakoumokus, Post Doctoral Fellow, February 1984

Katharine Downer, Editorial Assistant I, June 11, 1984

Esther Harrison, Department Secretary, June 11, 1984

SEPARATIONS FROM STAFF

Michael Pedley, Chemist, Resigned effective June 30, 1983

Richard Haaker, Research Associate, Resigned effective

September 1, 1983

Amy Tokunaga, Clerical Specialist IV, Resigned effective

October 31, 1983

Cornelia Nestor, Bookkeeper, Resigned effective November 4, 1983

Alfred Kracher, Post Doctoral Fellow, Resigned effective

November 17, 1983

Holly Wouters, Editorial Assistant I, Resigned effective

April 26, 1984

Jonathan Callender, Associate Professor, Resigned effective

May 12, 1984

Robin Kratschmer, Department Secretary, Resigned effective

May 18, 1984

SPONSORED RESEARCH

Contracts in effect during this reporting period are summarized in Appendix II. Total contract dollars for this period are \$2,155,289.00. The most important trend is the increasing number of faculty (7) who have support from the National Science Foundation. Of the faculty of 16, eleven have had extramural support. In addition, graduate students have been active in their effort to raise support for their thesis and dissertation research (see Appendix IV).

FACULTY ACTIVITIES

1. ADVANCED STUDY

Douglas G. Brookins

Seventh International Symposium on the Scientific Basis for Nuclear Waste Management; Boston, Massachusetts, November 14-17, 1983. Sponsored by the Materials Research Society, the U.S. Department of Energy, and the U.S. Nuclear Regulatory Commission. Served as Chairman of two sessions, on the Program Review Committee, and as Associate Editor for the forthcoming proceedings volume from this symposium.

National Academy of Science--Committee on uranium mill tailings management (appointed 12/83).

Kenneth D. Mahrer

Took Geo. 522, Topics in Geophysics: Rotation of the Earth and Earthtides offered by Dept. of Geology, UNM.

Leslie D. McFadden

Took Geo. 540, Advanced Stratigraphy-Sedimentology.

Robyn Wright

Completion of Ph.D. at Rice University, Houston, Texas; degree conferred May 12, 1984. Dissertation title:

Paleoenvironmental Interpretation of the Upper Cretaceous Pt. Lookout Sandstone: Implications for Shoreline Progradation and Basin Tectonic History, San Juan Basin, New Mexico.

Nov. 7 - 18, attended short course: Paleomagnetism and Applications to Problems in Tectonics, Diagenesis, and Sedimentation. Houston Texas, Rice University.

Dec. 8 - 9, attended short course: Plate Tectonics, Structural Styles, and the Evolution of Sedimentary Basins. Houston Geological Society. Houston, Texas.

2. SABBATICALS, LEAVES OF ABSENCE AND TRAVEL

Roger Y. Anderson

Travel related to research and meetings in Minnesota, Indiana, Washington, California, and Arizona.

Douglas G. Brookins

New Mexico Geological Society, Annual Spring Meeting, Socorro, New Mexico, April, 1983.

Geological Society of America, joint Cordilleran - Rocky Mountain Meeting, Salt Lake City, Utah, May 1983.

Annual Meeting American Nuclear Society, Detroit, Michigan, June 1983.

Program Review Committee Meeting, Materials Research Society, San Francisco, California, July, 1983.

U. S. Nuclear Regulatory Commission Meeting on High Level Radioactive Waste Geochemistry, Reston, Virginia, August - September, 1983.

New Mexico Academy of Science, Annual Meeting, Albuquerque, New Mexico, October, 1983.

Annual Meeting Materials Research Society, Boston, Massachusetts, November, 1983.

Annual Winter Meeting, American Nuclear Society, San Francisco, California, November 1983.

Annual Meeting, National Council for Social Studies, San Francisco, California, November, 1983.

Annual Western Meeting, American Geophysical Union, San Francisco, California, December, 1983.

Florida Mountains, New Mexico; field work, March, June 1983.

Prescott, Arizona; field work; July-August 1983.

Local field work in the Sandia Mountains and Grants Mineral Belt.

WIPP site and nearby area for on-going research project.

Estancia Valley, New Mexico, for field work.

Jonathan F. Callender

Field work in northern New Mexico, Arizona and California.

Wolfgang E. Elston

Teaching Elsewhere

June 21-23, Taos, New Mexico: Guest Lecturer, UNM German Summer School. Gave talk, "Alfred Wegener: Kontinentalverschiebung und Plattentektonik (Continental Drift and Plate Tectonics); led field trip to Harding Mine.

October 10-12, Reno, Nevada: Instructor, University of Nevada-Reno, short course on "Volcanic Rocks and their Vents." Lectured on "Mid-Tertiary volcanism and cauldrons of southwestern New Mexico," "Tectonic environment of mid-Tertiary volcanism of southwestern North America," and "Ore deposits in the cauldron setting".

Travel

January 17-21, Reston, VA: Attended NASA Planetary Geology Principal Investigators Conference; presented two papers; participated in discussions of Galilean Satellites Mapping Program.

- April 27, Tempe, Arizona: Invited guest speaker, Arizona State University: "Cenozoic volcanism and tectonics of the Basin and Range province".
- May 2-4, Salt Lake City, Utah: Attended joint annual meetings of Cordilleran and Rocky Mountain Sections, Geological Society of America;
- Invited speaker in Symposium on Continental Extension Processes.
- June, July 1983, Southwestern New Mexico: Geologic field work.
- June 24, Questa, New Mexico: Invited participant, field trip to Questa Caldera, led by Dr. Peter W. Lipman, U.S. Geological Survey.
- August 11, Eifel volcanic field, West Germany: Geologic field trip.
- August 12, Aachen, West Germany: Visitor, Technische Hochschule Aachen.
- August 15-27, Hamburg, West Germany, U.S. delegate to XVIII General Assembly, International Union of Geodesy and Geophysics, invited participant in Interdisciplinary Symposium 12: "Plateau Uplifts, Rifts, and Volcanism." Attended founding session of Working Group on Explosive Volcanism, International Association for Volcanology and Chemistry of the Earth's Interior.
- September 8-9, Flagstaff, Arizona: Participant in Conference of U.S. Geological Survey-NASA Galilean Satellites Mapping Program, presented map of Kane Patera Quadrangle of Io (a satellite of Jupiter).

- September 23, Questa, NM: Invited guest, Molybdenum Corporation of America, opening ceremony for underground mine.
- September 29, Socorro, New Mexico: Invited guest speaker, New Mexico Institute of Mining and Technology, "Cenozoic volcanism and tectonics of the Basin and Range province".
- October 13-15, Socorro, New Mexico: Participant, Annual field trip, New Mexico Geological Society.
- October 15, Socorro, New Mexico: Presided at annual meeting, New Mexico Chapter, American Institute of Professional Geologists.
- October 21-23, Silver City, New Mexico: Led field trip to Chino mine, Santa Rita (guests of Kennecott Copper Corp.) and Mogollon-Datil volcanic field with Dr. J. Cole (Victoria University, Wellington, New Zealand), Dr. Patrick Browne (University of Auckland, New Zealand), and Dr. Phillip Kyle (New Mexico Tech.).
- November 11-13, Silver City, New Mexico: Led student field trip to Chino mine, Santa Rita (guests of Kennecott Copper Corp.) and Mogollon-Datil volcanic field.
- November 14-15, El Paso, Texas: Member of committee to evaluate doctoral program in geological science, University of Texas-El Paso (with Dr. F. E. Kottlowski, Director, N. M. Bureau of Mines and Mineral Resources and Dr. E. G. Bombalakis, Boston University). Participated in preparation of report to Dean Michael E. Austin, Graduate School, UTEP.

- December 2, Berkeley, CA: Invited participant, Workshop on Baca (Jemez Mountains, New Mexico) Geothermal Project, Lawrence-Berkeley National Laboratory.
- December 5-7, San Francisco, CA: Attended meeting of American Geophysical Union. Invited participant, Krakatau Centennial Symposium (Calderas).
- December 21, Berkeley, CA: Invited participant, Workshop on Baca (Jemez Mountains, New Mexico) Geothermal Project, Lawrence-Berkeley National Laboratory.

Rodney C. Ewing

- January 6, Atlanta, Georgia: Attended annual council meeting of the Materials Research Society.
- February 11-14, Tucson, Arizona: Attended Mineralogical Society of America Symposium held in conjunction with the Tucson Gem and Mineral Show.
- April 19, Dallas, Texas: Attended UNM Alumni Reception held in conjunction with the annual meeting of the American Association of Petroleum Geologists.
- May 10-14, Victoria, British Columbia, Canada: Presented paper at the annual meeting of the Mineralogical Society of Canada.
- July 6-9, Washington, D. C.: Visited the Department of Mineral Sciences at the U. S. National Museum to obtain specimens (pyrochlores) for research.
- July 26-27, Washington, D. C.: Consulted with the Nuclear Regulatory Commission on proposed research project to model the long-term stability of radioactive waste glasses.

00596 August 8-12, Phoenix, Arizona: Attended the annual meeting of the Electron Microscopy Society of America to review transmission electron microscopes for purchase by UNM.

September 16, Los Alamos, New Mexico: Visited Frank W. Clinard (Radiation Effects, Section Leader) to discuss joint research.

October 26-29, Palo Alto, California: Presented paper at annual meeting of the Stanford Synchrotron User's Group Meeting.

October 30-November 3, Indianapolis, Indiana: Attended annual meeting of the Geological Society of America and the Mineralogical Society of America.

November 4-5, Argonne, Illinois: Presented invited seminar at Argonne National Laboratory.

November 13-17, Boston, Massachusetts: Attended the annual meeting of the Materials Research Society (served as a councilor, member of the nominations committee, chairman of the education committee and as a program committee chairman), and visited the Harvard Geology Museum to obtain research materials.

November 18-19, New York, New York: Visited the American Museum of Natural History to obtain research materials (pyrochlores).

November 20-21, Washington, D. C.: Consulted with the Nuclear Regulatory Commission on proposed research project.

December 6, Los Alamos, New Mexico: Visited F. W. Clinard to discuss joint research on radiation effects.

December 8-9, Washington, D. C.: Invited participant in
workshop on The Long Term Stability of Smectite Minerals
sponsored by the Swedish State Power Board and the U. S.
Department of Energy.

Jeffrey A. Grambling

- March 13, Picuris Range, New Mexico. Led field trip for K.
Muessig of Exxon Minerals Inc.
- April 20, Picuris Range, New Mexico. Led field trip for C.
Graubard of Anaconda Minerals Inc.
- April 29, Socorro, New Mexico. Served as Treasurer at Spring
Meeting of New Mexico Geological Society.
- May 1-4, Salt Lake City, Utah. Presented talk at meeting of
Geological Society of America.
- May 1-4, Salt Lake City, Utah. Co-chaired session on
Precambrian Geology at meeting of Geological Society of
America.
- June 8 - Aug. 12, Sangre de Cristo Mountains, New Mexico:
Geologic field mapping.
- Oct. 13-15, Socorro, New Mexico: Attended and served as
Treasurer at Fall Field Conference of New Mexico Geological
Society.
- Oct. 30 - Nov. 4, Indianapolis, Indiana: Presented talk at
Meeting of Geological Society of America.

Klaus Keil

January 7-10, Houston, Texas: Chaired Lunar Science Council,
Lunar and Planetary Institute.

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- January 26-29, Houston, Texas: Attended Lunar and Planetary Science Conference Program Committee Meeting, Lunar and Planetary Institute.
- March 12-13, Houston, Texas: Chaired Lunar Science Council, Lunar and Planetary Institute.
- March 14-18, Houston, Texas: Attended Lunar and Planetary Science Conference, chaired session on "Meteorites from the Moon", presented one talk, and coauthored five talks.
- March 18-19, Houston, Texas: Chaired Lunar Science Council, Lunar and Planetary Institute.
- April 15-17, Santa Fe, New Mexico: Organized and hosted Antarctic Meteorite Working Group Meeting, Bishop's Lodge.
- April 19-22, Mercury, Nevada: Carried out research at the Nevada Test Site.
- May 16-18, Houston, Texas: Studied lunar meteorite ALHA81005 at Curatorial Facility, L. B. Johnson Space Center.
- May 18-19, Fort Worth, Texas: Studied Monnig Meteorite Collection at Department of Geology, Texas Christian University, and arranged for joint research and loan of samples.
- June 17-19, Taos, New Mexico: Presented invited talk at German Summer School, Department of Modern and Classical Languages, University of New Mexico.
- June 21-24, LaJolla, California: Attended meeting of Solar System Exploration Committee, Subcommittee on Manned Exploration, at University of California.

July 25-26, Munster, West-Germany: Visited Department of Mineralogy and Petrology, reviewed joint work with graduate student A. Bischoff.

November 8, Carlsbad, New Mexico: Visited WIPP site and selected samples for study.

November 16-17, Mercury, Nevada: Carried out research at the Nevada Test Site.

Albert M. Kudo

July, 1983, Las Vegas, Nevada: Lectured at UNLV Earth Sciences Department.

Barry S. Kues

Feb. 3, To Socorro to discuss research with New Mexico Bureau of Mines and Mineral Resources paleontologists

Mar. 23, To Manzano Mountains, paleontological research

Mar. 27, To Manzano Mountains, paleontological research

Apr. 10, To Manzano Mountains, paleontological research

Apr. 16, To areas east of Santa Rosa, paleontological research

Apr. 24, To Manzano Mountains, paleontological research

May 1-4, To Salt Lake City for Geological Society of America Meeting, presented paper

May 17-19, To Lake Valley and Alamogordo areas, paleontological research

May 23, To Pagosa Springs, Colorado, area, for paleontological research

00700 June 18-19, To areas east of Santa Rosa, for paleontological
research

June 26, To Manzano Mountains, paleontological research

Oct. 8, To Lucero Mesa area, paleontological research, and to
show area to Dr. Chris Durden, visiting paleontologist from
University of Texas.

Oct. 16, To Lake Valley area, paleontological research.

Oct. 30, To Jemez Springs area, paleontological research.

Kenneth D. Mahrer

March 12-15, Southwestern New Mexico.

April 29, Socorro, New Mexico: attended NMGS.

June 5-12, Cima Volcanic Field, Mojave Desert, CA: geophysical
research.

June 27, Los Alamos National Lab. (LANL), Los Alamos, New
Mexico.

July 20-23, San Juan Basin, NM: geophysical research.

Sept. 16, Pecos National Monument, NM: geophysical research.

Dec. 4-11, San Francisco, CA: presented paper at AGU.

Dec. 8, Stanford University, Stanford, CA.

Dec. 23, LANL: Visit Fenton Hill geothermal project.

Leslie D. McFadden

January 4 - 9, Baker, California: Travel to the central Mojave
Desert to participate in U. S. Geological Survey - supported
research in Quaternary geology.

April 23 - 27, Winnemucca, Nevada: Presented invited paper at
Geological Society of America Penrose Conference.

- May 2 - 5, Salt Lake City, Utah: Presented poster session and a paper at the Cordilleran-Rocky Mountain Section Meeting of the Geological Society of America.
- May 13 - 18, San Juan Basin, New Mexico: Travel to San Juan Basin to conduct grant-supported Quaternary research.
- May 19, Pecos National Monument, New Mexico: Participation with National Park Service in studies of Quaternary history of Pecos National Monument.
- May 23 - June 2, Baker, California: Travel to the central Mojave Desert to conduct U. S. Geological Survey - supported research.
- June 10 - 14, San Juan Basin, New Mexico: Travel to San Juan Basin to conduct grant-supported Quaternary research.
- July 25 - 28, Bishop, California: Travel to north-central Mojave Desert to conduct U. S. Geological Survey - supported research.
- September 26, Santa Fe, New Mexico: Participation with National Park Service in studies of Quaternary history of the Pecos River region.
- October 7 - 10, San Juan Basin, New Mexico: Participation in and presentation of talk for the Annual Field Conference of the American Geomorphological Field Group.
- October 13 - 16, Socorro, New Mexico: Participation in the Annual Field Conference of the New Mexico Geological Society.
- December 5, Socorro, New Mexico: Presented invited talk at New Mexico Institute of Technology.

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Stephen G. Wells

- January 4 - 9, Baker, California: Travel to central Mojave Desert to participate in the U.S. Geological Survey-supported research program on the Quaternary Geology of the Mojave Desert.
- March 11 - 20, Baker, California: (same as above)
- May 3 - 5, Salt Lake City, Utah: Presented poster session-paper at the Cordilleran-Rocky Mountain Sectional Meeting of the Geological Society of America.
- May 20 - June 16, Baker, California: (same as first entry)
- October 7 - 10, San Juan Basin, New Mexico: To convene and present field discussions on the geomorphology of the Chaco River area for the Second Field Conference of the American Geomorphological Field Group.
- October 13 - 16, Socorro, New Mexico: Participation in the annual field conference of the New Mexico Geological Society.
- November 17, Socorro, New Mexico: Presented invited talk to colleagues at New Mexico Institute of Technology and the New Mexico Bureau of Mines and Mineral Resources.
- November 23 - 27, Death Valley California: Field trip for students in Geology 319L (Field Geology) to observe and map features in Death Valley.

Lee A. Woodward

- Travel to Arizona, Utah, Idaho, Wyoming, Colorado, and Montana for research projects.

Robyn Wright

January - February, 1983: Marine-geological research cruises,
Ross Sea, Antarctica.

May 2 - 4, Salt Lake City, Utah: Attended meeting and
presented talk to Cordilleran/Rocky Mountain Section of
Geological Society of America.

August 4, San Francisco, California: Consultation with U.S.
Geological Survey, Menlo Park.

Crayton J. Yapp

June, 1983, Harding Pegmatite, New Mexico: Collected samples
for stable isotope research.

October 31 to November 3, 1983, Indianapolis, Indiana:
Presented talk at the national meeting of the Geological
Society of America.

3. NEW SCHOLASTIC HONORS, FELLOWSHIPS, ETC.

Douglas G. Brookins

Selected for 43rd Edition of Who's Who in America.

Selected for 7th Edition of Who's Who in the World.

Jonathan F. Callender

Presidential Recognition Award, UNM

Appointed Chief of Scientific Programs and Curator of Geology,
New Mexico Museum of Natural History (part-time).

Appointed Director of The New Mexico Museum of Natural History
(March, 1984).

Wolfgang E. Elston

Listed in Who's Who in Frontiers of Science and Technology.

Jeffrey A. Grambling

Selected for Outstanding Young Men of America, 1983.

UNM candidate for Alan Waterman Award (NSF), 1983.

Stephen P. Huestis

Listed in American Men & Women of Science, 15th ed.

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Klaus Keil

Member, Program Committee, Lunar and Planetary Science
Conference, Houston, Texas. 1981-1983.

Member, Advisory Committee on Comparative Planetology,
International Union of Geological Sciences. 1982-1985.

Associate Editor, Journal of Geophysical Research, American
Geophysical Union. 1982-1985.

Associate Editor for "Chondrules and their Origin", a volume to
be published by the Lunar and Planetary Institute,
Houston, Texas.

Listed in Who's Who in Frontiers of Science and Technology.

Recipient of the Regents Meritorious Service Medal, University of
New Mexico.

Leslie D. McFadden

Selection as co-convenor of Geological Society of America Penrose
Conference.

Stephen G. Wells

Elected to the Quaternary Geology and Geomorphology Division
Panel of the Geological Society of America for the period of
1983 - 85.

Appointed to the Organizing Committee of the American
Geomorphological Field Group.

Lee A. Woodward

Selected to receive the Department of Geology's Outstanding
Teacher Award for 1983-1984.

4. PUBLICATIONS

Roger Y. Anderson

Papers

"Orbital Forcing of Evaporite Sedimentation": in Berger, A. and Imbrie, J. (eds.) Milankovich and Climate: Understanding the Response to Orbital Forcing, Elsevier, IN PRESS.

Solar-Terrestrial Climatic Patterns in Varved Sediments": in Schove, D. J. (ed.), Sunspot Cycles, Benchmark Papers in Geology, v. 68. Hutchinson Ross.

"Changes in Sediment Composition During Seasonal Resuspension in Small, Shallow, Dimictic Inland Lakes": in (Special Issue on Fine-grained Sediments, Hesse, R. (ed.), Sedimentary Geology, IN PRESS.

Coauthor: E. B. Nuhfer.

"Meromictic Lakes and Varved Lake Sediments in North America": U.S. Geological Survey Circular. IN PRESS.

Coauthors: W. E. Dean, J. Bradbury, D. Love.

Abstracts

"Salt Dissolution - Front or Fingers?, Implications for Radioactive Waste Disposal": Geol. Soc. America, (Abs.), v. 15, No. 6, p. 515.

Nonglacial Varve Formation Through Time": in Gray, J. and Gasse, F. (eds.) Symposium on Paleolimnology, First Int. Congress on Paleocology, (abs), Lyon, France.

Coauthor: W. E. Dean.

Douglas G. Brookins

Books

Scientific Basis for Nuclear Waste Management VI, (Ed.), (New York: Elsevier Scientific Publishing Co., 1983).

Geochemical Aspects of Radioactive Waste Disposal, (New York: Springer-Verlag, Inc., 1984, approximately 347 pp.

Book Chapters

"Geochemical Studies of the Grants Mineral Belt, New Mexico," The Significance of Trace Elements in Solving Petrogenetic Problems and Controversies, (S. S. Augustithius, Ed.), (1983), p. 793-819.

"Trace Element Studies of the Oklo Natural Reactor, Republic of Gabon," The Significance of Trace Elements in Solving Petrogenetic Problems and Controversies, (S. S. Augustithius, Ed.), (1983), p. 887-899.

Papers

"A Strontium Isotope Ratio ($^{87}\text{Sr}/^{86}\text{Sr}$) Method for Quantifying Atmospheric and Weathering Input to Ecosystems," Bioscience, v. 33, (1983), p. 23-30.

"Migration and Retention of Elements at the Oklo Natural Reactor," Environmental Geology, v. 4, (1983), p. 201-208.

"Rb-Sr Geochronological Investigation of Precambrian Samples from Drill Holes GT-1, GT-2, EE-1, and EE-2, Los Alamos Dry Hot Rock Program, Fenton Hill, New Mexico," Jour. Volcan. Geother. Res., v. 14, (1983), p. 18-35.

Coauthor: A. W. Laughlin.

"Revised K-Ar Dates from the Kirtland Formation (Cretaceous), New Mexico," Isochron/West, (1983), n. 35, p. 15-16.

"Natural Analogues: Alamosa River Monzonite Intrusive into Tuffaceous and Andesitic Rocks," Sci. Basis Nuc. Wste. Mgmt. VI (D. G. Brookins, Ed.), (New York: Elsevier Scientific Publishing Co., 1983), P. 299-306.

Coauthors: M. S. Abashian, L. H. Cohen, A. E. Williams, H. A. Wollenberg, and S. Flexser.

"Use of Poisoned Lands/Inland Seas for Low Level Radioactive Waste Disposal," Sci. Basis Nuc. Wste. Mgmt. VI (D. G. Brookins, Ed.) (New York: Elsevier Scientific Publishing Co., 1983), p. 581-588.

Coauthors: H. A. Vogler and J. J. Cohen.

"Scientific Basis for Nuclear Waste Management Report," Materials Res. Soc. Bull., (1983), v. 7, n. 6, p. 15.

"Whole Rock Rb-Sr Age of the Juan Tabo Series, Sandia Mountains, New Mexico," Isochron/West, (1983), n. 38, p. 21-23.

Coauthor: A. Majumdar.

"Rb-Sr Geochronologic Study of the Ellsworth Schist, Maine, and Comparison with the Coldbrook Group, New Brunswick," Isochron/West, (1983), n. 38, p. 7-11.

"Geologic Systems as Analogs for Long-Term Radioactive Waste Isolation," Lawrence Berkeley Laboratory--Earth Science Division Annual Report, (1983), Rpt. No. LBL-15500, UC-13, p. 116-120.

"Geochemistry and Petrology of Evaporites Cored from a Deep-sea Diapir at Site 546, DSDP Leg 79, Offshore Morocco," Initial Reports of the Deep Sea Drilling Project, v. LXXIX (P. O. Baumgartner, et al., Eds.), (in press).
Coauthors: W. T. Holser and E. S. Saltzman.

"Geology and Geochemistry of the Snowbird Deposit, Mineral County, Montana," Econ. Geol., (in press).
Coauthors: M. C. Metz, P. E. Rosenberg, and R. E. Zartman.

"Investigations in Uranium Geochemistry: Distribution of Uranium as a Function of Sediment Particle Size," Uranium, 1984, v.1, p. 227-247.
Coauthor: C. E. Olsen.

"Eh-pH Diagrams for the Rare Earth Elements (REE) at 25°C, 1 Bar Pressure," Geochem. Jour., (in press).

"Trace Element Distribution in Sedimentary Type Uranium Deposits," SEG-AIME Sym. Primary Dispersion of Elements Around Ore Deposits, (in press).
Coauthor: R. S. Della Valle.

"Uranium Hydrogeochemistry and Stream Sediment Pilot Survey of a Portion of McKinley County, North of Grants, New Mexico," Uranium, (in press).
Coauthor: C. E. Olsen.

"The Mount Taylor Uranium Deposit, San Mateo, New Mexico," Uranium, (in press).
Coauthor: W. C. Riese.

"Geochemical Studies of Columbia River Basalts," Sci. Basis Nuc. Wste. Mgmt. VII, (G. L. McVay, Ed.), (in press).
Coauthors: M. T. Murphy, H. A. Wollenberg, and S. Flexser.

"Strontium Isotopic Study of Fracture Filling Minerals in the Grande Ronde Basalt, Washington," Sci. Basis Nuc. Wste. Mgmt. VII, (G. L. McVay, Ed.), (in press).
Coauthors: M. T. Murphy and H. A. Wollenberg.

"Uranium Industry Impacts on Groundwater in New Mexico: Theory and Applications," Sym. Water Quality and Pollution in New Mexico, sponsored by NMIMT, NM WPCB, and NM WRRI, (in press).
Coauthors: B. M. Thomson and P. A. Longmire.

"Rb-Sr Geochronologic Studies of Precambrian Rocks Near Eldora, Colorado," Isochron/West, (in press).
Coauthor: M. S. Abashian.

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"Rb-Sr Whole Rock Age of the Eldora-Bryan Stock, Front Range, Colorado," Ishochron/West, (in press).
Coauthor: M. S. Abashian.

"Geochronologic and Geochemical Study of Volcanic Ashes from the Kirtland Formation (Cretaceous), San Juan Basin, New Mexico," Geol. Soc. Amer. Spec. Paper, (in press).
Coauthor: J. K. Rigby.

"Major and Trace Element Distributions in Experimentally Leached Chlorite and Smectite-Illite Mixed Layered Clay Mineral Groups," Soc. Econ. Min. Paleon., (in press).
Coauthor: R. S. Della Valle.

"Trace Element Distributions in Sedimentary Type Uranium Deposits," Trans. AIME, (in press).
Coauthor: R. S. Della Valle.

Abstracts

"Geochronologic and Geochemical Study of Volcanic Ashes from the Kirtland Formation (Cretaceous), San Juan Basin, New Mexico," Geol. Soc. Amer., Rocky Mountain-Cordilleran Section, Salt Lake City, (May 1983), v. 15, p. 307.
Coauthor: J. K. Rigby.

"Rb-Sr Ages from the Penobscot Bay Region, Maine," Geol. Soc. Amer. Northeastern Section, (1983), v. 15, p. 147.

"Trace Metal and Radionuclide Adsorption During Diagenesis of Acid Leach Uranium Tailings, Colorado Plateau," Geol. Soc. Amer. Prog. w. Abs., (1983), v. 15, p. 313.
Coauthors: P. A. Longmire and B. M. Thomson.

"Playas for the Siting of Low Level Radioactive Waste: Studies in the Estancia Valley, New Mexico," Amer. Nuc. Soc. Trans., (1983), v. 44, p. 64-65.
Coauthor: H. A. Vogler.

"Geochronologic Studies of Granites and Metamorphic Rocks, Sandia Mountains," N. M. Geol. Soc. Abs. and Prog., Spring 83 Meeting (Socorro, NM), (1983), p. 3.
Coauthor: A. Majumdar.

"Geochronologic Study of Evaporites, Southeastern New Mexico," N. M. Geol. Soc. Abs. and Prog., Spring 83 Meeting (Socorro, NM), (1983), p. 4.

"Geochronologic Studies of Igneous Rocks from the Florida Mountains, New Mexico," N. M. Geol. Soc. Abs. and Prog., Spring 83 Meeting (Socorro, NM), (1983), p. 17-18.
Coauthor: R. K. Matheney.

"Geochemical Study of Estancia Valley Playas, New Mexico," N. M. Geol. Soc. Abs. and Prog., Spring 83 Meeting (Socorro, NM), (1983), P. 19-20.

Coauthor: H. A. Vogler.

"Siting of Low Level Radioactive Wastes in Areas of High Geotoxicity," Amer. Nuc. Soc. Trans., (1983), v. 45, p. 126-127.

"Strontium Isotopic Variation in Host Basalt and Secondary Material of the Grande Ronde Basalt, Columbia River Basalt Group, Hanford Reservation, Southeastern Washington," EOS Trans. Amer. Geophys. Un., (1983), v. 64, p. 906.

Coauthors: M. T. Murphy and H. A. Wollenberg.

"Geochemical Studies of Columbia River Basalts," Sci. Basis Nuc. Wste. Mgmt. VII, (G. L. McVay, Ed.), (in press).

Coauthors: M. T. Murphy, H. A. Wollenberg.

"Strontium Isotopic Study of Fracture Filling Minerals in the Grande Ronde Basalt, Washington," Sci. Basis Nuc. Wste. Mgmt. VII, (G. L. McVay, Ed.), (in press).

Coauthors: M. T. Murphy and H. A. Wollenberg.

"Natural Analogues for Radwaste Disposal: Elemental Migration in Igneous Contact Zones," NM Acad. Sci. Jour., (in press).

"Isotopic Strontium Variation in Host Basalt and Secondary Material of the Grande Ronde Basalt, Columbia River Basalt Group, Hanford," NM Acad. Sci. Jour., (in press).

Coauthors: M. T. Murphy and H. A. Wollenberg.

"Geochronologic Studies in the Florida Mountains," NM Acad. Sci. Jour., (in press).

Coauthor: R. K. Matheney.

"Rb-Sr Dating of Sedimentary Rocks from the San Juan Basin, New Mexico," Geol. Soc. Amer., (in press).

"Geochronologic Study of Evaporite Minerals, Delaware Basin, New Mexico," Geol. Soc. Amer., (in press).

"Geochronologic Study of the Sandia Mountains, New Mexico," Geol. Soc. Amer. Prog. w. Abs. (in press).

Coauthor: A. Majumdar.

"Geochemistry, Diagenesis, and Contaminant Transport of Uranium Tailings, Grants Mineral Belt, New Mexico," Geol. Soc. Amer. Prog. w. Abs. (in press).

Coauthors: P. A. Longmire, and B. M. Thomson.

"Geochronology and Geochemistry of Proterozoic Metamorphic Rocks, Nederland Quadrangle, Colorado," Geol. Soc. Amer. Prog. w. Abs. (in press).

Coauthor: M. S. Abashian.

"Provenance and Sediment-Dispersal Patterns, Westwater Canyon Sandstones, Western San Juan Basin, New Mexico," Geol. Soc. Amer. Prog. w. Abs. (in press).
Coauthor: R. M. Lowy.

Reports

"Geologic Systems as Analogues of Repositories," NUREG Rpt. Status of NRC Sponsored Research on HLW Geochemistry, (in press). (technical; reviewed).
Coauthors: H. A. Wollenberg, M. T. Murphy, and S. Flexser.

"Sr⁸⁷/Sr⁸⁶ Studies of BWIP Fracture Filling Materials," NUREG Rpt. Status of NRC Sponsored Research on HLW Geochemistry, (in press). (technical; reviewed).
Coauthor: H. A. Wollenberg.

"Geologic Systems as Analogs for Long-term Radioactive Waste Isolation," 1983, Lawrence Berkeley Laboratory Rpt. LBL 15500-UC-13, p. 116-120. (technical, reviewed).
Coauthors: H. A. Wollenberg, S. Flexser, L. H. Cohen, A. E. Williams, and M. S. Abashian.

Jonathan F. Callender

Books

"Socorro Region II", New Mexico Geological Society Guidebook, 34, 1983, 344 p.
Coeditor: C. E. Chapin.

Papers

"Transposition structures in Precambrian rocks of New Mexico," New Mexico Geological Society Guidebook, 34, 1983, p. 143-146.

"Geologic history of New Mexico," in New Mexico in Maps, 2nd ed., J. I. Williams, ed., Technology Applications Center, in press.
Coauthor: B.S. Kues.

"Young faults and earthquakes in New Mexico," in New Mexico in Maps, 2nd ed., J. I. Williams, ed., Technology Applications Center, in press.

Journal Editor

"Geotectonics", American Geophysical Union, v. 16, nos. 3-6 and v. 17, nos. 1-3, 1983.
Coeditor: D. Milton.

Maps

"Map of late Tertiary and Quaternary tectonics and volcanism, New Mexico," National Oceanic and Atmospheric Administration, Scientific Map Series, 1:500,000, 1983.

Coauthors: W. R. Seager and C. A. Swanberg.

Abstracts:

"Evidence for low-angle faulting along western margin of the Sandia uplift, Rio Grande rift, New Mexico," Geological Society of America Abstracts with Programs, v. 15, no. 5, p. 322.

Coauthor: S. M. Rhoades.

"The structural style and tectonic evolution of the Rio Grande rift, western North America," 27th International Geological Congress, Tectonics volume, in press. (Invited paper).

Wolfgang E. ElstonBooks and Bulletins

"Geology and Geothermal Waters of Lightning Dock Region, Animas Valley and Pyramid Mountains, New Mexico:" New Mexico Bureau of Mines and Mineral Resources Circular 177, 1983, 44 pp., 1 colored geologic map, 1:48,000.

Coauthors: E. G. Deal, M. J. Logsdon.

"Cenozoic Volcanic Centers in the New Mexico Segment of the Pedregosa Basin: Constraints on Oil and Gas Exploration in Southwestern New Mexico:" New Mexico Energy Research and Development Institute 2-66-3104, Santa Fe, (1983), 54 pp.

Articles

"Subduction of Young Oceanic Lithosphere and Extensional Orogeny in Southwestern North America During Mid-Tertiary Time: Tectonics, in press.

"Impact and Volcanism Revisited, with Emphasis on Venus:" Reports of Planetary Geology Program-1982, National Aeronautics and Space Administration, Technical Memorandum 85127, 1982, pp. 93-94.

"Criteria for Identifying Pyroclastic Flows on High- and Low-Resolution Images: The Mount St. Helens Pumice Plain:" Reports of Planetary Geology Program - 1982, National Aeronautics and Space Administration Technical Memorandum 85127, 1982, pp. 142-145.

Coauthor: C. W. Criswell.

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Maps

"New Mexico Geologic Highway Map," edited by R. E. Clemons:
New Mexico Geological Society, 1:1,000,000.
Coauthors: R. E. Clemons et al.

Abstracts

"Mid-Tertiary Volcanism of Southwestern United States: Arc or Backarc?" Geological Society of America Abstracts with Programs, 5, 1983, pp. 288; presented at Joint Annual Meeting of Cordilleran and Rocky Mountain Sections, Geological Society of America, Salt Lake City, Utah, May 2, 1983.
Coauthor: T. J. Bornhorst.

"Basalt Flow Vertical Structure and Vesicle Zonation," Geological Society of America Abstracts with Programs, 15, 1983, pp. 419; presented at Joint Annual Meeting of Cordilleran and Rocky Mountain Sections, Geological Society of America, Salt Lake City, Utah, May 4, 1983.
Coauthors: L. S. Crumpler, J. C. Aubele.

"Underplating of Cenozoic North America by Young, Hot Oceanic Lithosphere: A Cause of Extensional Orogeny in the Basin and Range province?" International Union of Geodesy and Geophysics, Programme and Abstracts, 2, p. 575, presented at the XVIII General Assembly, IUGG, Hamburg, Federal Republic of Germany, August 17, 1983.

"Evolution of Mid-Tertiary Ash-Flow Tuff Cauldrons of Southwestern New Mexico:" EOS, Transactions of the American Geophysical Union, 64, p. 880, presented at the Western Annual Meeting, American Geophysical Union, San Francisco, California, December 6, 1983.

Editorial

"Economic Survival and Scientific Objectivity" Newsletter, New Mexico Section, American Institute of Professional Geologists, 1983, p. 1.

Rodney C. Ewing

Papers

"Long-Term Radioactivity Release from Solidified High-Level Waste - Part II Parametric Study of Waste Form Properties, Temperature and Time": Materials Research Society Symposium Proceedings, Vol. 15, pp. 269-280, Elsevier Science Publishing Co., Inc.
Coauthors: F. K. Altenhein and W. Lutze.

"Long-Term Radioactivity Release From Solidified High-Level Waste - Part III The Effect of Canister Lifetime": Ceramic Advances, in press.

Coauthors: F. K. Altenhein and W. Lutze.

"Alpha-Recoil Damage in Natural Zirconolite ($\text{CaZrTi}_2\text{O}_7$)": Journal of Nuclear Materials, vol. 119, pp. 102-109.

Coauthor: T. J. Headley.

"Ti-Site Geometry in Metamict, Annealed and Synthetic Complex Ti-Nb-Ta Oxides by X-Ray Absorption Spectroscopy": Nuclear Instruments and Methods, vol. B1, pp. 587-594.

Coauthors: R. B. Gregor, F. W. Lytle and R. F. Haaker.

"Alteration Effects and Leach Rates of Basaltic Glasses: Implications for the Long-Term Stability of Nuclear Waste Form Borosilicate Glasses": Journal of Non-Crystalline Solids, in press.

Coauthors: G. Malow and W. Lutze.

Reports

"Scientific Needs of the Technology of Nuclear Waste Containment" published under the auspices of the Council on Materials Science for the Division of Materials Science of the U. S. Department of Energy, 115 pp.

Coauthors: 12 panel members, RCE contributed the chapter on radiation effects.

Abstracts

"Preliminary Investigation of Ti-Site Geometry in Lunar Volcanic and Impact Glasses by X-Ray Absorption Spectroscopy": Lunar and Planetary Science XIV, p. 257-258.

Coauthors: R. B. Gregor, F. W. Lytle and K. Keil.

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"Local Geomagnetic Anomalies in the Alluvial Fans of The Sandia Mts., New Mexico Geology, 5, August, 1983.

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Les D. McFadden

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Coauthors: S. G. Wells and J. D. Schultz.

"Quaternary Geology, Geomorphology and Soils of the Tpotla and Cottonwood Drainage Basins, UII Lease, Northwestern New Mexico": in The Economy and Interaction Along the Lower Chaco River: The Navajo Mine Archeological Program, Mining Area III, Office of Contract Archeology.

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"K-Ar Dating of the Cima Volcanic Field, California: Applications to Neogene Volcanic History and Landscape Evolution": Geology (in press).

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"A Chronosequence of Cumulic Soils Formed in Eolian Parent Materials on Flows of the Late Cenozoic Cima Volcanic Field, Mojave Desert, California": Abstracts With Programs, Geological Society of America Meetings, Cordilleran-Rocky Mountain Section, p. 422.

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"Types and Rates of Degradation of Volcanic Landforms in Desert
 Climates: Examples from the Cima Volcanic Field, Mojave Desert,
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Stephen G. Wells

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 Association for the Advancement of Science, University of New
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Co-author: L. N. Smith

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Coauthors: J. W. Hawley and D. W. Love.

"Geomorphic Processes on the Valley Floor of the Rio Puerco":
 ibid., p. 37-39. Co-authors: T. F. Bullard, C. D. Condit, M.
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 Co-authors: T. F. Bullard, J. R. Miller, and T. W. Gardner.

"Instrumented Watersheds in the Coal Fields of Northwestern New
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Co-authors: D. E. Jercinovic, L. N. Smith, A. A. Gutierrez,
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"Regional Badland Development and Models of Late Quaternary Evolution of Badland Watersheds, San Juan Basin, New Mexico": *ibid.*, p. 121-132.

"Applications of Geomorphology to Surface Coal-Mining Reclamation, Northwestern New Mexico": *ibid.*, p. 133-148.
Co-author: D. E. Jercinovic.

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Co-authors: L. D. McFadden and J. D. Schultz.

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Co-authors: T. F. Bullard, L. N. Smith, and T. W. Gardner.

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"Soils on Late Quaternary Eolian Deposits in the Chaco Dune Field, New Mexico: Influence of Aerosolic Dust on Pedogenesis": New Mexico Geology (in press). Co-authors: L. D. McFadden and J. D. Schultz.

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"A Chronosequence of Cumulic Soils Formed in Eolian Parent Materials on Flows of the Late Cenozoic Cima Volcanic Field, Mojave Desert, California": Abstracts With Programs, Geological Society of America Meetings, Cordilleran-Rocky Mountain Section, p. 422. (AB) Coauthors: J. C. Dohrenwend, L. D. McFadden, and B. D. Turrin

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Lee A. Woodward

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"Structural Geology of the Helena Salient: A Synopsis": Montana Bureau of Mines and Geology Special Publication 86, p. 83-87.

"Raton Basin-Possibilities for Fracture Reservoirs in Cretaceous": Oil and Gas Journal, July 18, 1983, p. 175-178.

"Tectonics and Hydrocarbon Potential of Thrust and Fold Belt of Southwestern New Mexico": Rocky Mountain Association of Geologists, Geologic Studies of the Cordilleran Thrust Belt, v. 1, p. 409-419.
Co-author: H. R. DuChene.

"Potential for significant oil and gas fracture reservoirs in Cretaceous rocks of the Raton Basin, New Mexico": American Association of Petroleum Geologists Bulletin, V. 68, no. 5.

"Potential Oil and Gas Traps Along the Overhang of the Nacimiento Uplift, Northwestern New Mexico": Rocky Mountain Association of Geologists, Rocky Mountain Foreland Basins and Uplifts, p. 213-218.

Maps

"Tectonic Map of the Fold and Thrust Belt and Adjacent Areas, West-Central Montana": Montana Bureau of Mines and Geology, Geologic Map 30.

"New Mexico Highway Geologic Map": New Mexico Geological Society.
Co-authors: V. C. Kelley, F. E. Kottlowski, R. E. Clemons, J. W. Hawley, J. E. Mueller, W. J. Stone, W. E. Elston, E. G. Deal, W. R. Seager, and R. W. Kelley.

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"Raton Basin, New Mexico - Exploration Frontier for Fracture Reservoirs in Cretaceous Shales": American Association of Petroleum Geologists Bulletin, v. 67, p. 572.

Robyn Wright

"Distribution and association of sediment gravity flow deposits and glacial/glacial-marine sediments around the continental margin of Antarctica": in Glacial-Marine Sedimentation, Plenum Press, p. 265-300, 1983.

Cocauthors: J. B. Anderson; P. P. Fisco.

"Development of a polar glacial marine sedimentation model from Antarctic Quaternary deposits and glaciological information": in Glacial-Marine Sedimentation, Plenum Press, 1983. p. 233-264.

Cocauthors: Anderson, J. B.; Brake, C.; Domack, E. W.; Myers, N. C.

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"Progradation style and facies character: Pt. Lookout Fm., San Juan Basin, New Mexico": Rocky Mountain/Cordilleran Section, Geological Society of America, Abstracts with Programs, p. 291, 1983.

"Cyclic sedimentation within the Upper Cretaceous Pt. Lookout Fm: A model for strandline progradation and sandstone distribution": American Association Petroleum Geologists/Society Economic Paleontologists and Mineralogists, annual meeting, San Antonio, Texas (in press).

"Grain size vertical progressions as an exploration tool": American Association Petroleum Geologists/Society Economic Paleontologists and Mineralogists, annual meeting, San Antonio, Texas (in press).

Cocauthors: J. B. Anderson; E. Watkins.

Crayton J. YappPapers

"Effects of Al₁₀₀H-FeOOH Solid Solution on Goethite-Hematite Equilibrium": Clays and Clay Minerals, Vol. 31 (1983), pgs. 239-240.

"Stable Hydrogen Isotopes in Iron Oxides-Isotope Effects Associated With the Dehydration of a Natural Goethite": Geochimica et Cosmochimica Acta, Vol. 47 (1983), pgs. 1277-1287.

Abstract

"Stable Hydrogen Isotope Variations in Goethite": Abstracts With Programs 1983, Geological Society of America, 96th Annual Meeting, Vol. 15 (1983), p. 724.

5. RESEARCH PROJECTS OR CREATIVE WORK IN PROGRESS

Roger Y. Anderson

National Science Foundation, Research Grant EAR81-13072,

"Measurement of the effects of Mt. St. Helens Tephra on
Lakes Using Automated Sediment Traps: \$64,800 (ongoing)
(Shirley Adams, RA).

U.S. Geological Survey, Meno Park, CA; Cooperative Project with
Branch of Pacific-Artic Marine Geology (WAE status),
Application of Automated Sediment Traps.

Douglas G. Brookins

Sponsored Research

"Quantification of Atmospheric Inputs with Strontium Isotope
Ratios" National Science Foundation (NSF DEB-8103538):

Total grant period, three years:

June 1, 1981 - May 31, 1984; \$320,000.00.

Current year: \$103,500.

Co-principal investigator: James A. Gosz, Biology Dept.,
UNM.

"Trace Element Geochemistry of Playas and other Poisoned Areas
in the U.S." U. S. Department of Energy
(DE-FG07-821D12238).

July 19, 1982 - September 30, 1983, \$24,490.

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"Investigation of Geochemical and Hydrological Transformations in Backfilled Uranium Mill Tailings".

U. S. Bureau of Mines.

April 1, 1982 - May 31, 1983, \$61,693.

Co-principal investigator: Bruce M. Thomson, Civil Engineering, UNM.

"Geochemical Study of the WIPP Site Area, New Mexico"

Sandia National Laboratories.

June 1, 1983 - Spetember 30, 1984.

Phase 1: June 1, 1983 - September 30, 1983: \$24,670.

Phase 2: October 1, 1983 - September 30, 1984: \$50,000.

Proposals Submitted

"Studies of Alkali and Alkaline Earth Eklements at the Oklo Natural Reactor".

To: American Chemical Society-Petroleum Research Fund.

"Geochemical Study of Buena Vista Playa, Nevada, for Consideration for Siting of Low Level Radioactive Wastes".

To: U.S.D.O.E.

"Geothermal Study of Backfilled Uranium Mill Tailings".

To: U.S. Bureau of Mines.

Decision: pending.

"Sr Isotopic and Geochemical Study of Cenozoic Basaltic Dikes from Southwestern United States".

To: National Science Foundation.

Decision: Rejected, with request to revise and resubmit.

"Geochronologic and Geochemical Study of the Florida Mountains,
New Mexico".

To: National Science Foundation.

Decision: Rejected (merit review sound, problem viewed as regional).

Non-Sponsored Research

Distribution of uranium in geologic materials as a function of size, speciation, mineralogy (with C. E. Olsen, MS-UNM 82, of LANL).

Studies on the geochemistry and provenance of the Morrison Formation, San Juan Basin (with R. T. Hicks, MS-UNM 81 of NMEID; and R. M. Lowy, MS-UNM 82).

Geochronologic and geochemical study of evaporites: (a) evaporites of northwestern coastal Morocco (with W. T. Holser), (b) evaporites of the Delaware Basin, New Mexico (with W. T. Holser, R. Y. Anderson, C. J. Yapp).

Geochronologic and geochemical study of Precambrian rocks of New Mexico: emphasis on Sandia Mountains Precambrian rocks, plus Manzano Mountains, Zuni Mountains, Truchas Mountains (J. A. Grambling area), Pedernals, Florida Mountains* (*including Precambrian and Phanerozoic rocks). (MS students A. Majumdar, R. K. Matheney).

Clay mineralogic studies in the Datil area, in the Grants Mineral Belt, and the Estancia Valley (with H. A. Vogler, UNM).

Study of Precambrian rocks of the Sinai Peninsula, Israel and UAR (with Dr. Aryeh Shimron, Israel Geological Survey).

Geochronologic studies in Alaska (with M. L. Silberman, USGS).

Studies of hydrothermal fluorite deposits, western U.S.

Study of radon emissions in soils and radon accumulations in homes in the greater Albuquerque area (partial funding from UNM--Research Allocations Committee).

Supervision of Graduate Students

M.S. Theses (Douglas G. Brookins supervised)

1. MS Theses Completed 1983

- a. H. A. Vogler "Trace Element Geochemistry of the Estancia Valley Playas, Torrance County, New Mexico".
- b. P. A. Longmire "Geochemical and Hydrologic Investigation of Mine Stope Backfilling with Uranium Mill Tailings".

2. MS Thesis work in progress

- a. S. Abashian "The Eldora-Bryan Stock as a Natural Analogue to Buried Radioactive Wastes: a Study of the Chemical and Petrographic Changes in the Idaho Springs Formation Resulting from Intrusion of the Eldora-Bryan Stock, Colorado".
- b. A. Leonard "Geology and Geochemistry of Uranium Deposits in the Datil Mountain Area, Catron County, New Mexico".
- c. R. K. Matheney "Age and Thermal History of Plutonic Rocks, Florida Mountains, Luna County, New Mexico".
- d. M. T. Murphy...study of Platoro Caldera Complex, Colorado: Trace Element and Petrographic and Isotopic Study.

- e. Feilberg...topic not yet decided.
- 3. MS Theses--Supervisory Committee--Completed
 - a. H. Stein "Geology of the Cochiti Mining District, Jemez Mountains, New Mexico".
 - b. T. Leyenberger "Precambrian Geology of Cimmarron Canyon, Colfax County, New Mexico".
- 4. MS Theses--Supervisory Committee--In Progress
 - a. R. Abitz.
 - b. R. Miller "Sediment Transport Systems and its Application to Uranium Tailings Stability in the Grants Uranium Belt, New Mexico".
- 5. PhD Theses--Completed
 - a. A. Majumdar "Geochronology and Geochemical Study of the Sandia Granite and Associated Precambrian Metamorphic Reactions, New Mexico, Department of Geology, Louisiana State University.
- 6. PhD Theses--In Progress (member of Supervisory Committee)
 - a. C. Condit
 - b. G. Sarkar

Jonathan F. Callender

Sponsored Research:

"Structural petrology, metamorphism, and tectonic history of Precambrian rocks in the Picuris Range, New Mexico,"
(3-15-81 - 8-31-84) National Science Foundation, EAR -
8012506, \$84,083.

Unsponsored Research:

Structural evolution of Rio Grande rift; Precambrian geology of New Mexico.

M.S. Thesis Completed:

T. L. Leyenberger, "Precambrian Geology of the Cimarron Canyon, Colfax County, New Mexico".

Wolfgang E. ElstonSponsored Research

Grant EAR 83-06397, "Cenozoic Extensional Orogeny of the New Mexico Segment of the Basin and Range Province," November 1, 1983 to October 31, 1986. \$120,000.00.

NASA Grant NGL 32-004-062, Supplement 18, "Application of Volcanology to Lunar and Planetary Geology," May 1, 1983 to April 30, 1984, \$30,000.00.

Cooperative study with U.S. Geological Survey of Springerville-Show Low volcanic field, Arizona. U.S. Geological Survey provided partial support for two Ph.D. candidates, 1978-83, value about \$25,000/year.

Cooperative study with U.S. Geological Survey of pyroclastic flows of the May 18, 1980, eruption of Mount St. Helens, Washington. U.S. Geological Survey provides support for one M.S. candidate, value about \$15,000/yr.

National Research Council-American Geophysical Union. travel grant to attend XVIII General Assembly, International Union of Geodesy and Geophysics, Hamburg, West Germany, August 15-27, 1983, \$720.00.

Un-sponsored Research

Association of ore deposits and Cenozoic volcanic centers, New Mexico. Includes supervision of 2 M.S. candidates.

Tungsten-bearing manganese oxide-fluorite veins related to hot springs, New Mexico. Includes supervision of 1 Ph.D. candidate.

Geology and ore deposits of the Cerrillos district, New Mexico. Includes supervision of 1 Ph.D. candidate.

Geothermal systems, includes supervision of 1 M.S. candidate.

Rodney C. EwingSponsored Research

"Assessment of Self-Irradiation Damage in the Phases of SYNROC Ceramic Nuclear Waste Form" by Los Alamos National Laboratory.

June 1, 1983 to September 30, 1983, \$9,984.

"The Dissolution Kinetics of Natural Glasses and the Prediction of Their Long-Term Stability: Application to the Evaluation of the Long-Term Stability of Borosilicate, Radioactive Waste Glasses" by the Nuclear Regulatory Commission with Argonne National Laboratory.

October 1, 1983 to June 30, 1984, \$45,500.00.

"Radiation Effects and Annealing Kinetics in Crystalline Silicates, Phosphates and Complex Nb-Ta-Ti Oxides" by the Office of Basic Energy Sciences of the Department of Energy.

August 1, 1983 to July 31, 1984, \$95,000.

00734

"Proposal to Create an Electron Microbeam Analysis Facility as a Center of Excellence in High Technology Materials" submitted to UNM.

1983-1984 Academic Year, \$454,000.

Proposals Submitted

"Isotopic Fractionation Due to Alpha Recoil Damage in Crystalline Materials" submitted to the United States - Israel Binational Science Foundation. Approved.

November, 1984 for two years (travel only), \$5,000.

"Acquisition of and Upgrading of X-Ray Diffraction Equipment" submitted to the National Science Foundation. Declined.

May 1, 1984, \$110,000.

"The Dissolution Kinetics of Natural Glasses and the Prediction of Their Long-Term Stability" submitted to the Office Basic Energy Sciences of the Department of Energy. Declined.

3 years, \$325,525.

"Radiation Effects in Crystalline Silicates, Phosphates and Complex Nb-Ta-Ti Oxides" submitted to the National Science Foundation.

Withdrawn on receipt of funding from OBES.

3 years, \$133,309.

"Radiation Effects and Annealing Kinetics in Crystalline Complex Nb-Ta-Ti Oxides, Phosphates and Silicates" submitted to the Office of Basic Energy Sciences as a renewal. Approved.

3 years, \$292,300.

Jeffrey A. GramblingSponsored Research

"Effects of minor elements on metamorphic phase relations":

March 15, 1982 - Aug. 15, 1983, National Science Foundation, \$28,700.00.

"Effects of minor elements on metamorphic phase relations":

November 1, 1983 - October 31, 1986, National Science Foundation, \$98,500.00.

"Geology and economic potential of possible stratabound precious and trace-metal mineralization, northern New Mexico": June 1, 1983 - May 31, 1984, Anaconda Minerals, Inc., \$10,000.00.

"Completion of geologic mapping in the Truchas-Rio Mora area":

June 10, 1983 - Aug. 15, 1983, New Mexico Bureau of Mines and Mineral Resources, \$5,615.00.

"Fluid behavior during regional metamorphism": June 1, 1983 -

July 31, 1984, UNM Research Allocations Committee, \$799.00.

Proposals Submitted

"Geology and economic potential of possible stratabound precious and trace-metal mineralization, northern New Mexico": submitted to Exxon, Santa Fe Mining and Callahan Mining Co's., \$14,150.00 (not funded).

"Foliation development, porphyroblast nucleation and growth, and deformational history": July 1, 1984 - June 30, 1986, submitted to National Science Foundation, \$71,046.00. (Co-PI: T. H. Bell).

80736

Unsponsored Research

"Regional gradients in the composition of metamorphic fluids in pelitic schist".

"Proterozoic isobaric surfaces and tectonism in northern and central New Mexico".

Stephen P. Huestis

Sponsored Research:

The inverse problem of continental crustal heat production:

"Constraints imposed on crustal heat production by the linear heat flow relation," paper submitted to Physics of the Earth & Planetary Interiors. Preparation supported by grant from UNM Research Allocations Committee - \$164.00.

Unsponsored Research:

Three-dimensional gravity anomaly analysis, with M. E. Ander,
Las Alamos National Lab.

Mechanics of earthquake location, with R. P. Buland, U.S.
Geological Survey.

Ph. D.'s completed:

H. T. Holcombe: "Terrain effects in resistivity and magnetotelluric surveys".

Klaus Keil

Sponsored research

"Origin of clay-bearing soil on planetary surfaces - Hydrothermal alteration of impact melt rocks and breccias."

NASA. October 1, 1981 - July 31, 1983. \$56,782.00

"Origin and evolution of the lunar crust." NASA.

February 1, 1982 - Jan. 31, 1983. \$97,995.00

"The formation and evolution of stony meteorites."

NASA. March 1, 1982 - Feb. 28, 1983. \$107,988.00

"Partial funding of electron microprobe X-ray analyzer."

NSF. July 1, 1982 - June 30, 1984. \$180,000.00

"Geological support work of Nevada Nuclear Waste

Storage Investigations." Sandia National Laboratories.

Oct. 1, 1982 - Sept. 30, 1983. \$40,944.00

"Origin of stone meteorites and the Moon:"

NASA. February 1, 1983 - February 15, 1984. \$223,850.00

"Geological support work of Nevada Nuclear Waste Storage

Investigations." Sandia National Laboratories.

Oct. 1, 1983 - Sept. 30, 1984. \$50,000.00

"Halite mineralogy of the Solado Formation."

Sandia National Laboratories.

July 29, 1983 - Sept. 30, 1984. \$25,134.00

Total grants and contracts in effect during period: \$782,693.00

Proposals submitted during period and funded

"Origin and evolution of meteorite parent bodies and
the Moon." NASA. Feb. 1, 1984 - Jan. 31, 1985.
\$235,000.00

"Partial funding of transmission electron microscope."
NASA. Jan. 1, 1984 - Dec. 31, 1984. \$100,000.00

Total grants and contracts in effect and/or funded
during period: \$1,117,693.00

M.S. theses completed

J. P. McKinley: Chemistry and petrology of Apollo 16 rock
samples - Impact melt sheets, nature of the Cayley Plains
and Descart Mountains and geologic history.

Albert M. Kudo

Research Allocations Committee Grant for \$1949 to study the
origin of hypersthene-bearing andesites and their inclusions,
northeastern Japan.

Continuing work on Absaroka volcanic suite; Jemez volcanics; and
on basaltic rocks from Elephant Butte.

Barry S. KuesUn-sponsored Research

"Nonmarine molluscs from the Chinle Formation, Dockum Group
(Upper Triassic) of eastern New Mexico": in review,
Journal of Paleontology.

"Depositional environments and paleontology of the Lewis Shale to Kirtland Shale sequence (Upper Cretaceous), Bisti area, New Mexico": in review, New Mexico Bureau of Mines and Mineral Resources, Circular.

"Pleurotomariacean gastropods from the Flechado Formation (Middle Pennsylvanian) near Taos, New Mexico": in preparation.

"Stratigraphy and paleontology of Pennsylvanian strata in the Taos area, New Mexico": in preparation.

"Nonmarine ostracodes and a spirorbid worm from the Chinle Formation, Dockum Group (Upper Triassic) of eastern New Mexico": in preparation.

"Gastropods and scaphopods from the Upper Pennsylvanian-Lower Permian Red Tanks Member, Madera Formation, in central New Mexico": in preparation.

"Fusulinids and the age of the Red Tanks Member, Madera Group, in central New Mexico": in preparation.

Coauthors: G. P. Wahlman and K. K. Kietzke.

"Annotated catalogue of New Mexico fossils [Book]": in preparation.

Coauthor: S. A. Northrop.

Spencer Lucas

Research Projects:

Triassic-Jurassic stratigraphy and vertebrate paleoecology, Bull Canyon, East-central New Mexico.

Cretaceous marine reptiles and dinosaurs from New Mexico.

00740

Early Cenozoic stratigraphy and mammalian biostratigraphy of San Juan, Baca and Carthage-La Joya Basins, New Mexico.
Plio-Pleistocene vertebrates of the Albuquerque area.
Evolution of the Pantodonta, Dinocerata, Tillodontia and Perissodactyla.

Kenneth D. Mahrer

New Courses Offered

Geo. 522, Geodynamics: Applications of Continuum Physics to Geoscientific Problems - Spring '83.
Geo. 491, Seminar on Advanced Problems in Exploration Geophysics - Spring '83.
Geo. 551, Seminar on Rio Grande Rifting and Rifting, in General - Fall '83.

New Course Creation

Geo. 215, Earthquakes, the Earth and Man - Spring '83.
Geo. 522, Introduction to Seismology - Spring '83.

Sponsored Research

Seismic Refraction and Electrical Resistivity for Prospective New Mexico Highway Site Evaluation; June-Aug., 1983; sponsored by New Mexico Highway Dept., \$2,000.00.
Mojave Desert Project: Cima Volcanic Field: Seismic Refraction Studies;" June 1983; sponsored by U.S. Geological Survey, \$1,500.00.

"Modeling Surface Deformation from a Buried Crack in a Heterogeneous Crust"; Jan.-Dec. 1983; sponsored by American Chem. Soc., \$10,000.00.

Proposals Submitted

"Gravity, Magnetism and Subsurface Geology in and near Northern Albuquerque, NM", RAC, \$800.00.

Un-sponsored Research

Seismic Refraction Studies of Alluvial-Valley Fill in the San Juan Basin, New Mexico.

Magnetic-Terrain Anomalies Associated with Arroyos in an Alluvial Fan.

Seismic Refraction Studies of Lava Flows in the Cima Volcanic Field, Mojave Desert, California.

Seismic Refraction Studies of Alluvial Fills, Cima Volcanic Field, Mojave Desert, California.

Strike-Slip Faulting in an Uneven Half-Space.

Strike-Slip Faulting in a Wedged Half-Space.

Geophysical Exploration of Groundwater in Southern Albuquerque, NM.

Anticlastic Deformation and Subduction Zone Bending.

BASIC Computer Program for Modeling Seismic Refraction Data.

Elastomechanical Deformation from Inflated Subsurface Cracks.

Sponsored Research

"Soils - Geomorphological Studies of Quaternary Surficial Deposits in the Mojave Desert, California", Oct. 1, 1983 - Sept. 30, 1984, U. S. Geological Survey, \$6,000.00.

"Development of a Soils Chronosequence for a Suite of Fluvial and Eolian Deposits in Northwestern New Mexico", April 20, 1982 - June 15, 1983, UNM. Research Allocations Research Grant, \$1,600.00.

"Soil Investigations in the Cajon Creek Area, Transverse Ranges, California", June 1, 1983 - Dec. 31, 1983, California Institute of Technology, \$2,800.00.

"Investigations of the Late Quaternary Geology and Archeology of the Pecos National Monument Area, New Mexico", June 1, 1983 - Sept. 30, 1983, National Park Service, \$3,000.00.

Proposals Submitted

"Acquisition and Upgrading of X-ray Diffraction Equipment", National Science Foundation, \$110,000.00 (Co-investigator).

Unsponsored Research

Studies of the tectonic and climatic geomorphology and soils of the San Augustin Plains region, New Mexico.

Studies of glacial chronologies and soil-geomorphological relations in the southern Sangre de Cristo Mountains, New Mexico.

Stuart A. Northrop

New Mexico Earthquake History (in progress).

Stephen G. WellsSponsored Research

"Geomorphic-Quaternary Geologic Studies in Selected Areas of the Mojave Desert, California", Oct. 1, 1983 - Sept. 30, 1984, U. S. Geological Survey, \$5,000.

"Geomorphic Criteria for Selecting Stable Uranium Tailings Disposal Areas", June, 1983 - January, 1984, project 2-69-1112 New Mexico Energy Research and Development Institute, \$54,917.

"Sediment-Transport Systems and its Application to Uranium-Tailings Stability in the Grants Uranium Belt", June, 1983 - June, 1984, Department of Energy Thesis Research Program on Nuclear Waste Management, for J. R. Miller's MS thesis, \$12,000.

"Tectonic Geomorphology of the Western Coast of Costa Rica: A Comparison of Different Plate Tectonic Settings", December, 1983 - November, 1984, Mellon Inter-American Field Research Grant, Latin American Institute-UNM, \$1500.

Proposals Submitted

"Applications of Surficial Geology and Geomorphic Process-Response to Archeological Investigations in the Ft. Carson Pinon Canyon Maneuver Area, Southeastern Colorado", National Park Service, January 29, 1983, \$49,907.

"Shallow Groundwater Systems and Uranium Mining and Milling Activity: Application of Geomorphology to Groundwater Management", U.S. Bureau of Land Management, May 20, 1983, \$126,236.

Un-sponsored Research

Desert Hillslope Evolution in the Basin and Range Physiographic Province.

Fluviokarst Processes in Humid and Semiarid Climates, Kentucky and New Mexico.

Rates and Processes of Quaternary Landscape Change: Colorado Plateau and Basin and Range Provinces.

Fluvial Processes in Semiarid Alluvial Valley Floors.

M.S. Theses Completed

"Geology and Late Cenozoic History of the Elephant Butte Area, Sierra County, New Mexico, Richard P. Lozinsky, 142 p.

Quaternary History and Fluvial Evolution of Some Tributary Drainage Basins North of Chaco River", New Mexico, Lawrence N. Smith.

"Hydrogeomorphic Evolution of a Low Relief Evaporite Karst System, Southeastern New Mexico, Stephen W. Sares.

Lee A. Woodward

"Geology of Sierra Nacimiento and adjacent areas, New Mexico", 1982-1983, New Mexico Bureau of Mines and Mineral Resources, \$4,000.00.

Un-sponsored Research

Montana Overthrust Belt.

Fracture Reservoirs of Raton Basin, New Mexico.

Robyn WrightSponsored Research

"Assessment of the Tectonic History and Basin Development of
Antarctica";

Duration: 1 year.

Sponsor: Amoco Production Co.

Amount: Unknown, grant to J. Anderson, Rice University.

Proposals Submitted

"A Proposed Investigation of the Application of Vertical

Progressions in Settling Velocity (SETVEL) Data to
Exploration Geology".

Duration: 2 years.

Sponsor: Texaco, Inc.

Amount: \$28,751.00.

Crayton J. YappSponsored research in progress or completed

"Stable isotope and chemical study of the mineral system
goethite-hematite in iron-rich sedimentary rocks";

Duration: September, 1982, to June, 1983.

Funding Agency: UNM Research Allocations Committee.

Award Amount: \$1,180.00.

Study of non-stoichiometric water in Fe(III)- oxides".

Duration: September, 1983, to June, 1984 .

Funding Agency: UNM Research Allocations Committee.

Award Amount: \$1,350.00.

Sponsored research approved for funding

"Stable isotope and chemical study of the mineral system
goethite-hematite with applications to iron-rich sedimentary
rocks".

Duration: February 1, 1984, to January 31, 1986.

Funding Agency: National Science Foundation.

Award Amount: \$66,245.00.

"Acquisition of a gas source, light element
isotope ratio mass spectrometer".

Duration: One-time expenditure, about May 1, 1984.

Funding Agency: National Science Foundation.

Award Amount: \$70,000.00.

6. ACTIVITIES IN LEARNED AND PROFESSIONAL SOCIETIES

Roger Y. Anderson

Geological Society America, Engineering Geology Division,
Symposium: Geologic Disposal of Radioactive Wastes,
National Meeting, Indianapolis, Nov., 1983. "Salt
Dissolution, Front of Fingers? Implications for Radioactive
Waste Disposal".

First International Congress of Paleocology, Lyon, France,
Symposium on Paleolimnology, July, 1983. Nonglacial
Lacustrine Varve Formation Through Time, paper read.

Other Activities:

Member, AAAS, GSA

Douglas G. Brookins

Professional Papers Read

"Geochronologic and Geochemical Study of Volcanic Ashes from the
Kirtland Formation (Cretaceous), San Juan Basin, New
Mexico," Geol. Soc. Amer., Rocky Mountain-Cordilleran
Section, Salt Lake City, May 1983.

Coauthor: J. K. Rigby

"Trace Metal and Radionuclide Adsorption During Diagenesis of Acid Leach Uranium Tailings, Colorado Plateau," Geological Society of America, Cordilleran-Rocky Mountain Section, Salt Lake City, May 1983.

Coauthors: P. A. Longmire and B. M. Thomson

"Playas for the Siting of Low Level Radioactive Waste: Studies in the Estancia Valley, New Mexico," Ann. Meeting Amer. Nuclear Society, Detroit, June 1983.

Coauthor: H. A. Vogler

"Geochronologic Studies of Granites and Metamorphic Rocks, Sandia Mountains," New Mexico Geological Society Ann. Spring Meeting, Socorro, April 1983.

Coauthor: A. Majumdar

"Geochronologic Study of Evaporites, Southeastern New Mexico," New Mexico Geological Society Ann. Spring Meeting, Socorro, April 1983.

"Geochronologic Studies of Igneous Rocks from the Florida Mountains, New Mexico," New Mexico Geological Society Annual Spring Meeting, Socorro, April 1983.

Coauthor: R. K. Matheney

"Geochemical Study of Estancia Valley Playas, New Mexico," New Mexico Geological Society Annual Spring Meeting, Socorro, April 1983.

Coauthor: H. A. Vogler

"Siting of Low Level Radioactive Wastes in Areas of High Geotoxicity," Ann. Winter Meeting, Amer. Nuclear Society Mtg., San Francisco, November 1983.

"Geologic Systems as Analogues of Repositories," U.S. Nuclear Regulatory Commission Meeting on High Level Radioactive Waste Geochemistry, Reston, Virginia August-September 1983.

Coauthors: H. A. Wollenberg, M. T. Murphy, and S. Flexser.

"⁸⁷Sr/⁸⁶Sr Studies of BWIP Fracture Filling Materials," U.S. Nuclear Regulatory Commission Meeting on High Level Radioactive Waste. Geochemistry, Reston, Virginia August-September 1983.

Coauthor: H. A. Wollenberg.

"Natural Analogues for Radwaste Disposal: Elemental Migration in Igneous Contact Zones, Ann. Meeting New Mexico Acad. Science, Albuquerque, Oct. 1983.

"Isotopic Strontium Variation in Host Basalt and Secondary Material of the Grande Ronde Basalt, Columbia River Basalt Group, Hanford," Annual Meeting New Mexico Acad. Science, Albuquerque, October 1983.

Coauthors: M. T. Murphy and H. A. Wollenberg.

"Geochronologic Studies in the Florida Mountains," Ann. Meeting New Mexico Acad. Science, Albuquerque, October 1983.

Coauthor: R. K. Matheney.

"Strontium Isotopic Variation in Host Basalt and Secondary Material of the Grande Ronde Basalt, Columbia River Basalt Group, Hanford Reservation, Southeastern Washington," Ann. Western Meeting Amer. Geophysical Union, San Francisco, December 1983.

Coauthors: M. T. Murphy and H. A. Wollenberg.

"Geochemical Studies of Columbia River Basalts," Ann. Mtg.
Materials Research Society, Boston, Massachusetts November
1983.

Coauthors: M. T. Murphy, H. A. Wollenberg, and S.
Flexser.

"Strontium Isotopic Study of Fracture Filling Minerals in the
Grande Ronde Basalt, Washington," Ann. Mtg. Materials
Research Society, Boston, Massachusetts November 1983.

Coauthors: M. T. Murphy and H. A. Wollenberg.

Meetings Attended

(See Item 6A)

Offices Held

Member, Publications Committee, Materials Research Society.

Member, Membership Committee, Materials Research Society.

Member, Program Review Committee, Materials Research Society.

Member, Permanent Steering Committee for Radioactive Waste.

Management Symposia, Materials Research Society.

Nominated for Councillor, Association Exploration

Geochemists.

U.S. participant, United Nations Project "Calibration of the
Phanerozoic Time Scale."

Jonathan F. CallenderProfessional papers read:

- "Precambrian basement in the Rio Grande rift", Friends of
Aeromagnetic Mapping III, San Antonio, Texas, January 28.
(invited speaker).
- "Evidence for low-angle faulting along western margin of the
Sandia uplift, Rio Grande rift, New Mexico," Geological
Society of America, Rocky Mountain/Cordilleran Section, Salt
Lake City, Utah, May 3.
- "Structural geology of the Ladron uplift," New Mexico Geological
Society Field Conference, Socorro, New Mexico, October 14.
(invited speaker).

Meetings attended:

- Friends of Aeromagnetic Mapping III, San Antonio, Texas,
January 26-29.
- Rocky Mountain/Cordilleran Section Meeting, Geological Society of
America, Salt Lake City, Utah, May 1-5.
- 34th International Science and Engineering Fair, May 9-13.
- New Mexico Geological Society Field Conference, Socorro, New
Mexico, October 12-15.

Offices held:

- Managing editor, New Mexico Geological Society.
- Technical editor, American Geophysical Union.
- Editorial board, Rio Grande Rift Consortium.
- Bluelane Committee, Association of Earth Science Editors.
- Project Correspondent, U. S. Geodynamics Committee.

Chairman, Earth Sciences section, 34th International Science and Engineering Fair.

Wolfgang E. Elston

Professional Papers Read

January 17-21, Reston, VA, NASA Planetary Geology Principal Investigator's Conference. Read paper on "Impact and Volcanism Revisited, with Emphasis on Venus."

May 2-4, Salt Lake City, Utah, Joint meeting of Cordilleran and Rocky Mountain Sections, Geological Society of America. Read invited paper on "Mid-Tertiary Volcanism of Southwestern United States: Arc or Backarc?" (Coauthor: T. J. Bornhorst)

August 1-27, Hamburg, West Germany, XVIII General Assembly, International Union of Geodesy and Geophysics. Read invited paper on "Underplating of Cenozoic North America by Young, Hot Oceanic Lithosphere".

December 5-7, American Geophysical Union, San Francisco, California, read invited paper on "Evolution of Mid-Tertiary Ash-Flow Tuff Cauldrons of New Mexico".

Offices Held

President, New Mexico Section, American Institute of Professional Geologists.

Secretary, Working Group on Explosive Volcanism, International Association for Volcanology and Chemistry of The Earth's Interior.

Member, Board of Directors, New Mexico Mining Association.

Member, NASA-U.S. Geological Survey Galilean Satellites Geologic Mapping Team.

Rodney C. Ewing

Professional Papers Read

"Transition from the Crystalline to the Metamict State in Zirkelite"

Annual Meeting of the Geological Association of Canada and the Mineralogical Association of Canada, Victoria, British Columbia, May 10-12.

"Ti-Site Geometry in Metamict, Annealed and Synthetic Complex

Ti-Nb-Ta Oxides by X-Ray Absorption Spectroscopy" Second International Conference on Radiation Effects in Insulators, Albuquerque, New Mexico, June 2.

"Modelling Long-Term Radioactivity Release from Nuclear Waste Forms" UNM Geology Seminar, September 8.

"Investigation of Ca in Metamict Minerals Using X-Ray Absorption Spectroscopy" Stanford Synchrotron Radiation Laboratory User's Group Meeting, Palo Alto, California, October 27-29.

"Modelling Long-Term Radioactivity Release from Nuclear Waste Forms" Invited seminar at Argonne National Laboratory, November 4.

Meetings Attended

January 6, Atlanta Georgia: Attended annual council meeting of the Materials Research Society.

February 11-14, Tucson, Arizona: Attended Mineralogical Society of America Symposium held in conjunction with the Tucson Gem and Mineral Show.

May 10-14, Victoria, British Columbia, Canada: Presented paper at the annual meeting of the Mineralogical Society of Canada.

August 8-12, Phoenix, Arizona: Attended the annual meeting of the Electron Microscopy Society of America to review transmission electron microscopes for purchase for UNM.

October 26-29, Palo Alto, California: Presented paper at annual meeting of the Stanford Synchrotron User's Group Meeting.

October 30-November 3, Indianapolis, Indiana: Attended annual meeting of the Geological Society of America and the Mineralogical Society of America.

November 13-17, Boston, Massachusetts: Attended the annual meeting of the Materials Research Society (in which I serve as a councilor, member of the nominations committee, chairman of the education committee and as a program committee chairman).

December 8-9, Washington, D. C.: Invited participant in workshop on The Long Term Stability of Smectite Minerals sponsored by the Swedish State Power Board and the U. S. Department of Energy.

Offices Held

Materials Research Society:

Councilor, 1983-1985.

Chairman, Education Committee.

Member, Nominations Committee.

Co-chairman, 1984 Symposium on Scientific Basis for Radioactive Waste Disposal.

Mineralogical Society of America.

Nominated to stand for election (in 1984) as a councilor.

International Mineralogical Association.

Member of program committee for 1986 meeting at Stanford University.

Member of field trip committee for 1986 meeting at Stanford University.

New Mexico Geological Society.

Served as Past President on the executive committee.

Electron Microscopy Society of America.

Elected as member.

Jeffrey A. Grambling

Meetings Attended and Papers Presented

April 29, Socorro, NM. Attended meeting of New Mexico Geological Society.

May 1 - 4, Salt Lake City, Utah. Attended and presented two papers at meeting of Geological Society of America.

Oct. 13-15, Socorro, NM. Attended Fall Field Conference of New Mexico Geological Society.

Oct. 30 - Nov. 4, Indianapolis, Indiana. Attended and presented paper at meeting of Geological Society of America.

Offices Held

Treasurer, New Mexico Geological Society.

Vice-President, New Mexico Geological Society.

President, New Mexico Geological Society.

Klaus KeilProfessional Papers Read

"Chondrules in enstatite chondrites - Nature and source of enstatite": Lunar and Planet. Sci. Conf., Houston, Texas, March 14-19, 1983.

"Origin of meteorites - from asteroids, comets, Moon and Mars (in German)": German Summer School, Dept. of Modern and Classical Languages, Univ. of New Mexico, Taos, New Mexico, June 17-19, 1983.

"Origin of meteorites - from asteroids, comets, Moon and Mars": Pennsylvania School Superintendent's Day, University of New Mexico, Albuquerque, New Mexico, Nov. 2, 1983.

"Ca-Al-rich chondrules and inclusions in ordinary chondrites - Evidence for a related genesis of ordinary and carbonaceous chondrites": Lunar and Planet. Sci. Conf., Houston, Texas, March 14-19, 1983.

Coauthor: A. Bischoff

"Preliminary investigations of Ti-site geometry in lunar volcanic and impact glasses by X-ray absorption spectroscopy": Lunar and Planet. Sci. Conf., Houston, Texas, March 14-19, 1983.

Coauthors: R. B. Greegor, F. W. Lytle and R. C. Ewing.

"Regolith breccia ALHA81005 - Evidence of lunar origin, and nature of pristine and nonpristine clasts": Lunar and Planet. Sci. Conf., Houston, Texas, March 14-19, 1983.

Coauthors: P. H. Warren and G. J. Taylor.

"Seventh foray - Whitlockite-rich lithologies, a diopside-bearing troctolitic anorthosite, ferroan anorthosites, and KREEP": Lunar and Planet. Sci. Conf., Houston, Texas, March 14-19, 1983.

Coauthors: P. H. Warren, G. J. Taylor, G. W. Kallemeyn and J. T. Wasson.

"Dusty olivines in the Vigarano (CV3) chondrite - Evidence for an ubiquitous reduction process": Lunar and Planet. Sci. Conf., Houston, Texas, March 14-19, 1983.

Coauthors: A. Kracher and E. R. D. Scott

"Alteration of basaltic hyaloclastites in north-central British Columbia": Cordilleran and Rocky Mountain Sect. Meet., Geol. Soc. Amer., Salt Lake City, Utah, May 2-4, 1983.

Coauthors: M. J. Jercinovic, M. R. Smith and R. A. Schmitt.

"Petrology of Allan Hills A81005, and implications of a meteorite from the Moon": Ann. Meet., Amer. Geophys. Union, Baltimore, Maryland, May 30-31, 1983.

Coauthors: P. H. Warren, G. J. Taylor and E. R. D. Scott.

"Abundant Al-rich objects in ordinary chondrites": Mainz Meteoritical Society Meeting, Sept. 3-9, 1983.

Coauthors: A. Bischoff and D. Stoffler.

"Relict grains and the significance of collisions during chondrule formation": Mainz Meteoritical Society Meeting, Sept. 3-9, 1983.

Coauthors: A. E. Kracher and E. R. D. Scott.

"Type 3 ordinary chondrites - Metamorphism, brecciation and parent bodies": Mainz Meteoritical Society Meeting, Sept. 3-9, 1983.

Coauthors: E. R. D. Scott and G. J. Taylor

Meetings Attended

March 14-19, Houston, Texas. Attended the Lunar and Planetary Science Conference. Presented one talk, chaired a session, coauthored five talks and coauthored three abstracts.

Offices held

Member, Advisory Committee on Comparative Planetology, International Union of Geological Sciences.

Associate Editor, Journal of Geophysical Research, American Geophysical Union.

Barry S. Kues

Professional Papers Read

May 1-4, Read invited paper "Bryozoa and crustacea from the Fruitland Formation (Upper Cretaceous) of northwestern New Mexico", Cretaceous-Tertiary boundary problems symposium, Geological Society of America Rocky Mountain-Cordilleran section meeting, Salt Lake City, Utah

Oct. 21-22, Read paper, "Gastropods from the Red Tanks Member, Madera Formation (Upper Pennsylvanian-Lower Permian) of central New Mexico," Annual Meeting of New Mexico Academy of Science, Albuquerque. Also chaired session on Paleontology.

Meetings Attended

See preceding entry.

Spencer LucasMeetings Attended:

April, 1983, Annual Spring Meeting of New Mexico Geological Society, Socorro, New Mexico (gave talk).

May, 1983, Annual Meeting of the Rocky Mountain Section of the Geological Society of America, Salt Lake City, Utah (gave 2 talks).

October, 1983, North American Geomorphological Field Group, Field Meeting in the San Juan Basin, New Mexico.
New Mexico Geological Society 34th Field Conference, Socorro, New Mexico.

November, 1983, Society of Vertebrate Paleontology Annual Meeting, Laramie, Wyoming.

Other activities:

Together with D. Wolberg of the New Mexico Bureau of Mines and Mineral Resources, founded the New Mexico Paleontological Society.

Prepared and taught a new course Anthoropology 475 (Field School in Vertebrate Paleontology).

Kenneth D. MahrerProfessional Papers Read

"Gravity and Magnetic Studies in the Rio Grande Rift North of Albuquerque, NM", NMGS spring meeting, Socorro, NM, April 1983. (presented by T. Reynolds)

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- "Local Geomagnetic Anomalies in the Alluvial Fans of the Sandia Mts., NM", NMGS Spring Meeting, Socorro, NM, April 1983.
(presented by C. Bradley).
- "A Magnetic-Terrain Anomaly Due to Arroyos in an Alluvial Fan",
AGU Fall Meeting, San Francisco, CA, Dec. 1983.

Meetings Attended

- New Mexico Geological Society, Spring Meeting, Socorro, NM,
April 1983.
- American Geophysical Union, Fall Meeting, San Francisco, CA,
Dec. 1983.

Leslie D. McFadden

Professional Papers Read

- "Dating of Landforms in Tectonically Active Regions: The Applications of Pedological Studies to Development of Alluvial Chronologies", for the Geological Society of America Penrose Conference, Tectonic Geomorphology, Winnemucca, Nevada, April 17 - 23.
- "A Chronosequence of Cumulic Soils Formed in Eolian Parent Materials on Flows of the Late Cenozoic Cima Volcanic Field, Mojave Desert, California", for the Geological Society of America Meetings, Cordilleran-Rocky Mountain Sections, Salt Lake City, Utah, May 4.
- "Climatic Control for the Formation of Terraces in Cajon Creek, Southern California", for the Geological Society of America Meetings, Cordilleran-Rocky Mountain Sections, Salt Lake City, Utah, May 4.

"Soils on Late Quaternary Eolian Deposits in the Chaco Dune Field, New Mexico: Influence of Aerosolic Dust on Pedogenesis", for the New Mexico Academy of Science, Fall Meeting, Albuquerque, New Mexico, October 22.

Meetings Attended

Penrose Conference on Tectonic Geomorphology, Geological Society of America, Winnemucca, Nevada, April 23 - 27.

Geological Society of America Meeting, Cordilleran-Rocky Mountain Sections, Salt Lake City, Utah, May 2 - 5.

American Geomorphological Field Group 1983 Field Conference, Albuquerque, New Mexico, October 7 - 10.

New Mexico Geological Society 1983 Field Conference, Socorro, New Mexico, October 13 - 16.

New Mexico Academy of Sciences Fall Meeting, Albuquerque, New Mexico, October 21 - 22.

Stuart A. Northrop

Attended meeting of consultants on Traveling Exhibit for New Mexico Natural History Museum, Socorro, February 25, 1983.

Attended symposium: Quaternary geology and paleontology of New Mexico; sponsored by New Mexico Academy of Science, October 22, 1983.

Stephen G. WellsProfessional Papers Read

"Types and Rates of Degradation of Volcanic Landforms in Desert Climates: Examples from the Cima Volcanic Field, Mojave Desert, California", for the Geological Society of America Meeting, Cordilleran-Rocky Mountain Sections, Salt Lake City, Utah, May 4.

Meetings Attended

Geological Society of America Meeting, Cordilleran-Rocky Mountain Sections, Salt Lake City, Utah, May 3-5.

American Geomorphological Field Group 1983 Field Conference, Albuquerque-Chaco Canyon, New Mexico, October 7-10.

New Mexico Geological Society 1983 Field Conference, Socorro, New Mexico, October 13-16.

Convener of Conferences

Organized the 1983 American Geomorphological Field Group Field Conference and Technical Session with D. W. Love and T. W. Gardner in which 250 scientists attended (international meeting).

Offices Held

Elected to the Quaternary Geology and Geomorphology Division Panel of the Geological Society of America, 1983-1985.

Lee A. WoodwardProfessional Papers Read

April 20, 1983, Dallas, Texas. Presented paper on "Fracture Reservoirs in Cretaceous Rocks of the Raton Basin, New Mexico," at American Association of Petroleum Geologists Annual Meeting.

April 21, 1983, Wichita Falls, Texas. "Oil and Gas Potential of the Overthrust Belt of New Mexico." North Texas Geological Society.

Meetings Attended

October 10-16, 1983, Missoula, Montana. Belt Symposium II, Precambrian Belt Basin. Sponsored by U. S. Geological Survey, Montana Bureau of Mines and Geology, and Geology Department of University of Montana.

Offices Held

Elected as Member of House of Delegates of American Association of Petroleum Geologists for the period, July 1, 1984 to June 30, 1987.

Robyn WrightProfessional Papers Read

May 2, 1983, "Progradation style and facies character: Pt. Lookout Fm., San Juan Basin, New Mexico". Rocky Mountain/Cordilleran Section Geological Society of America regional meeting, Salt Lake City, Utah.

Crayton J. Yapp

Meetings attended

October 31 to November 3, 1983: National meeting of the
Geological Society of America in Indianapolis, Indiana.

7. OTHER PROFESSIONAL ACTIVITIES

Roger Y. Anderson

New Mexico Environmental Evaluation Group, technical meeting on

WIPP Site Suitability for Radioactive Waste Disposal:

Presented report on "Evidence for Deep Dissolution in the Delaware Basin". May 1983, Carlsbad, N.M.

Science, News Report, December, 1983, WIPP Goes Ahead, Amid

Controversy: Carter L. J., v. 222, p. 1105, citation of research and opinion.

Ecological Society of America, 1983 National Meeting Field Trip:

Recovery of sediment traps at Elk Lake, MN, Discussion leader for Elk Lake and use of sediment traps, August.

Consultant, State of New Mexico, Environmental Evaluation Group, on geotechnical aspects of WIPP site.

Review of 7 research proposals for National Science Foundation.

Review of 3 manuscripts for professional journals.

Douglas G. Brookins

Invited Lecturer, University of California, Los Angeles; March 1983, delivered colloquium address on "The Oklo Natural Reactor: New Data and Interpretation."

Invited Lecturer, Louisiana State University, Baton Rouge, November 1983, delivered Geology Dept. Seminar on "Current Status of Oklo Research."

Co-Editor of the International Journal, URANIUM (Elsevier Science Pubs., Inc.).

Reviewed papers for the following journals: Uranium, Earth and Planetary Science Letters, Science, Geochimica et Cosmochimica Acta, Economic Geology, Materials Research Society (Scientific Basis for Nuclear Waste Management VI and VII), Health Physics.

Reviewed proposals for: National Science Foundation.

Talks to Civic Groups and other, off-campus groups:

TV Interview, January 19, 1983 on tar sands and the effects of solution mining (Ch. 13).

February 3, 1983, Northwest Optimists Club, "Geology and Radwaste."

May 1-2, 1983, Consultant to the Environmental Evaluation Group for evaluation of research on the WIPP site, meeting in Carlsbad, NM.

June 9, 1983, Statesman Club, "A Geological Perspective on Radioactive Waste."

August, 23, 1983, Rio Rancho Rotary Club, "Geological Aspects of Radioactive Waste Disposal."

Interviewed on KUNM on geochemistry and radioactive waste disposal

Consultant to Argonne National Laboratories (National Geochemistry Committee for Evaluation of Studies on Radwaste Disposal in Salt).

Jonathan F. Callender

Reviewed manuscripts and proposals for the following:

Geological Society of America Bulletin

Geology

Los Alamos National Laboratories

National Science Foundation

University of California, Institute of Geophysics and Planetary
Physics.

Interviews:

Albuquerque Journal and Tribune.

Field trips:

New Mexico Geological Society, Marathon Oil Company, Sierra
Club, UNM School of Medicine, UNM-Geology of Western
United States, International Science and Engineering Fair.

Consultancies:

New Mexico Environmental Improvement Division (groundwater
pollution); Golder Associates, Bellevue, Washington (nuclear
waste disposal); Marathon Oil Company (tectonics).

Bureau Chief, in charge of Scientific Programs, and interim
director, New Mexico Museum of Natural History.

Invited speaker, 2nd Geological Symposium on Final Disposal in
the Gorleben Salt dome, Hannover, Federal Republic of
Germany, Spring, 1985.

Wolfgang E. Elston

November 9-10, Hosted session at UNM of U.S. National Academy of Sciences Committee for Continental Drilling for Scientific Purposes.

Gave advice to numerous government agencies and industrial concerns on geology and resources of New Mexico.

Reviewed 7 proposals for National Science Foundation.

Reviewed 1 proposal for Research Corporation.

Reviewed 1 book for Prentice-Hall, Inc.

Reviewed 1 book for UNM Press.

Reviewed 2 papers for Journal of Geophysical Research.

Reviewed 1 paper for Bulletin of The Geological Society of America.

Wrote newsletter for Working Group on Explosive Volcanism, International Association for Volcanology and Chemistry of the Earth's Interior.

Gave information to KOB TV-4 News, Albuquerque Journal, Impact.

Rodney C. Ewing

Reviewed manuscripts and proposals for the following:

National Science Foundation

John Simon Guggenheim Memorial Foundation

The American Mineralogist

Nuclear Instruments and Methods in Physics Research

Section B: Beam Interactions with Materials and Atoms

National Academy of Science Draft Report on the WIIP Site

Proceedings Volume for the Symposium on the Scientific Basis
for Nuclear Waste Management

Science

John Wiley and Sons, Inc.

Consultant for:

Los Alamos National Laboratory

Oak Ridge National Laboratory

Jeffrey A. Grambling

Geological Consulting

Exxon Minerals, Inc.

Callahan Mining Corp.

Professional Affiliations

American Geophysical Union

Geological Society of America

Mineralogical Association of Canada

Mineralogical Society of America

New Mexico Geological Society

Sigma Xi

Manuscripts and Proposals Reviewed

Mineralogical Society of America

Geological Society of America

National Science Foundation

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Talks

December 8, 1983, Presented papers to Geology Department 6-401 Seminar, UNM.

Stephen P. Huestis

Consulting:

Instructor of geophysics section: "Fundamentals of geoscience" technical course, Sandia Laboratories.

Reviews:

Reviewed text manuscript for Prentice-Hall.

Reviewed NSF proposal.

Reviewed papers for Journal of Geophysical Research, Geophysical Journal of the Royal Astronomical Society.

Talks and Colloquia:

"Introduction to geophysical inverse theory," UNM Department of Geology, January 27, 1983.

"Earthquakes, volcanoes, tidal waves - natural hazards of continental drift" - presentation at Albuquerque Public Schools

"Convocations," March 5, 1983.

Klaus Keil

Consultant, Sandia National Laboratories, Albuquerque, New Mexico.

Reviewed three proposals submitted to NASA for funding.

Reviewed eight scientific papers submitted for publication in Geochimica et Cosmochimica Acta, Meteoritics, Science, Nature, Chemical Geology, and 8th Symposium on Antarctic Meteorites (Japan).

Several interviews with Lobo, Albuquerque Tribune and Journal.

Served on Program Committee for 14th Lunar and Planetary Science Conference, held in Houston, Texas.

Member, Editorial Board, Journal "Chemical Geology."

Member, Editorial Board, Colorado School of Mines Quarterly, Golden, Col.

Chairman, Lunar and Planetary Science Council, Universities Space Research Association, Houston, Texas.

Member, Antarctic Meteorite Working Group, National Science Foundation - National Aeronautics and Space Administration.

Member, Editorial Board, Tschermak's Mineralogisch-Petrographische Mitteilungen, Vienna, Austria.

Associate Editor, Journal of Geophysical Research.

Member, NASA Solar System Exploration Committee, Subcommittee on Manned Space Exploration.

Organized and hosted, jointly with Dr. E. R. D. Scott, the Institute of Meteoritics' Brown Bag Seminar, with the following speakers (the names of graduate student speakers are underlined):

- Dr. P. H. Warren (IM): Moon rocks from Antarctica.
Jan. 21, 1983.
- J. R. Connolly (IM): Nuclear waste-tuff problems at the Nevada Test Site. Feb. 4, 1983.

- Dr. P. H. Warren (IM): Nuts, bolts and volts of neutron activation analysis. Feb. 11, 1983.
- Dr. Roger Hewins (Dept. of Geology, Rutgers University, New Brunswick, N.J.): Petrology of diogenites and related meteorites. Feb. 21, 1983.
- Dr. Roger Hewins (Dept. of Geology, Rutgers University, New Brunswick, N.J.): Origin of chondrules - Constraints from crystallization experiments. Feb. 22, 1983.
- Dr. P. H. Warren (IM): Seventh foray: Whitlockite-rich lithologies, a diopside-bearing troctolitic anorthosite, ferroan anorthosites, and KREEP. March 4, 1983.
- Dr. P. H. Warren (IM): Regolith breccia ALHA81005: Evidence of lunar origin, and nature of pristine and non-pristine clasts. March 4, 1983.
- Dr. A. Kracher (IM): Dusty olivines in the Vigarano (CV3) chondrite: Evidence for an ubiquitous reduction process. March 9, 1983.
- A. Bischoff (IM): Ca-Al-rich chondrules and inclusions in ordinary chondrites: Evidence for a related genesis of ordinary and carbonaceous chondrites. March 9, 1983.
- Dr. E. R. D. Scott (IM): Petrologic similarities among chondrules in H, L, LL, CO, CM and E chondrites. March 9, 1983.
- Dr. K. Keil (IM): Chondrules in enstatite chondrites - Nature and source of enstatite. March 9, 1983.

- Dr. J. N. Grossman (Institute of Geophysics and Planetary Physics, University of California): Composition and origin of chondrules. March 10, 1983.
- J. R. Connolly (IM): Regional thrust decollement in the Pancake Range, Nye County, Nevada, and implications for volcanism. April 27, 1983.
- M. J. Jercinovic (IM): Alteration of basaltic hyaloclastite in north-central British Columbia. April 27, 1983.
- Dr. K. Fredriksson (U.S. National Museum of Natural History, Smithsonian Institution, Washington, D.C.): Microirghizites: New tektites and the missing link. May 3, 1983.
- Dr. P. Pellas (Laboratoire de Mineralogie du Museum d'Histoire Naturelle, Paris, France): Do SNC meteorites come from Mars? May 27, 1983.
- Dr. P. H. Warren (IM): Petrology of Allan Hills A81005, and implications of a meteorite from the Moon. May 27, 1983.
- A. Bischoff (IM): Al-rich chondrules and fragments in ordinary chondrites. June 7, 1983.
- Dr. Cyrena Goodrich (Dept. of Geological Sciences, Cornell University, Ithaca, N.Y.): Highly-reduced, iron-, titanium- and phosphorus-rich silicate inclusions in natural iron-carbon alloys from Disko Island, Greenland. June 14, 1983.

- Dr. W. K. Conrad (Dept. of Geological Sciences, Cornell University, Ithaca, N.Y.): Xenolithic evidence for the origin of calc-alkaline magmas in the Aleutian Arc. July 1, 1983.
- Dr. R. Sellamathu (Dept. of Metallurgy and Materials Engineering, Lehigh University, Bethlehem, Pennsylvania): Solidification experiments and their bearing on the origin of iron meteorites. August 16, 1983.
- Dr. A. Kracher (IM): Relict grains and the significance of collisions during chondrule formation. August 26, 1983.
- Dr. E. R. D. Scott (IM): Type 3 ordinary chondrites - Metamorphism, brecciation and parent bodies. August 26, 1983.
- Dr. A. E. Rubin (National Museum of Natural History, Smithsonian Institution, Washington, D.C.): Inclusions in brecciated enstatite chondrites. September 2, 1983.
- G. Lumpkin (Dept. of Geology, UNM): Electron microscopy of carbonaceous matter in acid resistant fractions of Allende and other carbonaceous meteorites. Nov. 4, 1983.
- D. Lusby (IM): Metamorphism, meteorite parent bodies and the matrix of ordinary chondrites. Nov. 9, 1983.
- S. Recca (IM): Huss matrix, dust balls, and speculations on chondrule formation. Nov. 11, 1983.
- Shelia Seaman (Dept. of Geology, UNM): Oxygen isotope anomalies in meteorites. Nov. 16, 1983.
- Cecelia Williams (IM): Petrology of some meteoritic regolith

breccias. Nov. 21, 1983.

- M. Bersch (IM): Bulk Moon composition - An earth-based approach. Nov. 23, 1983.
- Tammy Dickinson (IM): Petrogenesis of Apollo 14 aluminous mare basalts. Nov. 30, 1983.
- Dr. Cyrena A. Goodrich (IM): Phosphoran pyroxene and olivine in silicate inclusions in iron-carbon alloy from Disko Island. Dec. 1, 1983.
- R. Rose (IM): A review of the evidence indicating a Martian origin for the SNC achondrites. Dec. 2, 1983.

Hosted the visits to the Institute of Meteoritics of the following additional scholars:

- Dr. Rosemary Vidale, Los Alamos National Laboratory, Los Alamos, N.M. Feb. 8, 1983.
- Professor Friedemann Freund, Dept. of Mineralogy, University of Cologne, Cologne, West-Germany. Feb. 10, 1983.
- Dr. David Kramer, New Mexico Solar Institute, Las Cruces, N.M. Feb. 10, 1983.
- Dr. Roger Hewins, Dept. of Geology, Rutgers University, New Brunswick, N.J. Feb. 20-22, 1983.
- Dr. J. N. Grossman, Institute of Geophysics and Planetary Physics, University of California, Los Angeles, California. March 9-10, 1983.
- Dr. Charles Nielsen, JEOL, Peabody, Mass. March 23-25, 1983.
- Dr. Ed Gafney, Los Alamos National Laboratory, Los Alamos, N.M. April 1, 1983.

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- Dr. W. V. Boynton, Lunar Laboratory and Dept. of Planetary Sciences, Univ. of Arizona, Tucson, Arizona. April 14, 1983.
- Dr. L. Rancitelli, Batelle, Columbus, Ohio. April 14, 1983.
- Dr. Peter Englert, Institute of Nuclear Chemistry, University of Cologne, Cologne, West-Germany. April 20, 1983.
- Dr. H. Planner, Los Alamos National Laboratory, Los Alamos, N.M. April 25, 1983.
- Dr. K. Fredriksson, U.S. National Museum of Natural History, Smithsonian Institution, Washington, D.C. May 2-4, 1983.
- Dr. P. Pellas, Laboratoire de Mineralogie du Museum d'Histoire Naturelle, Paris, France. May 24-29, 1983.
- Dr. Ken De Nault, Dept. of Earth Sciences, University of Northern Iowa, Cedar Falls, Iowa. May 25-Aug. 10, 1983.
- Dr. Cyrena Goodrich, Dept. of Geological Sciences, Cornell University, Ithaca, N.Y. June 13-16, 1983.
- Dr. George Plant, Canadian Geological Survey, Ottawa, Canada. June 23, 1983.
- Dr. M. Mann, State Crime Laboratory, Santa Fe, N.M. June 24, 1983.
- Dr. Cory Conrad, Dept. of Geological Sciences, Cornell University, Ithaca, N.Y. June 30 - July 2, 1983.
- Dr. Arthur Ehlman, Dept. of Geology, Texas Christian University, Fort Worth, Texas. July 6-10, 1983.

- Dr. E. Anders, Enrico Fermi Institute, Univ. of Chicago, Chicago, Illinois. Oct. 12-14, 1983. Dr. Anders was the Sandia National Laboratories - UNM Colloquium speaker and presented two talks on "Interstellar matter in meteorites" and "Chemical processes in the early solar system - Evidence from meteorites."
- G. Huss, American Meteorite Laboratory, Denver, Colorado. Oct. 14, 1983.

Albert M. Kudo

Other professional activities

Lectured to Earth Science Dept, UNLV

Reviewed papers for Contributions to Mineralogy & Petrology, Journal of Geophysical Research

Reviewed a book for Random House Publications

Reviewed grant proposals for Petroleum Research Fund of the American Chemical Society and for the Cottrell Research Corporation.

Barry S. Kues

Consultancies

June 3, Advised a representative of U.S. House of Representatives Public Lands Subcommittee on "Fossil Forest" area in northwestern New Mexico, and provided information to be used in drafting a bill to preserve the area (bill introduced by Congressman Richards).

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Nov. 7, Advised Albuquerque City Planning Division on paleontological resources of Bernalillo County and possible management programs

Dec. 6, Advised Albuquerque Open Space Program (Dept. of Parks and Recreation) on geology and paleontology, relative to establishment of a nature trail on Elena Gallegos Grant.

Talks and Related Activities

Jan. 14 Testified at U.S. Bureau of Land Management public hearing on paleontological importance of several areas in northwestern New Mexico

Jan. 18 Written reviews of three Bureau of Land Management Environmental Impact Statements, relating to paleontology of northwestern New Mexico.

Jan. 25 Talk to Mesa Vista Elementary school class on dinosaurs

Jan. 29 Talk to Annual Meeting of Plateau Science Society, Gallup, N.M., on Bisti Badlands controversy

Feb. 1 Talk to Albuquerque Rock Hound Club, on New Mexico fossils

Feb. 3 Talk to Armijo Elementary school class on dinosaurs

Feb. 20 Talk to Albuquerque Academy Bear Canyon Program (parents and students), on New Mexico fossils.

Mar. 24 Talk to Manzano High School honors class, on the history of life.

Apr. 6 Talk to Bel-Air Elementary school classes, on dinosaurs and the New Mexico Museum of Natural History.

- May 21 Testified at U. S. House of Representatives Committee on Interior and Consular Affairs (Subcommittee on Mining, Forest Management and Bonneville Power Administration) hearing, Santa Fe, on importance of northwestern New Mexico fossils and impacts of coal mining on them.
- May 26 Talk to New Mexico Zoological Society, on history of life in New Mexico.

Media

- Feb. 10 Consulted with Power-Rector Productions about a possible documentary television program on the Bisti Badlands for the Walt Disney Cable TV Network
- Feb. 25 Advised Constantine Productions, Santa Fe, on a proposed documentary film about Bisti Badlands
- Oct. 12, Interview with Sherry Robinson, for Denver Post article on development in San Juan Basin, northwestern New Mexico.
- Oct. 17, Consulted with Tim Zannes, Mirage Production Co., about a documentary film on the Bisti Badlands
- Oct. 24, Interview with Robert Pierpoint, CBS News, for a segment of "Sunday Morning" program on development vs. preservation in Bisti Badlands and James Watt's effect thereon (portion aired nationally on Nov. 6).

Papers Reviewed

Three papers for Journal of Paleontology

Spencer Lucas

Other professional activities:

August, 1983, Gave interviews to and appeared in the following media:

- Albuquerque Journal
- Albuquerque Tribune
- Truth or Consequences Herald
- New Mexico Magazine
- KGGM-TV Albuquerque
- CBS Late Night News
- KOB radio
- Hobbs radio

September, 1983, Gave a series of lectures on paleontology at McMurry College, Abilene, Texas.

November, 1983, Took students from a special program of APS into the field to examine fossils from the Albuquerque area.

Kenneth D. Mahrer

Reviewed

Physical Geology by Dolgoff, for Allen and Unwin publishers.

Consultancies

New Mexico Highway Department. C. Reynolds and Associates.
Created and ran campaign for geophysical equipment and financial donations from industry to Department of Geology.

Leslie D. McFaddenConsulting

Subcontract to Fred Bachhuber, soil-geomorphological aspects at a Pinto Basin archeological site, Fort Irwin, southern California.

Subcontract to Navajo Indian Tribe, soils on dunes in the Chaco Canyon region, New Mexico.

Reviews

NSF Proposal

Chapter in book: Rates of Chemical Weathering of Rocks and Minerals.

Television interview: Channel 7, concerning Characteristics of Alluvial Fans in Albuquerque Region.

Stephen G. WellsConsulting

Consultant to Environmental Improvement Division, Department of Health and Environment, State of New Mexico, Santa Fe, New Mexico.

Reviews

National Science Foundation proposals

Geological Society of America Bulletin paper

Lee A. Woodward

Talks

May 20, 1983, Missoula, Montana. "Montana Thrust Belt."

Department of Geology, University of Montana.

November 28, 1983, Flagstaff, Arizona, "Montana Thrust Belt."

Department of Geology, Northern Arizona University.

Reviews

Reviewed research proposals for National Science Foundation.

Reviewed papers for geological journals.

Reviewed papers for American Association of Petroleum

Geologists-Society of Economic Paleontologists and

Mineralogists.

Robyn Wright

Consultancies

August 4 - U.S. Geological Survey, Menlo Park; consultation
regarding marine geological/geophysical cruise to Antarctica.

Crayton J. Yapp

Reviewed papers for:

Nature

American Mineralogist

Presented two guest lectures to Dr. Wolfgang Elston's

economic geology class at UNM, October 12 and 14, 1983.

Presented seminar in UNM Geology Department, April 28, 1983,
entitled "Stable hydrogen isotope variations in meteoric
waters of the upper Rio Grande Drainage Basin".

8. NON-TEACHING UNIVERSITY SERVICE

Roger Y. Anderson

Chairperson, UNM Committee on Paleoecology.

Revision and reorganization of program to form a new Quaternary Studies Program.

Chairperson (1982-83) Promotion Advisory Committee for Natural Science and Mathematics, and member of Tenure Advisory Committee.

Member, Student Publications Board.

Chairperson, Departmental Search Committee, Sedimentologist.

Douglas G. Brookins

UNM Faculty Senate, 1982-84

UNM Committee on Nuclear Education.

Committee on joint Geology-Chemical Engineering programs of study.

Member, UNM-APS Science Curriculum Committee.

Participated for fourth straight year in UNM-APS career enrichment summer program: supervised two APS students during summer 1983 (C. MacDonald, Cibola HS; and B. Marr, Eldorado HS).

UNM Geology Departmental Committees: (Rb-Sr laboratory use; Graduate Comm.).

UNM Research Allocations Committee.

UNM Promotion Advisory Committee.

UNM Representative to American Nuclear Society-Environmental
Science Division.

Jonathan F. Callender

Non-departmental:

College Enrichment Program; Calling Campaign; Sandia-University
Research Program Review Committee; Biomedical Research
Support Review Committee.

Departmental:

Undergraduate advisor

Chairman of following committees:

Undergraduate

Petrology Collections

Caswell Silver lecture series

Microscopes

Member of Scholarship Committee

Senior thesis, M.S. and Ph.D. advisor

Member of M.S. and Ph.D. Committees, including two at N.M.
Tech, Socorro.

Wolfgang E. Elston

Semester I: Member, Research Policy Committee; Chairman,
Subcommittee on Research Administration.

March 10, Participated in 1983 Calling Campaign for Office of
School Relations.

Shared responsibility (with S. G. Wells) for departmental vehicles.

Semester II, 1982-83, Arranged for sabbatical leave at UNM for Mr. David E. Roberts, Western Mining Co., Adelaide, South Australia. Made arrangements for Mr. Roberts to rehabilitate departmental fluid inclusion laboratory and to teach a seminar on fluid inclusion techniques.

Semester I, 1983-84, Arranged for sabbatical leave at UNM for Dr. Patrick R. L. Browne, Geothermal Institute, University of Auckland, New Zealand. Dr. Browne taught a graduate seminar on hydrothermal alteration and geothermal systems.

October 22-25, Hosted visit by Dr. James Cole, Victoria University, Wellington, New Zealand, including field trips to Silver City area and Jemez Mountains.

Faculty Advisor, Student Chapter, American Institute of Mining and Metallurgical Engineers.

Advisor to Mr. Hua Ren-min, Visiting Scholar, People's Republic of China.

Continued informal cooperative program with Aachen Institute of Technology (Technische Hochschule Aachen), West Germany, supervised theses of two Aachen students (W. Winter, J. Vogel) in New Mexico; visited Aachen.

Principal advisor to 11 graduate students, including:

2 Ph.D. Candidates (C. Condit, G. Sarkar).

2 post-M.S. students (S. Seaman, C. Amindyas).

7 M.S. candidates (R. Abitz, R. Albright, C. Bryan, C. W. Criswell, J. Hudson, F. Smith, S. Whiteley).

Co-principal advisor (with K. Keil) to 1 Ph.D. candidate (D. Nealy).

Served on committees for 2 Ph.D. comprehensive examinations (M. Bersch, D. Nealy) and 8 M.S. comprehensive examinations (C. Bryan, B. Coxe, D. Crouse, B. Feilberg, M. Longden, K. C. Loof, S. Maynard, J. Walker).

Rodney C. Ewing

Chairman of the Department of Geology (member or ex officio member of most committees).

Member of the President's Committee on Excellence

Secretary-Treasurer for the Caswell Silver Foundation

Secretary-Treasurer for Energy, Exploration, Education, Inc.

Jeffrey A. Grambling

Committee Work

Committee on Graduate Admissions and Financial Aid (Geology)

Supervisor of Thin Section Laboratory (Geology)

Research Policy Committee (UNM)

Overhead and Budget Review Subcommittee (UNM)

Faculty Advisor

6 M.S. students, 2 Ph.D. students

Stephen P. Huestis

Faculty advisor - 2 M.S. students, 1 Ph.D. student.

Co-advisor of Ph. D. student in UNM mathematics department.

Departmental committees - Undergraduate curriculum

Computer Use.

Klaus Keil

Administration of the Institute of Meteoritics and its collections.
Chairman and member of several thesis and dissertation committees
in the Department of Geology.
Served on UNM - University of Sao Paulo, Brazil joint research
and exchange program committee.
Participated in Parent Day, UNM.
Served as Director of the Caswell Silver Foundation, Department
of Geology, UNM.
Chaired search committee for Caswell Silver Distinguished
Professor, Department of Geology, UNM.
Served on several M.S. and Ph.D. comprehensive examinations
committees.
Assisted in design and supervision of renovation of basement into
laboratories, Dept. of Geology Building.
Served on Department of Geology Committee to revise
requirements for geology Ph.D. program at UNM.
Served on UNM Honorary Degree Committee.
Hosted the visits of several prospective geology graduate students
to UNM.
Served on Search Committee for Geology Department Chairperson.
Chaired Department of Geology Faculty Promotions Committee.
Served on Department of Geology Search Committee for
transmission electron microscopist.

Albert M. Kudo

Chairman of UNM-Sandia Colloquium Committee
Chairman of UNM-Science Colloquium Committee

Advisor for Geology Honorary Society, Sigma Gamma Epsilon and
for Kendo Club
New Student orientation (High School Senior Day); Undergraduate
Advisor

Member of the following Departmental Committees:

Scholarship

Graduate Admission

Undergraduate Committee

Petrology Sequence Committee

Chairman of 3 MS Thesis Committees, Member of many Ph.D. and
MS committees.

Barry S. Kues

Assistant Chairman, Department of Geology

Assembled and wrote part of departmental self-study, for review
of Department of Geology graduate program

Revised Department of Geology brochure

Departmental committees:

Graduate Committee

Publications Committee

Search Committee for new chairman

Department Graduate Advisor

Chairman of 1 M.S. thesis committee, reader on 9 M.S./Ph.D.
committees (including 3 in Biology Department and 2 in
Anthropology Department)

University Committees

University Teaching Resources Committee

Arts & Sciences Graduate Committee

Kenneth D. Mahrer

Member of Dept. of Geology Graduate Admissions Committee.

Member of Dept. of Geology Petitions Committee.

Member of Dept. of Geology Publicity Committee.

Received President's Recognition Award for participation in
Outreach Program. (2nd time awarded).

Faculty Advisor for Geology Club.

Faculty M.S. advisor: C. Bradley.

Geology Faculty representative to 1983 Commencement.

Participated (3 times) in Freshman Orientation Program for Dean
of Students Office.

Curator, Dept. of Geology's geophysical equipment.

Faculty Representative to Academic Mart '83 for Dean of Students
Office.

Faculty Representative to Intramural and Recreation Board (a
Faculty- Senate Standing Committee).

Leslie D. McFadden

Chairman of Department of Geology Scholarship Committee

Undergraduate Advisor, Stratigraphy - Geomorphology

Co-director, Quaternary Studies Laboratory

00791

Sedimentary Geology - Stratigraphy Professor Search Committee

Member

Reviewer, Albuquerque Public Schools CIIS Program

Presidential Recognition Award, participation in UNM Outreach
Program

Stephen G. Wells

Administrative/Committee Work

Geology Department Undergraduate Committee

Geology Department Vehicle Committee

Chairperson of Field Equipment Committee

Chairperson of Map Room/Photogeology Library-Geology

Department Committee

Co-Director of Quaternary Studies Laboratory

Faculty Advisor

M.S. students: S. Anderson, J. Pickle, T. Bullard, R. Ford, J.
Grimm, J. Ritter, K. Kelson, K. Spray, D. Jercinovic, J.
Westling, J. Miller, K. Loeff.

Lee A. Woodward

Thesis advisor for eight M. S. students.

Crayton J. Yapp

Served on University of New Mexico Faculty Senate

Served on five (5) M.S. comprehensive exam committees

Served on three (3) Ph.D. comprehensive exam committees

Served on three (3) M.S. thesis committees

Served on the following departmental committees:

Undergraduate Committee

AAPG Lecture Series - Chairman

Reading Room - Chairman

Scholarship Committee

9. PUBLIC SERVICE

Roger Y. Anderson

Identification of rocks, minerals, and fossils, for the public.

Douglas G. Brookins

Public Service

Vice President, Congregation Albert, 1983-1984.

Energy Lecturer for the Society for the Development of Gifted
and Talented Students of Albuquerque Public Schools.

Volunteer work, American Diabetes Association.

Jonathan F. Callender

Community Service:

Committee on Exhibits, New Mexico Museum of Natural History.

Science advisor, Museum of Albuquerque.

Public lectures:

Sierra Club

Los Alamos Symposium on Cancer

UNM School of Medicine Preceptorship Program

International Science Fair

Junior League of Albuquerque

00794

Wolfgang E. Elston

May 11, Judge, International Science Fair (represented American Association of Petroleum Geologists).

May 17, Speaker, Manzano del Sol, "Eruptions of Mount St. Helens."

May 26, Speaker, New Mexicans for Space Exploration, "New Views of the Solar System".

Rodney C. Ewing

Guest Lecturer for Albuquerque Gem and Mineral Club, Sept. 26.

Jeffrey A. Grambling

Identification of rocks and minerals for the public.

Judge, International Science and Engineering Fair, May, 1983.

Stephen P. Huestis

Judge, International Science and Engineering Fair, May, 1983.

Klaus Keil

Many private showings of moon rocks to interested citizens, school classes, civic groups, etc., many of which were after working hours and on weekends.

Many private showings of the meteorite museum to interested citizens, school classes, civic groups, etc., many of which were after working hours and on weekends.

Investigated without charge many rocks suspected to be meteorites and brought to the Institute by citizens.

Hosted a local high school student, Richard Turietta, in the Institute, for the purpose of doing research on the scanning electron microscope for a science fair project entitled "An evaluation of particulate air pollution in Albuquerque."

Presented talk to Albuquerque Astronomers on "The origin of meteorites - from asteroids, comets, Moon and Mars", August 5, 1983.

Albert M. Kudo

Chairman of Earth & Space Sciences, NW Regional Science Fair.
Judge in International Science Fair for Marine Technology Services

Several geology presentations at APS elementary schools.

Barry S. Kues

Judge in Earth & Space Sciences division, International Science and Engineering Fair, May 11.

Policy Advisory Committee, New Mexico Museum of Natural History.

Board Member, New Mexico Museum of Natural History Foundation.
Identified fossils and guided tours through the Geology Museum for many individuals and groups.

Kenneth D. Mahrer

Judge, International Science and Engineering Fair, Albuquerque, May, 1983.

Stephen G. Wells

Community Committee member: Montecello Residents Committee

Bernalillo County Reviewer: Albuquerque Public Schools CIIS
Program

Crayton J. Yapp

Prepared reviews of science term papers written by Albuquerque
Public Schools high school students that were submitted by
APS.

APPENDICES

I: GRADUATES FOR 1983-1984

The following students completed degrees during the report period.

B.A.

Carleno, Richard
Gawthrop, Margaret
Howard, Betty
Keller, Anita
McDuffie, Susie
Mosely, Carol

B.S.

Beckett, Jay
Condon, Craig L.
Effinger, James A.
Fritts, Joseph
Gilbert, Mary Jo
Grunewald-Ralph, Patty
Jelso, Dominic
Keenan, Russell
Krebs-Jespersen, Margaret
Madsen, David
Martinez, Phillip
McKenzie, Pierre
Orbock, Suzanne
Poelakker, Denise
Richers, Sherwood
Schosek, Kathy
Strommen, Janet L.
Van Deusen, Stuart
Young, Christopher

M.S.

Mark S. Abashian, "The Eldora Stock as a Natural Analog to Buried Radioactive Wastes: A Study of the Chemical and Petrographic Changes in the Idaho Springs Formation Resulting from Intrusions of the Eldora-Bryan Mountain, Stock, Colorado".

- Richard Abitz, "Volcanic Geology and Geochemistry of the Northeastern Black Range Primitive Area and Vicinity, Sierra County, New Mexico"
- David Coddling, "Precambrian Geology of the Rio Mora Area New Mexico: Structural and Stratigraphic Relations".
- Tammy Dickinson, "Petrogenesis of Apollo 14 Aluminous Mare Basalts".
- Jeanna Hudson, "Geology and Hydrothermal Alteration of the San Simon Mining District south of Steins Pass, Peloncillo Mountains, Hidalgo County, New Mexico."
- Devon Jercinovic, "Geomorphic Analysis of Small Watersheds Affected by Coal-Surface Mining in Northwestern New Mexico."
- Terry Leyenberger, "Precambrian Geology of Cimarron Canyon, Colfax County, New Mexico."
- Maureen Mahoney, "Use of Electrical Resistivity Techniques in an Evaluation of the Geothermal Potential of the Truth or Consequences, New Mexico Area."
- Patrick Longmire, "Geochemistry, Diagenesis, and Contaminant Transport of Uranium Tailings, Grants Mineral Belt, New Mexico."
- Rose McCarty, "Structural Geology and Petrograph of Part of the Vadito Group, Picuris Mountains, New Mexico."
- James McKinley, "Chemistry and Petrology of Apollo 16 Rock Samples: Impact Metal Sheets, Nature of the Cayley Plains and Descartes Mountains and Geologic History."
- Stephen Sares, "Hydrologic and Geomorphic Development of a Low-Relief Evaporite Karst Drainage Basin, Southeastern New Mexico."
- Larry Smith, "Late Cenozoic Fluvial Evolution in the Northern Chaco River Drainage Basin, Northwestern New Mexico."
- Harlan Stein, "Geology of the Cochiti Mining District, Jemez Mountains, New Mexico."
- Herbert Vogler, "Major and Trace Element Geochemistry of the Laguna Del Perro Area Playa-Balson Complex, Torraine County, New Mexico."

II: CONTRACTS AND GRANTS

<u>NAME</u>	<u>GRANTOR</u>	<u>ENDING DATE</u>	<u>AMOUNT</u>
Anderson, Roger Y.	NSF	5-31-84	64,805.00
Brookins, Douglas G. & B. M. Thomson*	USBM	10-1-83	64,500.00
Brookins, Douglas G.	DOE	9-30-83	24,500.00
Brookins, Douglas G.	Sandia Nat. Labs	9-30-84	74,600.00
Brookins, Douglas G. & J. A. Gosz**	NSF	7-1-84	300,000.00
Callender, Jonathan	NSF	8-31-84	84,083.00
Elston, Wolfgang E.	NSF	8-31-83	84,872.00
Elston, Wolfgang E.	NASA	5-14-84	30,000.00
Elston, Wolfgang E.	NSF	9-30-86	120,000.00
Ewing, Rodney C.	LANL	9-30-83	9,984.00
Ewing, Rodney C.	ANL	6-30-84	45,500.00
Ewing, Rodney C.	DOE	7-31-84	95,000.00
Grambling, Jeffrey A.	NSF	8-31-83	28,700.00
Grambling, Jeffrey A.	NSF	5-15-87	98,500.00
Grambling, Jeffrey A.	Anaconda Minerals	7-1-84	7,000.00
Keil, Klaus	NASA	1-31-83	97,995.00
Keil, Klaus	NASA	2-28-83	107,988.00
Keil, Klaus	NASA	7-31-83	56,782.00
Keil, Klaus	Sandia Nat. Labs	9-30-83	40,944.00
Keil, Klaus	NASA	2-15-84	223,850.00
Keil, Klaus	NSF	6-30-84	180,000.00
Keil, Klaus	Sandia Nat. Labs	9-30-84	50,000.00
Keil, Klaus	Sandia Nat. Labs	9-30-84	25,134.00
Kudo, Albert M.	Sandia Nat. Labs	5-30-84	7,000.00
Kudo, Albert M.	Sandia Nat. Labs	10-31-84	7,000.00
Mahrer, Kenneth D.	American Chemical Soc.	8-31-83	7,000.00
Wells, Stephen G.	EMD	3-31-84	81,852.00
Wells, Stephen G.	Lat. Amer. Institute/ Mellon Foundation	12-31-84	1,500.00
Yapp, Crayton J.	NSF	7-31-86	66,200.00
Yapp, Crayton J.	NSF	9-30-84	70,000.00
TOTAL			\$ 2,155,289.00

*Dept. of Civil Engineering

**Dept. of Biology

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RESEARCH ALLOCATION COMMITTEE GRANTS

Brookins, Douglas G.	1,107.00
Grambling, Jeffrey C.	799.00
Huestis, Stephen P.	164.00
Kudo, Albert M.	1,949.00
McFadden, Leslie D.	4,300.00
Yapp, Crayton J.	1,360.00

III: LECTURERS

The following scientists presented lectures in the Department of Geology.

1. Charles R. Carrigan, Sandia National Laboratories, "Thermal models of volcanic plumbing."
September 1, 1983
2. Rod Ewing, Department of Geology, University of New Mexico, "Modeling long-term radioactivity release from nuclear waste forms."
September 8, 1983
3. Eric Nuttall, Department of Chemical & Nuclear Engineering, University of New Mexico, "Modeling of radioactive waste disposal in geologic formations."
September 15, 1983
4. Raymond P. Buland, U.S.G.S., Golden, Colorado, "Routine earthquake location for global event catalogues."
September 22, 1983
5. Dr. Adrian Harvey, Department of Geography, University of Liverpool, England, "Geomorphic Processes in Upland Britian."
September 22, 1983
6. John Haworth, Richard Oil Company, Houston, "Some Features of the Northwest Borneo Geosyncline."
September 23, 1983

7. Roy L. Johnson, Department of Civil Engineering, University of New Mexico, "Mechanical model for jointed rock masses." September 29, 1983
8. Claude Abry, Houston, Texas, "Some Advanced Techniques in Geological and Geophysical Exploration." September 30, 1983
9. John K. Balsley, Mitchell Energy Corporation, AAPG Distinguished Lecturer, "Cretaceous wave-dominated delta, barrier island and submarine fan depositional systems of the Rocky Mountains: clastic models for hydrocarbon exploration." October 6, 1983
10. Edward Anders, Enrico Fermi Institute, University of Chicago, "Chemical processes in the early solar system: evidence from meteorites." October 13, 1983
11. David Veblen, Johns Hopkins University, "Modern methods in electron microscopy." October 20, 1983
12. Professor A. R. McBirney, UNM Sandia Colloquium, "Cooling and crystallization of magmas in intrusions with special reference to the Skaergaard." October 20, 1983
13. Dr. J. Cole, Victoria University, Wellington, New Zealand, "Taupo-Roturua Depression, New Zealand: Ensilic Backarc Basin." October 24, 1983

14. Mark Ander, Los Alamos National Laboratory, "Rio Grande Rift genesis; Colorado Plateau exodus."
October 27, 1983
15. James Murdock, Albuquerque Seismological Laboratory
"Contemporary tectonics of the central Aleutian region."
November 3, 1983
16. David Zeuch, Sandia National Laboratories, "The dislocation substructure of experimentally deformed synthetic dunite with comparisons to natural peridotites."
November 10, 1983
17. John Schlue, New Mexico Institute of Mining and Technology,
"Rayleigh waves across the Albuquerque Basin."
November 17, 1983
18. Dr. Stirling Shaw, Macquarie University, Sydney, Australia,
"The New England Botholith, New South Wales."
November 28, 1983
19. Ken Mahrer/Chris Bradley, Department of Geology, UNM
"Geomagnetic anomalies, topography and alluvial fans."
December 1, 1983
20. Jeffrey Grambling, Department of Geology, UNM, "An overview of the stratigraphy, deformation and metamorphism of Proterozoic rocks in northern New Mexico."
December 8, 1983
21. Dr. Ian MacKinnon, Houston, Texas, "Stratospheric Dust Collections: valuable or intellectual Curiosities."
December 12, 1983

22. Shirley Turner, Department of Geosciences, Arizona State University, "High resolution TEM of manganese oxides."
December 15, 1983.
23. Dr. Kaare Rasmussen, Institute of Geophysics and Planetary Physics, University of California, Los Angeles and Department of Geophysics, University of Copenhagen, Denmark, "New Metallographic Cooling Rates of Group IIIAb Iron Meteorites."
January 20, 1984.
24. Dr. Rusty Riese, Anaconda Minerals, "Exploration Management."
January 25, 1984.
25. Andy Campbell, New Mexico Tech., "Genesis of the tungsten base-metal ores at San Cristobal, Peru: a stable isotope study."
February 2, 1984.
26. Dr. H. R. Northrop, USGS, Denver, "Genesis of tabular uranium-vanadium deposits in the Henry Structural Basin, Utah."
February 7, 1984.
27. Dr. C. G. Whitney, USGS, Enver, "The petrology and stable isotope geochemistry of clays as indicators of fluid flow, San Juan Basin."
February 7, 1984.
28. Dr. John Whetten, Deputy Director, Geosciences, Los Alamos National Laboratories, "Geosciences at Lost Alamos."
February 9, 1984.

29. Richard E. Wyman, Director of Research, Canadian Hunter Exploration Ltd. and AAPG Distinguished Lecturer, "The Future of Natural Gas."
February 13, 1984.
30. Dr. Don Burt, Professor of Geology, Arizona State University, "Topaz Rhyolites."
February 16, 1984.
31. H. P. Taylor, Jr., California Institute of Technology
"Hydrogen and oxygen isotope studies of hydrothermal alteration in continental and oceanic rift environments."
February 23, 1984.
32. Myrl Beck, University of Washington, "Paleomagnetic evidence for Accretionary Tectonics."
February 27, 1984.
33. Frank Gorham, Questa Petroleum Corp., "Geology of the San Juan Basin," and "Current Status of the Geologist in the Oil and Gas Business."
February 29, 1984.
34. Robyn Wright, University of New Mexico, "The Role of Antarctica in Gondwanaland Reconstruction."
March 1, 1984.
35. Bill Criswell, University of New Mexico, "Mt. St. Helens: Field View, 1983."
March 8, 1984.
36. Cyrena Goodrich, University of New Mexico, "Petrogenesis of Natural Iron-Carbon Alloys in Tertiary Basalt, Disko Island, West Greenland."
March 22, 1984.

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37. Ronald Geitgey, Geologic Consultant, "Potash Deposits."
March 23, 1984.
38. Subir Banerjee, University of Minnesota, "Interrelationships
Between Geomagnetism and the Paleoenvironment."
March 27, 1984.
39. Lee Woodward, University of New Mexico, "Sandstone Copper
Deposits."
March 29, 1984.
40. Kase Klein, Indiana University, "Diagenesis and
Metamorphism of Precambrian Iron Formations."
April 5, 1982.
41. Ray Weldon, California Institute of Technology, "Evolution of
the San Andreas Fault System in the Central Transverse
Ranges, Southern California."
42. Guy Smith, University of Minnesota, "The Effects of
Chemical Alteration on Marine Basalts as Reflected in
Magnetic Properties".
April 17, 1984
43. John Geissman, Colorado School of Mines, "Paleomagnetism of
an Archean and a Latest Triassic(?) Layered Lopolith,
Southern Montana and West Central Nevada, Contrasting
Results and Implications."
April 18, 1984
44. Steve Lund, University of Southern California at University
Park, "Secular Variation as a Magneto-Stratigraphic Tool in
Quaternary Studies"
April 19, 1984

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45. Sam Bowring, Washington University, "Archean Rocks, Wopmay Orogen, Canada."
April 19, 1984.
46. Jon Callender, University of New Mexico and Curator of Geology, New Mexico Natural History Museum, "New Mexico Natural History Museum."
April 26, 1984.
47. James Brinkman, Geotechnical Engineer, "Hydrogeochemical Investigations and Analysis of UMTRA Program Sites."
April 26, 1984.
48. Bob Trumbull, University of New Mexico, "Geology and Archaeology of Yucatan Peninsula, Mexico."
May 3, 1984.

IV: STUDENT SCHOLARSHIPS AND AWARDS
1983 - 1984

ALBUQUERQUE GEM AND MINERAL CLUB SCHOLARSHIP

Tamara Dickinson	\$330.00
David Ward	\$330.00

AMERICAN GEOLOGICAL INSTITUTE

Lisa Navarete	\$500.00
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ANACONDA

Mike Williams	\$3,000.00
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ATLANTIC RICHFIELD COMPANY

David Crouse	\$1,000.00
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0310

ARGONNE NATIONAL LABS

Jerry Miller \$12,000.00

ASSOCIATION OF GEOLOGY GRADUATE STUDENTS

John Wesling \$150.00

Gautam Sarkar \$150.00

GENERAL THOMAS D. CAMPBELL MEMORIAL SCHOLARSHIP

Stuart Van Deusen \$900.00

Joseph Fritts \$900.00

GEOLOGICAL SOCIETY OF AMERICA - ROCKY MOUNTAIN

SECTION

Keith Taylor \$30.00

David Crouse \$30.00

James Walker \$30.00

Rodney Metcalf \$30.00

GEOLOGY RESEARCH AND SCHOLARSHIP FUND

Mark Longden	\$500.00
Mike Williams	\$500.00
Tom Bullard	\$300.00
Chris Menges	\$200.00
David Ward	\$170.00
Tamara Dickinson	\$170.00
Bill Criswell	\$119.00
John Weldon	\$100.00
Russell Keenan	\$25.00
Kathy Komatz	\$25.00

GRADUATE STUDENT ASSOCIATION (SRAC)

Bill Banowsky	\$165.00
David Crouse	\$160.00
Keith Kelson	\$125.00

SIGMA XI, THE SCIENTIFIC RESEARCH SOCIETY

Ron Matheney	\$400.00
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HARRY AND MABEL F. LEONARD SCHOLARSHIP FUND

Christopher Young	\$1,000.00
Michael Jackson	\$750.00
Nancy Schott	\$750.00
Rosemary Glenn	\$750.00
Suzanne M. Orbock	\$750.00
David Madsen	\$750.00
Scott Johnson	\$750.00
Christine Newsom	\$400.00
Mary Jo Gilbert	\$300.00
Russell Keenan	\$300.00
Mary Boone	\$250.00
Charles Reynolds	\$150.00
Brian Salem	\$100.00

GETTY OIL

Dave Crouse	\$500.00
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JAMES DREW PFEIFFER MEMORIAL AWARD

Christine Newsome	\$121.00
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LOS ALAMOS GEOLOGICAL SOCIETY

Russell Keenan	\$75.00
Kathy Kowatz	\$75.00

LOS ALAMOS NATIONAL LABS

Robert Beard	\$1,760.00
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MONTANA BUREAU OF MINES

Mark Longden	\$500.00
Bill Banowsky	\$500.00

NATIONAL PARKS SERVICE

Paul Karas	\$1,500.00
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PHELPS DODGE SCHOLARSHIP

Michael Jackson	\$1,700.00
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0314

QUATERNARY AWARD (ROBERT SHARP)

Chris Menges	\$400.00
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NEW MEXICO GEOLOGICAL SOCIETY SCHOLARSHIP

John C. Kelley	\$500.00
Brad Singer	\$500.00
Larry N. Smith	\$500.00
James S. Walker	\$500.00
David B. Ward	\$500.00
Paul Karas	\$150.00
Paul Bauer	\$50.00
Rick Ford	\$50.00

RANCHERS EXPLORATION, INC.

Bert Coxie	\$2,700.00
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RODNEY C. RHODES MEMORIAL SCHOLARSHIP

Bill Criswell	\$381.00
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0315

SANTA FE MINING COMPANY

Steve Maynard

\$10,000.00

J. PAUL FITZSIMMONS OUTSTANDING SOPHOMORE AWARD

Nancy Schott

SHERMAN A. WENGERD OUTSTANDING JUNIOR AWARD

Christopher Young

STUART A. NORTHROP OUTSTANDING SENIOR AWARD

David Madsen

VINCENT C. KELLEY OUTSTANDING FIELD GEOLOGIST AWARD

David Denbow

 V: TEACHING AND RESEARCH ASSISTANTSHIPS

1983 - 1984

<u>NAME</u>	<u>TA/RA</u>	<u>PROJECT DIRECTOR</u>	<u>FUNDING</u>
S. Adams	RA	Anderson	NSF
B. Banowsky	TA	Woodward	Department
P. Bauer	RA	Callender	NSF
M. Bersch	RA	Keil	NASA
T. Bullard	TA	Wells	Dept./Gen. College
E. Colvard	TA	McFadden	Department
B. Coxe	TA	Grambling	Dept./Gen. College
D. Crouse	TA	Callender	Department
T. Dickinson	RA	Keil	NASA
P. Karas	RA	McFadden	Department
J. Kelly	TA	McFadden	Department
J. Kelley	RA	Ewing	ANL
K. Kelson	TA	Woodward	Department
G. Kepes	TA	Woodward	Department
M. Longden	TA	Woodward	Department
K. Looff	TA	Ewing	Dept./Gen. College
G. Lumpkin	RA	Ewing	DOE
D. Lusby	RA	Keil	NASA
R. Matheney	RA	Brookins	SNL
C. Menges	TA	Woodward	Department
B. Menne	TA	Woodward	Department

<u>NAME</u>	<u>TA/RA</u>	<u>PROJECT DIRECTOR</u>	<u>FUNDING</u>
R. Metcalf	TA	Ewing	General College
M. Murphy	RA	Brookins	NSF/Biology
S. Recca	RA	Keil	281-216-112
J. Ritter	TA	Wright	Department
R. Rose	RA	Ewing	ANL
S. Sares	TA	Wells	Department
S. Seaman	RA	Elston	NSF
B. Singer	TA	McFadden	Department
L. Smith	RA	Wells	Calif. Inst. of Tech.
J. Walker	TA	Woodward	Department
D. Ward	TA	Woodward	Department
J. Weber	Lab. Asst.	Husler	Department
J. Weldon	TA	Woodward	Department
S. Whiteley	TA	Grambling	Department
C. Williams	RA	Keil	NASA
M. Williams	RA	Grambling	NSF

VI: REPORT OF GRADUATE ADMISSIONS COMMITTEE

Summary of Admissions

The number of applicants to our graduate program for the spring and fall, 1983, semesters increased dramatically over past years to 355, the highest ever in the history of the department, and the number of applicants for spring and fall, 1984, is only slightly less than the record number. Table 1 summarizes application statistics for the past five years, along with information on the number of applicants accepted into the program and the number who actually enrolled. There are several reasons for this increase in applications: efforts by the department to widely disseminate information on its programs, encouragement of potential applicants by faculty at other universities, and the introduction of the Kelley/Silver Fellowships, which undoubtedly encouraged some excellent students to apply who might not otherwise have done so. In addition, the recent slump in the petroleum and mineral industries, which traditionally have provided the majority of employment opportunities for geology students, has had the effect of encouraging undergraduate students to continue on for advanced degrees rather than obtaining employment. Some applicants have been employed by industry and have decided to return to school to pursue advanced degrees in order to enhance their training.

Along with an increase in the number of applicants has come an increase in their quality, as judged by Grade Point Average

and Graduate Record Exam scores. A summary of average GPA and GRE scores for all applicants accepted into the graduate program over the past five years is presented in Table 2. The department has become increasingly selective in admitting applicants for graduate study; for example in 1980 we accepted 60% of all applicants, whereas in 1984 only 21% of applicants were accepted (Table 1). Our raised admissions standards are reflected by the fact that those accepted for the fall 1984 semester had an average undergraduate GPA of 3.50 (A = 4) and ranked at about the 80th percentile in all areas of the GRE (Table 2) -- the highest averages in the history of the department. It is anticipated that the same rigorous admissions standards now used by the department will continue into the foreseeable future or will become even more rigorous. Applicants for the graduate program are judged on the basis of grades, recommendations, GRE scores, broadness and quality of background in geology and related sciences, statement of goals in geology, and other evidence of potential for success in our program. Detailed information on applicants for the fall, 1983, spring, 1984, and fall, 1984 semesters is given in Tables 3-5.

Enrollment Information

In general, over the past few years about one-quarter of the applicants accepted into the graduate program actually enrolled. The financial aid the department can offer to prospective graduate students is instrumental in allowing us to compete in attracting excellent students to UNM. Many very good students apply to

whom we cannot offer aid; most of these receive aid offers from other schools. There is tremendous competition for the very top students, and in the past less than one-third of the students that we offer teaching or research assistantships to have accepted our offer and come to UNM for their graduate work. We have been particularly successful in recruiting for the fall 1984 semester; six of the top 13 applicants that were offered financial aid have decided to attend UNM. This bodes well for the future of our graduate program and reflects favorably on the national reputation of the geology faculty and graduate program.

Of students enrolling in fall, 1983, three [Stephen Whiteley (Dartmouth), John Ritter (Penn State), and Keith Kelson (California-Santa Barbara)] entered with teaching assistantships; two students [Greg Lumpkin (Virginia Polytechnic) and David Lusby (Humboldt State)] entered with research assistantships; and one (Sara Brothers, Harvard) received a Kelley/Silver Fellowship. In spring, 1984, Sara also received a three-year NSF Fellowship, making her the second of our graduate students to receive this prestigious award (Charles Bryan, a Kelley/Silver Fellow in 1982-83, also is an NSF Fellow). Nothing could point more forcefully to the value of the Kelley/Silver Fellowships in attracting top students to our program than their subsequent selection by NSF for three-year fellowships. UNM's Geology Department is one of a very few departments in the country with two NSF Fellows among its graduate students.

Students who applied for admission into our program for fall, 1984 include four who will attend with teaching assistantships

[Rachel Cowan (Arizona), Patricia Hester (Texas-Austin), John Persico (State Univ. New York), Roger Smith (Texas-Austin)], and one with a research assistantship (William Farrand, Franklin & Marshall Univ.). James Faulds (M.S., Arizona) has accepted a Kelley/Silver Fellowship beginning in fall, 1984. Faulds was a three-year NSF Fellow while at Arizona. We do not yet know how many new graduate students will enroll for the fall, 1984 semester, but based on past years a total of about 15 new graduate students is expected.

Our current graduate student population is 74, nearly the maximum that the department can accommodate in terms of space within Northrop Hall and reasonable faculty-student ratios.

Table 1. DATA ON APPLICATIONS TO GEOLOGY DEPARTMENT GRADUATE PROGRAM,
1980-1984

	Spring, Fall 1980	Spring, Fall 1981	Spring, Fall 1982	Spring, Fall 1983	Spring, Fall 1984
Completed Applications	90	106	161	272	234
Incomplete Applications	4	48	111	83	89
TOTAL APPLICATIONS	94	154	272	355	323
Total Applicants Admitted to Program	56	70	100	130	68
% of Total Applicants Admitted	60%	45%	37%	37%	21%
Number Enrolled	12	18	26	34	N.A.
% of Accepted Applicants Who Enrolled	21%	26%	26%	26%	N.A.

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Table 2. Graduate Record Exam and Grade-Point Data for Applicants ACCEPTED into Geology Dept. Graduate Program, 1980-1984 (Scores are averages for all accepted applicants)

	Fall 1980	Fall 1981	Fall 1982	Fall 1983	Fall 1984
Grade Point Average (Undergraduate)	N.A.	N.A.	3.35	3.40	3.50
Grade Point Average (Graduate)	N.A.	N.A.	3.77	3.78	3.66
Graduate Record Exam Scores					
Verbal (Percentile)	65	66	69	76	79
Quantitative (Percentile)	71	77	78	83	81
Analytical (Raw score)	590	608	608	610	628
Geology Advanced Exam (Percentile)	72	73	67	76	81

Table 3: DEPARTMENT OF GEOLOGY - SUMMARY OF GRADUATE APPLICANT DATA FOR: FALL, 1983

	Male	Female	TOTAL	Minority	Foreign	Total PhD	Total MS
A. Applicants to Graduate Program							
Accepted	84	32	116	4	5	25	91
Not Accepted	93	40	133	4	7	13	120
TOTALS	173	72	249	8	12	38	211
Additional Incomplete Applications			65				
TOTAL APPLICANTS			314				
Total Enrolled	20	5	25			6	19
B. Financial Aid Data (Assistantships and Fellowships)							
Aid Offered	17	6	23	1	--	5	18
Aid Accepted	5	1	6	--	--	1	5
% Accepting our offer	26%						
C. Graduate Record Exam Data							
	Verbal	Quantitative	Analytical	Advanced: Geology	GPA		
a) Accepted applicants							
Average raw score	597	677	610	651	3.40 (BS)		
Average percentile	76	83	--	76	3.78 (MS)		
b) Applicants not accepted							
Average raw score	503	582	528	557	2.99 (BS)		
Average percentile	55	63	--	42	3.59 (MS)		

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Table 4: DEPARTMENT OF GEOLOGY - SUMMARY OF GRADUATE APPLICANT DATA FOR: SPRING, 1984

A. Applicants to Graduate Program	Male	Female	TOTAL	Minority	Foreign	Total PhD	Total MS
Accepted	6	5	11	0	1	4	7
Not Accepted	12	4	16	0	2	3	13
TOTALS	18	9	27	0	3	7	20
Additional Incomplete Applications			8				
TOTAL APPLICANTS			35				
Total Enrolled	3	3	6	0	0	3	3
B. Financial Aid Data (Assistanships and Fellowships)							
Aid Offered	0	1	1				
Aid Accepted	0	1	1				
% Accepting our offer	100%						
C. Graduate Record Exam Data							
	Verbal	Quantiative	Analytical	Advanced: Geology		GPA	
a) Accepted applicants							
Average raw score							
Average percentile	Not calculated						
b) Applicants not accepted							
Average raw score							
Average percentile							

Table 5: DEPARTMENT OF GEOLOGY - SUMMARY OF GRADUATE APPLICANT DATA FOR: FALL, 1984

A. Applicants to Graduate Program	Male	Female	TOTAL	Minority	Foreign	Total PhD	Total MS
Accepted	44	13	57	0	1	7	50
Not Accepted	117	33	150	3	9	15	135
TOTALS	161	46	207	3	10	22	185
Additonal Incomplete Applications			81				
TOTAL APPLICANTS			288				
Total Enrolled	Available August, 1984						

B. Financial Aid Data (Assistanships and Fellowships)

Aid Offered	10	3	13
Aid Accepted	5	2	7
% Accepting our offer	54%		

C. Graduate Record Exam Data

	Verbal	Quantiative	Analytical	Advanced: Geology	GPA
a) Accepted applicants					
Average raw score	607	677	628	676	3.50 (BS)
Average percentile	79	81	---	81	3.66 (MS)
b) Applicants not accepted					
Average raw score	518	600	563	585	3.00 (BS)
Average percentile	60	63	---	51	3.39 (MS)

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VII: GEOLOGY ALUMNI FELLOWSHIP FUND
CONTRIBUTORS
1983-1984

Mr. & Mrs. Henry O. Ash	John G. Kuhn
Mr. and Mrs. Douglas G. Brookins	Jean La Paz
H. Gassaway Brown, IV	Moon J. Lee
Jonathan F. Callender	Winfried Leipoldt
Mark Cameron	Mary Lou Leonard
William Chenowith	Robert Leonard
Alan Dahlstrand	Bill Lovejoy
Wolfgang E. Elston	Kenneth D. Mahrer
Rodney C. Ewing	James Lee Martin
James R. Ezell	DeWayne A. Miller, Jr.
Thomas Fitzgerald	David Paffett
George H. Fullas	Vincent Scury
David Givens	W. L. Shaffer
Malcolm L. Goode	Ralph Stevenson
Harry J. Graff	John M. Stone
Jeffrey A. Grambling	Lawrence H. Wagner
Patrick J. Gratton	Alexander Wanek
James S. Jameson	Carol Jean Wolcott
Terri Kasten	Lee A. Woodward
Klaus Keil	

VIII: GIFT LIST

EXXON	\$ 3,000.00
AMOCO	\$ 1,000.00
Phillips Petroleum Company	\$ 1,000.00
John W. Blagbrough (Books & Journals)	\$ 1,200.00
Stuart A. Northrop (Books & Journals)	\$ 1,790.00
Albuquerque Geological Society	\$ 250.00
Atlantic Richfield Foundation	\$ 1,500.00
Stephanie Kern-Wiley (Geologic Monographs & Field Equipment)	\$ 400.00

IX: COMPANIES INTERVIEWING GEOLOGY STUDENTS
1983 - 1984

<u>DATE</u>	<u>COMPANY</u>	<u>CAREER SERVICES</u>	<u>GEOLOGY DEPARTMENT</u>
November 18	Sandia National Labs	X	
October 6, 7	AMOCO	X	
February 21	Department of Energy	X	
February 15	Shell		X

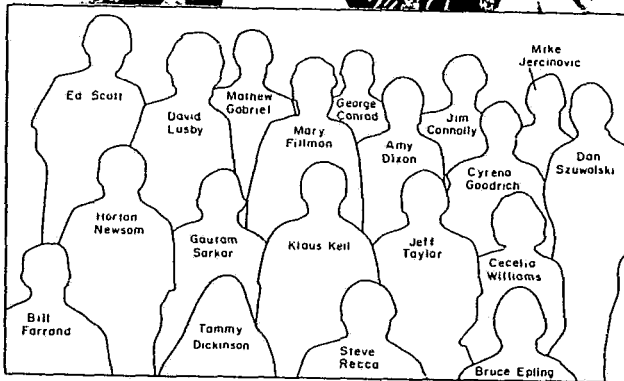
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The Annual Report of the Institute of Meteoritics
July 1, 1983 - June 30, 1984
Klaus Keil, Director

Institute of Meteoritics
Department of Geology
University of New Mexico
Albuquerque, New Mexico, 87131, USA

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2. Institute Staff

Dr. Klaus Keil, Director and Professor Geology
 Ms. M.K. Fillmon, Institute Secretary
 Dr. G.J. Taylor, Senior Research Scientist
 Dr. E.R.D. Scott, Research Scientist
 Dr. H.E. Newsom, Research Scientist
 Dr. A. Kracher, Post-doctoral Fellow
 Dr. Cyrena A. Goodrich, Post-doctoral Fellow
 Dr. A.J. Ehlmann, Senior Post-doctoral Fellow
 Mr. G.H. Conrad, Microprobe Supervisor
 Mr. J. Calhoun, Photographer
 Mr. T. Servilla, Preparator
 Mr. J.R. Connolly, Staff Scientist
 Mr. M.G. Bersch, Graduate Research Assistant
 Ms. T.L. Dickinson, Graduate Research Assistant
 Mr. M.R. Jercinovic, Graduate Research Assistant
 Mr. D. Lusby, Graduate Research Assistant
 Mr. J.P. McKinley, Graduate Research Assistant
 Ms. S.G. McKinley, Graduate Research Assistant
 Mr. S.I. Recca, Graduate Research Assistant
 Mr. G. Sarkar, Graduate Research Assistant
 Ms. C.B. Williams, Graduate Research Assistant
 Ms. A. Dixon, Undergraduate Research Assistant

3. General Departmental Information

The Institute of Meteoritics, founded in 1944 (one of the oldest institutions of its kind in the world), continued to develop vigorously during the report period as one of the leading centers in research and teaching of Meteoritics, Cosmochemistry and Planetary Sciences. Staff and students of the Institute devoted a considerable amount of time and effort to organization and planning of the Meteoritical Society Meeting which will be held on the University of New Mexico Campus, July 29 - August 2, 1984. This meeting will be co-sponsored by the University's Institute of Meteoritics and Department of Geology, the Lunar and Planetary Institute, Houston, Texas, with additional support from

Los Alamos National Laboratory. Over 170 talks will be scheduled in two concurrent sessions, and we anticipate over 300 registered attendees.

The major research, teaching and public service activities of the Institute during the report period may be summarized as follows:

3.1. Research

Research activities of staff and students of the Institute of Meteoritics cover a wide range of topics mostly aimed at understanding of the origin and early history of our solar system and the evolution of the planets. Our research during the report period has resulted in the publication of twenty-seven scientific articles in major national and international journals (see 4.4.1., #s 1-27, of this Report), as well as in the publication of twelve abstracts of papers presented at national and international conferences (see 4.4.2., #s 28-39). During the report period, fifteen papers were in press or were submitted for publication to major reviewed journals (see 4.4.3., #s 40-54). Furthermore, twelve abstracts were submitted for publication or are in press (see 4.4.4., #s 55-66). In addition, staff and students presented the results of their research in the form of twenty-seven professional papers at national and international meetings (see 4.4.5., #s 67-93). The extensive involvement of students in original research projects in the Institute of Meteoritics is particularly important for their education and advanced training. Specifically, students were nine times senior authors and fourteen times co-authors of major scientific articles; seven times senior authors and six times co-authors of abstracts; presented four professional talks and co-authored five professional talks before national and international meetings. Staff members of

the Institute were on thirty-nine professional travel assignments in this country and abroad (see 4.2.) and students were on five such assignments. Note that the overwhelming majority of these travels were on funds provided by outside funding agencies through grants and contracts.

We continued to be very successful in attracting research grants and contracts to the Institute of Meteoritics in support of the research activities of staff and students. During the report period, grants and contracts totalling \$923,459.00 were in effect. Funding came from the National Aeronautics and Space Administration, The National Science Foundation, and Sandia National Laboratories.

Our research activities attracted many foreign and domestic researchers to the Institute of Meteoritics for the purpose of short-term study, research and lectures. These were:

1. Dr. K.J. DeNault, Dept. of Earth Sciences, University of Northern Iowa, Cedar Falls, Iowa. May 25 - Aug. 10, 1983.
2. Dr. C. Conrad, Dept. of Geological Sciences, Cornell University, Ithaca, N.Y. June 30 - July 2, 1983.
3. Dr. A. Ehlmann, Dept. of Geology, Texas Christian University, Fort Worth, Texas. July 6-10, 1983.
4. Dr. R. Sellamathu, Dept. of Metallurgy and Materials Engineering, Lehigh University, Bethlehem, Pa. August 15-17, 1983.
5. Dr. A.E. Rubin, National Museum of Natural History, Smithsonian Institution, Washington, D.C. Sept. 1-3, 1983.
6. Dr. E. Anders, Enrico Fermi Institute, Univ. of Chicago, Chicago, Illinois. Oct. 12-14, 1983. Dr. Anders was the Sandia National Laboratories - UNM Colloquium speaker and presented two talks on "Interstellar matter in meteorites" and "Chemical processes in the early solar system - Evidence from meteorites."
7. G. Huss, American Meteorite Laboratory, Denver, Colorado. Oct. 14, 1983.
8. Dr. H. Newsom, Max-Planck Institute of Chemistry, Mainz, West Germany. Jan. 3-6, 1984.

9. Dr. A. Ehlmann, Dept. of Geology, Texas Christian University, Fort Worth, Texas. Jan. 7 - Aug. 1, 1984.
10. Dr. H. Mark, Deputy Administrator, National Aeronautics and Space Administration, Washington, D.C. Jan. 11, 1984.
11. Dr. K. Rasmussen, Institute of Geophysics and Planetary Physics, Univ. of California, Los Angeles, California and Dept. of Geophysics, University of Copenhagen, Copenhagen, Denmark. Jan. 19-21, 1984.
12. Julia Peck, Dept. of Geological Sciences, Harvard University, Cambridge, Mass. Jan 19-21, 1984.
13. Dr. K. Yanai, National Institute of Polar Research, Tokyo, Japan. Feb. 1-4, 1984.
14. Dr. Patricia Foster, Association of American Universities, Claremont, California. Feb. 13, 1984.
15. Dr. K.J. DeNault, Dept. of Earth Sciences, University of Northern Iowa, Cedar Falls, Iowa. March 8-9, 1984.
16. Dr. B. French, NASA Headquarters, Washington, D.C. April 30, 1984.
17. Dr. M. Prinz, American Museum of Natural History, New York, N.Y. June 8, 1984.
18. Dr. A.E. Rubin, Institute of Geophysics and Planetary Physics, University of California, Los Angeles, California. June 7-9, 1984.
19. Dr. C. Sonett, Dept. of Planetary Sciences, University of Arizona, Tucson, Arizona. June 13, 1984.
20. J. McKinley, Rockwell Hanford Operations, Hanford, Washington. June 16, 1984.

Research of staff and students of the Institute of Meteoritics as well as of visiting scholars was also presented in a series of Brown Bag Seminars of the Institute of Meteoritics, as follows (names of student speakers are underlined):

1. Dr. W.K. Conrad (Dept. of Geological Sciences, Cornell University, Ithaca, N.Y.): Xenolithic evidence for the origin of calc-alkaline magmas in the Aleutian Arc. July 1, 1983.
2. Dr. R. Sellamathu (Dept. of Metallurgy and Materials Engineering, Lehigh University, Bethlehem, Pennsylvania): Solidification experiments and their bearing on the origin of iron meteorites. August 16, 1983.
3. Dr. A. Kracher (IM): Relict grains and the significance of collisions during chondrule formation. August 26, 1983.

4. Dr. E.R.D. Scott (IM): Type 3 ordinary chondrites - Metamorphism, brecciation and parent bodies. August 26, 1983.
5. Dr. A.E. Rubin (National Museum of Natural History, Smithsonian Institution, Washington, D.C.): Inclusions in brecciated enstatite chondrites. September 2, 1983.
6. G. Lumpkin (Dept. of Geology, UNM): Electron microscopy of carbonaceous matter in acid resistant fractions of Allende and other carbonaceous meteorites. Nov. 4, 1983.
7. D. Lusby (IM): Metamorphism, meteorite parent bodies and the matrix of ordinary chondrites. Nov. 9, 1983.
8. S. Recca (IM): Huss matrix, dust balls, and speculations of chondrule formation. Nov. 11, 1983.
9. Sheila Seaman (Dept. of Geology, UNM): Oxygen isotope anomalies in meteorites. Nov. 16, 1983.
10. Cecelia Williams (IM): Petrology of some meteoritic regolith breccias. Nov. 21, 1983.
11. M. Bersch (IM): Bulk Moon composition - An earth-based approach. Nov. 23, 1983.
12. Tammy Dickinson (IM): Petrogenesis of Apollo 14 aluminous mare basalts. Nov. 30, 1983.
13. Dr. Cyrena A. Goodrich (IM): Phosphoran pyroxene and olivine in silicate inclusions in iron-carbon alloy from Disko Island. Dec. 1, 1983.
14. R. Rose (IM): A review of the evidence indicating a Martian origin for the SNC achondrites. Dec. 2, 1983.
15. Dr. H. Newsom (Max-Planck Institute of Chemistry, Mainz, West Germany): The formation of the Earth and Moon - New evidence from tungsten and molybdenum. Jan. 3, 1984.
16. Dr. K. Rasmussen (Institute of Geophysics and Planetary Physics, Univ. of California, Los Angeles, Calif. and Dept. of Geophysics, Univ. of Copenhagen, Copenhagen, Denmark): New metallographic cooling rates of groups IIIAB iron meteorites. Jan. 20, 1984.
17. Dr. G.J. Taylor (IM): A close look at type 3 ordinary chondrites. Feb. 17, 1984.
18. Dr. G.J. Taylor (IM): Primitive nature of ordinary chondrite matrix material. March 6, 1984.
19. Dr. Cyrena A. Goodrich (IM): The formation of metallic iron in mafic magmas - The role of carbon (clues from native iron in Disko Island basalt). March 6, 1984.

20. Tammy Dickinson (IM): Apollo 14 aluminous rake basalts and their link to KREEP. March 8, 1984.
21. Dr. Cyrena A. Goodrich (IM): An apatite-rich lithology from lunar meteorite ALHA81005 - An example of magma mixing. March 8, 1984.
22. Dr. E.R.D. Scott (IM): Petrology of metamorphosed carbonaceous chondrites. March 8, 1984.
23. Dr. E.R.D. Scott (IM): Matrix material in type 3 ordinary chondrites - Composition and relationships with chondrules. March 8, 1984.
24. Dr. K. Keil (IM): Soil composition of Mars. April 17, 1984.
25. Dr. A.E. Rubin (Institute of Geophysics and Planetary Physics, Univ. of California, Los Angeles, California): Coarse-grained chondrule rims and their implications for the genesis of chondrules. June 8, 1984.
26. Cecelia Williams (IM): Petrology of some ordinary chondrite regolith breccias - Implications for parent body history. June 25, 1984.
27. S.R. Recca (IM): Fine-grained millimeter-sized objects in ordinary chondrites and their relation to chondrules and matrix. June 25, 1984.

Research in the Institute of Meteoritics, during the report period, concentrated in a number of major areas, all of which are supported by outside funds. Brief summaries of our more significant contributions follow.

3.1.1. Origins of primitive components in type 3 chondrites (NASA supported).

Following our survey of the bulk composition and occurrences of matrix material in type 3 ordinary chondrites we have begun a detailed SEM and electron-probe study of matrix materials and fine-grained objects. Most of these fine-grained, mm-sized objects are complex mixtures of submicron Fe-rich olivine and Fe-poor pyroxene, zoned and unzoned mineral fragments and igneous textured material. We are confident that they are genetically related to chondrules and that further study with help to identify the chondrule precursor materials, and constrain the chondrule forming process.

Neutron activation and oxygen isotope analyses of a lump of matrix material show that this material is relatively unfractionated. It is richer in ^{16}O than almost all known chondrules, but the explanation for this is not clear.

Discovery of Al-rich chondrules, inclusions and fragments in enstatite chondrites shows that refractory objects are common in all kinds of C, O and E chondrites. High temperature nebula events which produced refractory objects occurred in the source regions of all kinds of chondrites. Minor differences on their mineralogy and composition indicate that each region had its own characteristic content of refractory inclusions as well as ferromagnesian chondrules.

3.1.2. Metamorphism and brecciation - origin and evolution of meteorite parent bodies (NASA supported).

Study of the Leoville (CV3) breccia indicates that CM-like material was scattered throughout the region of the solar system where the Leoville ingredients formed; both accreted together before the CV3 parent body was formed.

All but two of the CO3 chondrites we have studied show evidence for metamorphic enrichment of FeO in chondrule rim olivines. Although metamorphic features in CO3 chondrites are well correlated overall, several are breccias of material with different metamorphic histories. Thus in these cases whole-rock metamorphism was much milder than that experienced by some ingredients, as is commonly observed in type 3 ordinary chondrites. However, the well-metamorphosed (type 4-6) material that is abundant in ordinary type 3 chondrites is absent in the CO3 chondrites. Properties of C4-6 chondrites appear consistent with metamorphism of C3-like precursors. Some may have formed from CV3-like material, but none are closely related to CO3 chondrites. C4 chondrites are probably derived from different parent bodies.

Quantitative theoretical studies of equilibration and recrystallization of olivine and low-Ca pyroxene indicate that equilibration is more rapid than recrystallization, consistent with what is observed. Two-stage cooling histories seem to be required to account for the properties of type 4-6 chondrites, arguing in favor of metamorphism in planetesimals prior to the formation of H, L and LL parent bodies.

Two eucrites containing abundant shock melt have been studied: Cachari and Palo Blanco Creek. They have very different shock features and ages: Cachari contains well-defined shock dykes in relatively unshocked material and formed 3 Gy ago; Palo Blanco Creek is an intimate mixture of melt and heavily shocked material that formed about 1 Gy ago.

Kendleton is an L chondrite fragmental breccia that contains a wide variety of shocked and unshocked clasts, like regolith breccias, but it lacks solar-wind gas. Its most interesting clast is a tridymite-pyroxene clast with L group pyroxene composition but a bulk oxygen isotopic composition consistent with origin on the H parent body. Studies of other silica-rich clasts are needed to elucidate the origin of this clast.

3.1.3. Origin of the lunar highland crust (NASA supported)

We studied 14 samples separated from lunar meteorite ALHA81005. Three samples represent an unusual apatite-rich lithology containing 59% plagioclase, 27% olivine, 11% clinopyroxene, and 3% chlorapatite. The texture is unusual, with pyroxene and apatite grains apparently resorbed, with olivine precipitated around them. Although other interpretations are possible, we believe it is most likely that the rock's origin involved magma mixing. Our consortium study of ALHA81005 has also yielded the first trace element data for "hyper-ferroan" anorthosites. REE contents are higher than in most ferroan anorthosites.

We have also made progress on our study of breccia 14304. Several clasts are being analyzed by INAA, and we are studying the general petrologic character of the rock. Our study of minor elements in minerals in pristine rocks is progressing well. Microprobe procedures have been worked out for obtaining low detection limits, and we have begun gathering data.

3.1.4. Apollo 14 mare basalts (NASA supported)

Aluminous mare basalts from breccia 14321 have similar major-element compositions, but show an eight-fold variation in REE. Their genesis was clearly complex and probably involved assimilation of KREEP. We have transferred unused pieces of the samples to L. Nyquist for age dating, and we will work closely with him and his colleagues. We have also separated two basaltic clasts from 14304; these are presently under study.

3.1.5. Core formation and origin of the Moon (NASA supported).

Understanding the genesis of metal in basaltic intrusions on Disko Island, Greenland can help understand aspects of core formation. One possibility raised by Disko studies is that much of Earth's phosphorus inventory is in mantle olivines and pyroxenes, but further study shows that this is unlikely. Nevertheless, pursuing this problem has increased our understanding of phosphorus geochemistry. We are also investigating the behavior of other siderophile to moderately siderophile elements in lunar rocks, with emphasis on mantle evolution.

3.1.6. Ureilites (NASA supported)

Ureilites are igneous rocks containing carbon, so it was logical to apply our knowledge of metallic iron occurrences in Disko Island basalts to the ureilite problem. This comparison lends credence to the idea that ureilites crystallized in a magma containing carbon.

3.1.7 . Long-term alteration effects of basaltic glasses: Implications for modelling the long-term stability of nuclear waste form borosilicate glasses (supported by Argonne National Laboratory).

One of the most critical aspects of the evaluation of radioactive waste forms is the extrapolation of short-term laboratory experiments (usually less than one year) over long periods of geologic time (greater than 10,000 years). The extrapolation requires not only accurate experimental measurements, but also the selection of a correct model (e.g., mechanism of dissolution) for the long-term extrapolation. Basaltic glasses ($\text{SiO}_2 \approx 45$ to 55wt. %) and borosilicate nuclear waste form glasses ($\text{SiO}_2 = 40$ to 50 wt. %) appear to be similar in their dissolution rates and mechanisms, as the SiO_2 content of glass has been shown to have an important effect on the kinetics and reaction mechanisms. In this program, we assembled a research collection of basaltic glasses and completed a preliminary description of their alteration products as a function of their age and geologic environment. The results of later experimental studies can be used to model and predict expected alteration products as a function of time, temperature, pH, Eh, and initial groundwater compositions. The laboratory results can then be compared directly to what is observed for natural glass analogues in various hydrologic systems. With this approach, we endeavour to determine the constraints on models for the long-term release of radionuclides from borosilicate nuclear waste form glasses. As far as we can determine, this is the only avenue that can provide any confidence in, or test of, the postulated long-term behaviour of borosilicate glasses, and it is only on the basis of long-term behaviour that comparisons can be made between borosilicate glass waste forms and alternative waste forms (e.g. SYNROC). The results of such an approach can contribute to an

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evaluation of the use of experimental data (e.g. MCC tests) in licensing procedures.

3.1.8. Petrologic and geochemical investigations in support of engineering and design studies for a high-level nuclear waste repository in silicic volcanic tuff, Nevada Test Site (supported by Sandia Natl. Laboratories).

The petrography, petrology and geochemistry of any medium considered for storage of commercial high-level nuclear waste (CHLW) are indirectly important parameters in repository design and construction. Thermomechanical and hydrologic properties of the host rock are engineering properties of prime concern; host-rock mineralogy, texture and fabric are important in understanding variations in these properties. A thorough understanding of the geochemistry of the emplacement medium is critical in understanding its response to chemical changes and thermal excursions imposed by emplacement of CHLW.

Sandia National Laboratories (SNL) in cooperation with the U.S. Geological Survey and Los Alamos National Laboratory, has been contracted by the Department of Energy (DOE) to oversee site selection, design and construction of a CHLW repository in silicic volcanic tuff in the Nevada Test Site (NTS) region about 90 miles northwest of Las Vegas. Work by SNL for the past several years has focused on two locations at NTS, U12g-Tunnel and Yucca Mountain. The U12g-Tunnel (G-Tunnel) is the site of medium-specific thermomechanical experiments and heater tests in welded and non-welded tuff designed to aid in designing experimental and site-characterization techniques and in assessing the feasibility (from a thermal and mechanical viewpoint) of emplacing nuclear waste in silicic tuffs. Part of our research involves characterization of the petrology and geochemistry of the tuffs in the G-Tunnel

test facility in support of SNL's experiments. Yucca Mountain, located about 21 miles southwest of G-Tunnel, is being considered by DOE as one of several potential locations for construction of a CHLW repository in the continental U.S. SNL, in cooperation with the U.S. Geological Survey and Los Alamos National Laboratory, is involved with siting the repository and is the prime contractor for design and construction. We provide petrologic and geochemical data on outcrop and core samples in support of physical property, thermal and mechanical tests on rocks from Yucca Mountain, and during this year have largely completed a cooperative model study with SNL personnel which integrates petrology and bulk properties to evaluate mechanical test results. Other ongoing work involves study of a variety of mineralogical, geochemical and volcanological aspects of tuffs subjected to thermomechanical tests in G-Tunnel, evaluation of petrologic and geochemical similarities and differences between G-Tunnel tuffs and potential repository horizons at Yucca Mountain, and preparation for publication (with SNL personnel) of parts of our work of interest to those outside DOE contracted agencies in appropriate professional journals.

3.1.9. Mineralogy of salt samples from the WIIP site (supported by Sandia Natl. Laboratories).

Halite samples from the WIIP site were studied in detail for their mineralogical compositions. Besides halite, usually the major mineral, these rocks contain a variety of other minerals that effect the physical properties of the rocks. We determined the presence of water-insoluble minerals in these samples by dissolving water-soluble components by extensive treatment with distilled water and subsequent x-ray diffraction analysis of the residues. The residues were further treated with EDTA and the EDTA-insoluble portions (mostly clays, quartz) were also subjected to x-ray diffraction analysis.

3.2 Teaching

Teaching activities of the Institute of Meteoritics staff concerned formal classes in Physical Geology (101L), Earth Resources (211), Mineralogy I (311L), Petrography of Opaque Ores (512L), Meteoritics and Cosmochemistry (513L), and Electron Microprobe Analysis and Scanning Electron Microscopy (518L). In addition, many arranged courses were given to certify Department of Geology and Institute of Meteoritics faculty, staff and students as well as visiting scholars as operators of the electron microprobe and the scanning electron microscope. A great deal of emphasis was given to the direction and supervision of graduate student research projects, problems courses, theses and dissertations, as well as the publication of these research results (see 4.4 of this Report).

During the report period, the following graduate and under-graduate students carried out research in the Institute of Meteoritics and were supported by NASA grant and other contract funds:

Graduate students

1. M.G. Bersch
2. Tammy L. Dickinson
3. M.J. Jercinovic
4. D. Lusby
5. J.P. McKinley
6. Susan G. McKinley
7. S.I. Recca
8. G. Sarkar
9. Cecelia V. Williams

Undergraduate student

1. Amy Dixon

The following students completed their degrees in the Department of Geology, UNM, with research done in the Institute of Meteoritics

1. Tammy L. Dickinson: Petrogenesis of Apollo 14 aluminous mare basalts. M.S., 1984.
2. J.P. McKinley: Chemistry and Petrology of Apollo 16 rake samples: Impact melt sheets, nature of the Cayley Plains and Descartes Mountains, and geologic history. M.S., 1983.

During the report period, the following post-doctoral fellows were in residence in the Institute of Meteoritics for advanced training and research:

1. Dr. A. Kracher (Ph.D., Univ. of Vienna, Austria).
2. Dr. Cyrena A. Goodrich (Ph.D., Cornell University, Ithaca, N.Y.).

3.3. Public Service

Public service activities of members of the staff of the Institute of Meteoritics as well as students are devoted to maintenance and enlargement of the Institute's outstanding collection of meteorites and to making research specimens available to Institute members as well as colleagues in the USA and abroad. Many special, private showings of the Collection, the Museum, as well as lunar samples were given, frequently on weekends and after-duty hours. Furthermore, many public lectures on meteorites, lunar geology and high-level nuclear waste disposal were given in the State of New Mexico, the USA and abroad. Finally many rocks suspected to be of meteoritic origin and brought to the Institute by the public were analyzed without charge, and major efforts were made to educate the interested public in the recognition and recovery of meteorites (see 4.9. of this Report).

4. Composite of Individual Biographical Supplements4.1. Advanced Studies

M.G. Bersch

1. Continued progress towards Ph.D. degree in Geology with research in Institute of Meteoritics on "Major and minor element distributions in pyroxenes and olivines from pristine lunar highland rocks".

Tammy L. Dickinson

1. Completed M.S. degree in geology with research in Institute of Meteoritics on "Petrogenesis of Apollo 14 aluminous mare basalts". Began research on Ph.D. dissertation in Geology, with research in Institute of Meteoritics.

M.J. Jercinovic

1. Continued progress towards M.S. degree in Geology with research in Institute of Meteoritics on "Alteration of subglacially-produced hyaloclastites in north-central British Columbia and implications for the surface of Mars".

D. Lusby

1. Continued progress towards M.S. degree in Geology with research in Institute of Meteoritics on "Lithification of type 3 and 4 ordinary chondrites and achondrite regolith breccias".

J.P. McKinley

1. Completed M.S. degree in Geology with research in Institute of Meteoritics on "Chemistry and Petrology of Apollo 16 rake samples: Impact melt sheets, nature of the Cayley Plains and Descartes Mountains, and geologic history". Began research on Ph.D. dissertation in Geology on "Low-temperature alteration of Columbia River basalt".

Susan J. McKinley

1. Continued progress towards M.S. degree in Geology with research in Institute of Meteoritics on "Petrology and classification of 145 small meteorites from the 1977 Allan Hills collection".

S.I. Recca

1. Continued progress towards M.S. degree in Geology with research in Institute of Meteoritics on "Fine-grained millimeter-sized objects in type 3 ordinary chondrites and their relation to chondrules and matrix".

Cecelia V. Williams

1. Continued progress towards M.S. degree in Geology with research in Institute of Meteoritics on "Cooling rates of clasts in ordinary chondrite regolith breccias: Implications for parent body history".
- 4.2. Sabbaticals, Leaves of Absence, Summer Teaching Elsewhere, Travel, etc.

Klaus Keil

1. Münster, West-Germany. Visited Department of Mineralogy and Petrology, University of Münster, and reviewed joint work with graduate student A. Bischoff. July 25-26, 1983.
2. Carlsbad, New Mexico. Visited WIIP site and selected samples for study. November 8, 1983.
3. Mercury, Nevada. Carried out research at the Nevada Test Site. November 16-17, 1983.
4. Farmington, New Mexico. Presented talk before the Four Corners Geological Society. January 13-14, 1984.
5. Houston, Texas. Attended Lunar and Planetary Science Conference at the L.P. Johnson Space Center, chaired one session, co-authored five talks, and chaired Lunar Science Council Meeting. March 11-18, 1984.
6. Heidelberg, West-Germany. Attended European Planetary Science Symposium and presented invited paper. April 23-29, 1984.
7. Münster, West-Germany. Visited Department of Mineralogy and Petrology, University of Münster, presented talk, and discussed joint research with Professor D. Stöffler and graduate student A. Bischoff. May 16-19, 1984.
8. Toas, New Mexico. Presented invited talk at German Summer School, Department of Modern and Classical Languages, University of New Mexico. June 29 - July 1, 1984.

G.J. Taylor

1. Houston, Texas. Attended meeting of Group Chiefs of the Lunar and Planetary Review Panel at the Lunar and Planetary Institute. September 20-21, 1983.
2. Houston, Texas. Studied lunar rock 14304 at the Lunar Curatorial Facility, Johnson Space Center. September 26-29, 1983.
3. Houston, Texas. Attended meeting of the Lunar and Planetary Sample Team at the Lunar and Planetary Institute. September 30 - October 2, 1983.
4. Houston, Texas. Attended meeting of the Lunar and Planetary Review Panel at the Lunar and Planetary Institute. October 23-28, 1983.
5. Houston, Texas. Attended meeting of the Organizing Committee for the Origin of the Moon Conference at the Lunar and Planetary Institute. November 11, 1983.
6. Pasadena, California. Attended meeting of present and past chairmen of the Lunar and Planetary Review Panel and the Planetary Geology Review Panel at the Jet Propulsion Laboratory. November 16, 1983.

7. Washington, D.C. Met with Group Chiefs of the Lunar and Planetary Review Panel, program managers and the chief of the Solar System Exploration Division at NASA Headquarters to discuss funding problems and recent research advances in planetary science. November 21-22, 1983.
8. Houston, Texas. Attended meeting of the Lunar and Planetary Sample Team at the Lunar and Planetary Institute. December 10-12, 1983.
9. Pasadena, California. Gave talk at weekly seminar in the Division of Geological and Planetary Sciences, California Institute of Technology. February 20, 1984.
10. Houston, Texas. Attended meeting of the Lunar and Planetary Sample Team at the Lunar and Planetary Institute. March 9-11, 1984.
11. Houston, Texas. Attended 15th Lunar and Planetary Science Conference, L.B. Johnson Space Center. March 12-16, 1984.
12. Pasadena, California. Met at California Institute of Technology with L. Soderblom, Chairman of the Planetary Geology Review Panel, to discuss merging of this panel with the Lunar and Planetary Review Panel. April 18, 1984.
13. Los Alamos, New Mexico. Attended Lunar Base Workshop at Los Alamos National Laboratory. April 23-27, 1984.
14. Pasadena, California. Attended meeting of the Planetary Geoscience Working Group at the Jet Propulsion Laboratory. May 21, 1984.
15. Houston, Texas. Attended meeting of the Lunar and Planetary Sample Team at the Lunar and Planetary Institute. June 8-9, 1984.

E.R.D. Scott

1. Mainz, West-Germany. Attended meetings of the Leonard Medal Committee and Council of the Meteoritical Society. September 4, 1983.
2. Mainz, West-Germany. Attended the Annual Meeting of the Meteoritical Society, chaired one session and gave one talk. September 5-9, 1983.
3. London, England. Visited the British Museum (Natural History) and selected meteorites for study. September 20, 1983.
4. Washington, D.C. Attended Antarctic Meteorite Working Group Meeting, at the Smithsonian Institution, U.S. National Museum (Natural History). September 23-25, 1983.
5. Houston, Texas. Attended the 15th Lunar and Planetary Science Conference at the NASA L.B. Johnson Space Center, chaired one session and gave one talk. March 12-16, 1984.
6. Tokyo, Japan. Attended the 9th Symposium on Antarctic Meteorites at the National Institute of Polar Research, and presented one invited talk. March 22-24, 1984.

7. Houston, Texas. Attended the Antarctic Meteorite Working Group Meeting at the Lunar and Planetary Institute. April 6-8, 1984.

Cyrena A. Goodrich

1. Houston, Texas. Worked on lunar breccia 14304 at the L.B. Johnson Space Center. October 26-30, 1983.
2. Houston, Texas. Worked on lunar breccia 14304 at the L.B. Johnson Space Center. November 24-27, 1983.
3. San Francisco, California. Attended meeting of the American Geophysical Union and presented paper. December 5-9, 1983.
4. Houston, Texas. Attended 15th Lunar and Planetary Science Conference at L.B. Johnson Space Center and presented two papers. March 11-16, 1984.
5. Pasadena, California. Presented invited paper in the Division of Geological and Planetary Sciences, California Institute of Technology. April 25, 1984.

G.H. Conrad

1. Boston, Mass. Attended course on maintenance of JEOL 733 Superprobe at JEOL Headquarters. May 20-27, 1984.

J.R. Connolly

1. Reno, Nevada. Attended short course on "Volcanic rocks and their vent areas", MacKay School of Mines. October 10-15, 1983.
2. Mercury, Nevada. Research at the Nevada Test Site. November 16-18, 1983.
3. Mercury, Nevada. Research at the Nevada Test Site. May 21-22, 1984.

A. Kracher

1. Mainz, West-Germany. Attended the Annual Meeting of the Meteoritical Society, chaired one session, and presented one talk. September 5-9, 1983.
2. Vienna, Austria. Visited the Natural History Museum and studied meteorites. September 10-15, 1983.
3. Ames, Iowa. Visited Department of Earth Sciences, Iowa State University, and presented one talk. October 6, 1983.

Tammy L. Dickinson

1. Indianapolis, Indiana. Attended Geological Society of America Meeting. Oct. 30 - Nov. 3, 1983.

2. Houston, Texas. Attended 15th Lunar and Planetary Science Conference at L.B. Johnson Space Center and presented one paper. March 11-16, 1984.
3. Durango, Colorado. Attended Rocky Mountain Section Meeting, Geological Society of America. May 11-12, 1984.

M.J. Jercinovic

1. Washington, D.C. Visited Department of Mineral Sciences, National Museum of Natural History, Smithsonian Institution to select glassy oceanic dredge samples for research concerning the alteration of basaltic glass. Oct. 10-13, 1983.
2. Oahu and Hawaii, Hawaii. Collected hyaloclastic tuffs and glassy basalts for study of alteration of basaltic glass. May 24 - June 1, 1984.

J.P. McKinley

1. Madison, Wisconsin. Attended Tracor Northern Company school for operation of TN-2000.

4.3 New Scholastic Honors, Fellowships, etc.

Klaus Keil

1. Outstanding Educator, University of New Mexico Alumni Association.
2. Reappointed Research Associate, Department of Mineral Sciences, American Museum of Natural History, New York, N.Y., for 1984-1987.
3. Recipient of the NASA Group Achievement Award.

G.J. Taylor

1. Recipient of the NASA Group Achievement Award.

E.R.D. Scott

1. Recipient of the NASA Group Achievement Award.

D. Lusby

1. Received Department of Geology, University of New Mexico, scholarship.

Tammy L. Dickinson

1. Received Rodney C. Rhodes Memorial Scholarship, Department of Geology, University of New Mexico.

J.P. McKinley

1. Received two year NORCUS fellowship to conduct dissertation research at Rockwell Hanford Operations and Pacific Northwest Laboratory - Batelle Memorial Institute. December, 1983.

4.4. Publications

Listed are only publications that have appeared, are in press or have been submitted during the report period. Not listed are papers that are in preparation. Since most publications of the Institute of Meteoritics are co-authored by several members of the Institute, only one list of publications is given, rather than duplicating listings on an individual - by - individual basis. Note that to draw attention to the active participation of students in research of the Institute of Meteoritics, names of student authors and speakers have been underlined.

4.4.1. Scientific Articles Published in Major National and International Reviewed Journals; Scientific Publications of the Institute of Meteoritics; as well as Books.

1. P.H. Warren, G.J. Taylor, K. Keil, D.N. Shirley and J.T. Wasson: Petrology and chemistry of two "large" granite clasts from the Moon. Earth Planet. Sci. Lett. 64, 175-185, 1983.
2. P.H. Warren, G.J. Taylor and K. Keil: Regolith breccia Allan Hills A81005: Evidence of lunar origin, and petrography of pristine and non-pristine clasts. Geophys. Res. Lett. 10, 779-782, 1983.
3. A.E. Rubin, A. Rehfeldt, E. Peterson, K. Keil and E. Jarosewich: Fragmental breccias and the collisional evolution of ordinary chondrite parent bodies. Meteoritics 18, 179-196, 1983.
4. P.H. Warren, J.G. Taylor, K. Keil, G.W. Kallemeyer, D.N. Shirley and J.T. Wasson: Seventh foray: Whitlockite-rich lithologies, a diopside-bearing troctolitic anorthosite, ferroan anorthosites, and KREEP. Proc. 14th Lunar Planet. Sci. Conf., Part 1, J. Geophys. Res. 88, B 151-B164, 1983.
5. A. Bischoff, A.E. Rubin, K. Keil and D. Stoffler: Litification of gas-rich chondrite regolith breccias by grain boundary and localized shock melting. Earth Planet Sci. Lett. 66, 1-10, 1983.
6. G.J. Taylor, E.R.D. Scott and K. Keil: Cosmic setting for chondrule formation. In "Chondrules and their origins" (ed. E.A. King), Lunar and Planetary Institute, Houston, Texas, 262-278, 1983.
7. J.P. McKinley, G.J. Taylor, K. Keil, M.S. Ma and R.A. Schmitt: Apollo 16: Impact melt sheets, contrasting nature of the Cayley Plains and Descartes Mountains, and geologic history. Proc. 14th Lunar Planet Sci. Conf., Part 2, J. Geophys. Res. 89, B513-B524, 1984.
8. A. Kracher, E.R.D. Scott and K. Keil: Relict and other anomalous grains in chondrules: Implications for chondrule formation. Proc. 14th Lunar Planet. Sci. Conf., Part 2, J. Geophys. Res. 89, B559-B566, 1984.

9. S.G. McKinley, E.R.D. Scott and K. Keil: Composition and origin of enstatite in E chondrites. Proc. 14th Lunar Planet. Sci. Conf., Part 2, J. Geophys. Res. 89, B567-B572, 1984.
10. A. Bischoff and K. Keil: Al-rich objects in ordinary chondrites: Related origin of carbonaceous and ordinary chondrites and their constituents. Geochim. Cosmochim. Acta 48, 693-709, 1984.
11. T. Dickinson, G.J. Taylor, K. Keil, R.A. Schmitt, M.R. Smith and S.S. Hughes: Apollo 14 aluminous mare basalts and their link to KREEP. Lunar Planet. Sci. XV, 224-225, 1984.
12. C.A. Goodrich: The formation of metallic iron in mafic magmas: The role of carbon (clues from native iron in Disko Island basalts). Lunar Planet. Sci. XV, 312-313, 1984.
13. C.A. Goodrich, G.J. Taylor and K. Keil: An apatite-rich lithology from lunar meteorite ALHA81005 - An example of magma mixing? Lunar Planet. Sci. XV, 314-315, 1984.
14. C.A. Goodrich, G.J. Taylor, K. Keil, W.V. Boynton and D.H. Hill: Petrology and chemistry of hyper-ferroan anorthosite and other clasts from lunar meteorite ALHA81005. Lunar Planet. Sci. XV, 316-317, 1984.
15. E.R.D. Scott, G.J. Taylor and K. Keil: Petrology of metamorphosed carbonaceous chondrites. Lunar Planet. Sci. XV, 740-741, 1984.
16. G.J. Taylor, E.R.D. Scott, K. Keil, W.V. Boynton, D.H. Hill, T.K. Mayeda and R.N. Clayton: Primitive nature of ordinary chondrite matrix materials. Lunar Planet. Sci. XV, 848-849, 1984.
17. S.G. McKinley and K. Keil: Petrology and classification of 145 small meteorites from the 1977 Allan Hills collection. In "Field and Laboratory Investigations of Meteorites from Victoria Land, Antarctica" (eds. A.B. Marvin and B. Mason), Smiths. Contr. Earth Sci. 26, 55-71, 1984.
18. E.R.D. Scott: Classification, metamorphism and brecciation of type 3 chondrites from Antarctica". In "Field and Laboratory Investigations of Meteorites from Victoria Land, Antarctica", (eds. U.B. Marvin and B. Mason), Smiths. Contr. Earth Sci. 26, 73-94, 1984.
19. C.A. Goodrich: Phosphoran pyroxene and olivine in silicate inclusions in natural iron-carbon alloy, Disko Island, Greenland. Geochim. Cosmochim. Acta 48, 1115-1126, 1984.
20. G.W. Kallemeyn and P.H. Warren: Compositional implications regarding the lunar origin of the ALHA81005 meteorite. Geophys. Res. Lett. 10, 833-836, 1983.
21. E.R.D. Scott and G.J. Taylor: Chondrules and other components in C, O and E chondrites: Similarities in their properties and origins. Proc. 14th Lunar Planet. Sci. Conf. Part 1, J. Geophys. Res. 88, B275-B286, 1983.

22. R.W. Hinton and A. Bischoff: Ion microprobe magnesium isotope analysis of plagioclase and hibonite from ordinary chondrites. Nature 308, 169-172, 1984.
23. P.H. Warren: Primordial degassing, lithosphere thickness, and the origin of komatiites. Geology 12, 335-338, 1984.
24. S.G. Wells, T.F. Bullard, C.D. Condit, M. Jercinovic, D.E. Jercinovic and R.P. Lozinsky: Geomorphic processes on the valley floor of the Rio Puerco. In "Chaco Canyon Country", Amer. Geomorph. Field Group Field Trip Guidebook (S.G. Wells, D.W. Love and T.W. Gardner, eds.), Adobe Press, Albuquerque, N.M., 37-39, 1983.
25. G.J. Taylor: Moon rocks. Planetary Report IV, 4-6, 1984.
26. G.J. Taylor: Petrology, magma are lively subjects. Geotimes 29, 26-29, 1984.
27. K. Marti, U. Aeschlimann, P. Eberhardt, J. Geiss, N. Grogler, D.T. Jost, J.C. Laul, M.S. Ma, R.A. Schmitt and G.J. Taylor: Pieces of the ancient lunar crust: Ages and composition of clasts in consortium breccia 67915. Proc. 14th Lunar Planet. Sci. Conf., J. Geophys. Res. Part 1, 88, Supplement, B165-B175, 1983.
- 4.4.2 Abstracts Published in Proceedings of Meetings and in Journals.
28. E.R.D. Scott, G.J. Taylor and K. Keil: Matrix material in type 3 ordinary chondrites - Composition and relationships with chondrules. Ninth Symp. Antarctic Meteorites, Nat. Inst. Polar Res., Tokyo, Japan, 29-30, 1984.
29. K.J. DeNault and T.L. Dickinson: A new locality for the mineral fuchsite in Wyoming. Geol. Soc. Amer. Abstracts with Program, 16, No. 4, 1984.
30. A. Bischoff, K. Keil, and D. Stoffler: Ca-Al-rich objects in ordinary chondrites: Significance for the origin of chondrules and chondrites. Fortschr. Mineral., Beiheft 1, 24-25, 1983.
31. R.W. Bild, K.L. Robinson, E.R.D. Scott and M. Prinz: Origins of mesosiderites as inferred from instrumental neutron activation analysis of their metallic Fe,Ni. Meteoritics 18, 266-267, 1983.
32. A. Bischoff, K. Keil and D. Stoffler: Abundant Al-rich objects in ordinary chondrites. Meteoritics 18, 268-269, 1983.
33. W.V. Boynton, D.H. Hill, A. Wark and A. Bischoff: Trace elements in Ca-Al-rich chondrules in the Dhajala (H3) chondrite. Meteoritics 18, 270-271, 1983.
34. A. Kracher, E.R.D. Scott and K. Keil: Relict grains and the significance of collisions during chondrule formation. Meteoritics 18, 329-330, 1983.

35. E.R.D. Scott, G.J. Taylor and K. Keil: Type 3 ordinary chondrites - Metamorphism, brecciation and parent bodies. Meteoritics 18, 393-394, 1983.
36. P.H. Warren: Lunar Mg-rich rocks as analogs of terrestrial komatiites: Implications of early outgassing of Earth's volatile elements. Meteoritics 18, 417, 1983.
37. L. Jovanovic, G. Kurat and A. Kracher: On the thermal history of ultramafic xenoliths from Kapfenstein, Austria. Internat. Geol. Congress, Moscow, USSR, 1984.
38. F. Simova, G. Kurat and A. Kracher: Coffinite from the Zirkovski VRH (Yugoslavia), Forstau (Austria) and Ambrosia Lake (USA) deposits. Internat. Geol. Congress, Moscow, USSR, 1984.
39. C. Byers, R.C. Ewing, M.J. Jercinovic and K. Keil: A natural basaltic glass analogue for the long-term extrapolation of nuclear waste glass aging. Ann. Meet. Materials Res. Soc., Boston, 1984.
- 4.4.3. Papers Submitted or in Press
40. A. Bischoff, K. Keil and D. Stoffler: Perovskite-hibonite-spinel-bearing inclusions and Al-rich chondrules and fragments in enstatite chondrites. Chemie der Erde (submitted).
41. A. Okada, K. Keil and G.J. Taylor: Petrology of the Norton County enstatite achondrite and history of its parent body. Chemie der Erde (submitted).
42. A. Okada, K. Keil, B.F. Leonard and I.D. Hutcheon: Schöllhornite, $\text{Na}_{0.3}(\text{H}_2\text{O})_1[\text{CrS}_2]$, a new mineral in the Norton County enstatite achondrite. Amer. Mineral. (in press).
43. A.E. Rubin and K. Keil: Size-distributions of chondrule types in the Inman and Allan Hills A77011 L3 chondrites. Meteoritics (in press).
44. A. Kracher, K. Keil, G.W. Kallemeyn, J.T. Wasson and R.N. Clayton: Composition and petrology of inclusions in the Leoville chondrite: implications for accretion of the CV parent body. Geochim. Cosmochim. Acta (submitted).
45. E.R.D. Scott: Pairing of meteorites found in Victoria Land, Antarctica. Proc. Ninth Symp. Antarctic Meteorites (submitted).
46. C.A. Goodrich: Phosphoran pyroxene and olivine in silicate inclusions in natural iron-carbon alloy, Disko Island, Greenland (addendum). Geochim. Cosmochim. Acta (in press).
47. C.A. Goodrich, G.J. Taylor and K. Keil: An apatite-rich, ferroan, mafic lithology from lunar meteorite ALHA81005. Proc. 15th Lunar Planet. Sci. Conf., J. Geophys. Res. (in press).

48. C.A. Goodrich, G.J. Taylor, K. Keil, W.V. Boynton and D.H. Hill: Petrology and chemistry of hyper-ferroan anorthosite and other clasts from lunar meteorite ALHA81005. Proc. 15th Lunar Planet. Sci. Conf., J. Geophys. Res. (in press).
49. E.R.D. Scott and G.J. Taylor: Petrology of type 4-6 carbonaceous chondrites. Proc. 15th Lunar Planet. Sci. Conf., J. Geophys. Res. (in press).
50. E.R.D. Scott, A.E. Rubin, G.J. Taylor and K. Keil: Matrix material in type 3 ordinary chondrites - occurrence, heterogeneity and relationship with chondrules. Geochim. Cosmochim. Acta (in press).
51. C.A. Goodrich: Cohenite: not a pressure indicator, but why is it metastable? Geochim. Cosmochim. Acta (submitted).
52. D.D. Bogard, G.J. Taylor, K. Keil, M.R. Smith and R.A. Schmitt: Impact melting and brecciation of the Cachari eucrite 3.0 G.Y. ago. Geochim. Cosmochim. Acta (in press).
53. K. Keil: Soil composition of Mars. Proc. European Planet. Sci. Symp., Heidelberg (in press).
54. W. Lutze, G. Malow, R.C. Ewing, M.J. Jercinovic and K. Keil: Long-term alteration effects of basaltic glasses: Implications for modelling the long-term stability of nuclear waste form borosilicate glasses. Nature (submitted).
- 4.4.4. Abstracts Submitted or in Press
55. A. Bischoff, K. Keil and D. Stoffler: Perovskite-hibonite-spinel-bearing inclusions and Al-rich chondrules and fragments in enstatite chondrites. Meteoritics (submitted).
56. A. Okada, K. Keil, B.F. Leonard and I.D. Hutcheon: Schöllhornite, $\text{Na}_3(\text{H}_2\text{O})_1[\text{CrS}_2]$, a new mineral in the Norton County enstatite achondrite. Meteoritics (submitted).
57. G.J. Taylor and E.R.D. Scott: A quantitative look at chondrite metamorphism. Meteoritics (submitted).
58. E.R.D. Scott and G.J. Taylor: Metamorphism of type 3 carbonaceous and ordinary chondrites. Meteoritics (submitted).
59. S.I. Recca, E.R.D. Scott, G.J. Taylor and K. Keil: Fine-grained millimeter-sized objects in type 3 ordinary chondrites and their relation to chondrules and matrix. Meteoritics (submitted).
60. A.J. Ehlmann, K. Keil, E.R.D. Scott, H. Weber, L. Schultz, T.K. Mayeda and R.N. Clayton: The Kendleton L4 fragmental breccia: parent body surface history. Meteoritics (submitted).

61. C.V. Williams, A.E. Rubin, K. Keil and A. San Miguel: Petrology of some ordinary chondrite regolith breccias: implications for parent body history. Meteoritics (submitted).
 62. T. Dickinson, K. Keil, L. LaPaz, D.E. Bogard, R.A. Schmitt, M.R. Smith and M. Rhodes: Petrology of the Palo Blanco Creek eucrite and age of shock history. Meteoritics (submitted).
 63. C.A. Goodrich: Ureilite petrogenesis: Clues from a graphite and metal-bearing intrusive complex, Disko Island, Greenland. Meteoritics (submitted).
 64. C.A. Goodrich and S. Barnes: Is phosphorus predictably incompatible in igneous process? In "Origin of the Moon Conf.", Kona, Hawaii (in press).
 65. H.E. Newsom: Constraints on the origin of the Moon from molybdenum and other siderophile elements. In "Origin of the Moon Conf.", Kona, Hawaii (in press).
 66. T. Dickinson and H.E. Newsom: Ge abundances in the lunar mantle and implications for the origin of the Moon. In "Origin of the Moon Conf.", Kona, Hawaii (in press).
- 4.4.5. Professional Papers Read (Speaker⁺)
67. K. Keil⁺: Origin of meteorites - From asteroids, comets, moon and Mars. Sandia National Laboratories, Albuquerque, N.M. March 28, 1984.
 68. T. Dickinson⁺, G.J. Taylor, K. Keil, R.A. Schmitt, M.R. Smith and S.S. Hughes: Apollo 14 aluminous mare basalts and their link to KREEP. 15th Lunar and Planetary Science Conference, Houston, Texas. March 11-16, 1984.
 69. C.A. Goodrich⁺: The formation of metallic iron in mafic magmas: The role of carbon (clues from native iron in Disko Island basalts). 15th Lunar and Planetary Science Conference, Houston, Texas. March 11-16, 1984.
 70. C.A. Goodrich⁺, G.J. Taylor and K. Keil: An apatite-rich lithology from lunar meteorite ALHA81005 - An example of magma mixing? 15th Lunar and Planetary Science Conference, Houston, Texas. March 11-16, 1984.
 71. E.R.D. Scott⁺, G.J. Taylor and K. Keil: Petrology of metamorphosed carbonaceous chondrites. 15th Lunar and Planetary Science Conference, Houston, Texas. March 11-16, 1984.
 72. G.J. Taylor⁺, E.R.D. Scott, K. Keil, W.V. Boynton, D.H. Hill, T.K. Mayeda and R.N. Clayton: Primitive nature of ordinary chondrite matrix materials. 15th Lunar and Planetary Science Conference, Houston, Texas. March 11-16, 1984.
 73. E.R.D. Scott⁺, G.J. Taylor and K. Keil: Matrix material in type 3 ordinary chondrites - Composition and relationship with chondrules. 9th Symposium on Antarctic Meteorites, Tokyo, Japan. March 22, 1984.

74. K.J. DeNault⁺ and T.L. Dickinson: A new locality for the mineral fuchsite in Wyoming. Geological Society of America Meeting, Indianapolis, Indiana. Oct. 30 - Nov. 3, 1983.
75. R.W. Bild⁺, K.L. Robinson, E.R.D. Scott and M. Prinz: Origins of mesosiderites as inferred from instrumental neutron activation analysis of their metallic Fe,Ni. 46th Meteoritical Society Meeting, Mainz, West-Germany. September 5-9, 1983.
76. A. Bischoff⁺, K. Keil and D. Stoffler: Abundant Al-rich objects in ordinary chondrites. 46th Meteoritical Society Meeting, Mainz, West-Germany. September 5-9, 1983.
77. W.V. Boynton⁺, D.H. Hill, D.A. Wark and A. Bischoff: Trace elements in Ca-Al-rich chondrules in the Dhajala (H3) chondrite. 46th Meteoritical Society Meeting, Mainz, West-Germany. September 5-9, 1983.
78. A. Kracher⁺, E.R.D. Scott and K. Keil: Relict grains and the significance of collisions during chondrule formation. 46th Meteoritical Society Meeting, Mainz, West-Germany. September 5-9, 1983.
79. E.R.D. Scott⁺, G.J. Taylor and K. Keil: Type 3 ordinary chondrites - metamorphism, brecciation and parent bodies. 46th Meteoritical Society Meeting, Mainz, West-Germany. September 5-9, 1983.
80. P.H. Warren⁺: Lunar Mg-rich rocks as analogs of terrestrial komatiites: Implications of early outgassing of Earth's volatile elements. 46th Meteoritical Society Meeting, Mainz, West-Germany. September 5-9, 1983.
81. E.R.D. Scott⁺: Metamorphism, brecciation and parent bodies of type 3 ordinary chondrites. Department of Mineral Sciences, U.S. National Museum (Natural History), Smithsonian Institution, Washington, D.C. September 26, 1983.
82. Tammy L. Dickinson⁺: Lunar basalts. Department of Geology, University of Northern Iowa, Cedar Falls, Iowa. January 13, 1984.
83. Cyrena A. Goodrich⁺: Petrogenesis of natural iron-carbon alloys in Tertiary basalt, Disko Island, West-Greenland. Department of Geology, University of New Mexico, Albuquerque, N.M. March 22, 1984.
84. Cyrena A. Goodrich⁺: Phosphoran pyroxene and olivine in silicate inclusions in natural iron-carbon alloy from Uivfag, Disko Island, Greenland. Annual Meeting, American Geophysical Union, San Francisco, California. Dec. 5-9, 1983.
85. Cyrena A. Goodrich⁺: The formation of metallic iron in mafic magmas: The role of carbon (clues from native iron in Disko Island basalt). Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California. April 25, 1984.
86. K. Keil⁺: Origin of meteorites - From asteroids, comets, Moon and Mars. Pennsylvania School Superintendents Day, University of New Mexico, Albuquerque, N.M. November 2, 1983.

87. K. Keil⁺: Origin of meteorites - From asteroids, comets, Moon and Mars. Four Corners Geological Society, Farmington, N.M. January 13, 1984.
88. K. Keil⁺: Origin of meteorites - From asteroids, comets, Moon and Mars. Society of Sigmia Xi, New Mexico Institute of Mining and Technology, Socorro, N.M. February 2, 1984.
89. K. Keil⁺: The soil composition of Mars. European Planetary Science Symposium, Heidelberg, West-Germany. April 23-29, 1984.
90. K. Keil⁺: The soil composition of Mars. Department of Mineralogy and Petrology, University of Munster, Munster, West-Germany. May 16-19, 1984.
91. K. Keil⁺: A voyage through our solar system. German Summer School, Department of Modern and Classical Languages, University of New Mexico, Taos, N.M. June 29 - July 1, 1984.
92. A. Bischoff⁺, K. Keil and D. Stoffler: Ca-Al-rich objects in ordinary chondrites: significance for the origin of chondrules and chondrites. Ann. Meeting of the German Mineralogical Society and the Soc. Francaise de Mineralogie et de Cristallographie, Munster, West-Germany. September 16-27, 1983.
93. A. Kracher⁺: Microanalysis of chondritic meteorites: clues to the history of the solar system. Dept. of Earth Sciences, Iowa State University, Ames, Iowa. October 6, 1983.
- 4.5. Other Research Projects or Creative Work in Progress or Completed During Period (Research Grants and Contracts)

The following research grants and contracts were in effect during the report period:

1.	"Origin of clay-bearing soil on planetary surfaces - Hydrothermal alteration of impact melt rocks and breccias." NASA, October 1, 1981 - July 31, 1983.....\$	56,782.00
2.	"Partial funding of electron microprobe X-ray analyzer." NSF. July 1, 1982 - June 30, 1984.....\$	180,000.00
3.	"Geological support work of Nevada Nuclear Waste Storage Investigations." Sandia National Laboratories. October 1, 1982 - September 30, 1983.....\$	40,944.00
4.	"Origin of stone meteorites and the Moon:" NASA. February 1, 1983 - February 15, 1984.....\$	223,850.00
5.	"Geological support work of Nevada Nuclear Waste Storage Investigations." Sandia National Laboratories. October 1, 1983 - September 30, 1984.....\$	61,749.00

6.	"Halite mineralogy of the Solado Formation." Sandia National Laboratories July 29, 1983 - September 30, 1984.....	\$ 25,134.00
7.	"Origin and evolution of meteorite parent bodies and the Moon." NASA. February 1, 1984 - January 31, 1985.....	\$ 235,000.00
8.	"Partial funding of transmission electron microscope." NASA. January 1, 1984 - December 31, 1984.....	\$ 100,000.00
Total grants and contracts if effect.....		\$ <u>923,459.00</u>

4.6. Activities in Learned and Professional Societies

4.6.1. Offices Held

Klaus Keil

1. Chairman, Organizing Committee, 47th Meteoritical Society Meeting, University of New Mexico, Albuquerque, N.M.
2. Member, Program Committee, 47th Meteoritical Society Meeting, University of New Mexico, Albuquerque, N.M.
3. Member, Advisory Committee on Comparative Planetology, International Union of Geological Sciences.
4. Associate Editor, Journal of Geophysical Research, American Geophysical Union.

G.J. Taylor

1. Member, Organizing Committee, 47th Meteoritical Society Meeting, University of New Mexico, Albuquerque, N.M.
2. Member, Program Committee, 47th Meteoritical Society Meeting, University of New Mexico, Albuquerque, N.M.

E.R.D. Scott

1. Chairman, Leonard Medal Committee, Meteoritical Society.
2. Chairman, Program Committee, 47th Meteoritical Society Meeting, University of New Mexico, Albuquerque, N.M.
3. Member, Organizing Committee, 47th Meteoritical Society Meeting, University of New Mexico, Albuquerque, N.M.

Cyrena A. Goodrich

1. Chairman, Audio-visual and Projectionist Committee, 47th Meteoritical Society Meeting, University of New Mexico, Albuquerque, N.M.

2. Member, Program Committee, 47th Meteoritical Society Meeting, University of New Mexico, Albuquerque, N.M.

4.6.2. Meetings Attended

Klaus Keil

1. Lunar and Planetary Science Conference, L.B. Johnson Space Center, Houston, Texas. Chaired one session and co-authored five talks. March 11-16, 1984.
2. European Planetary Science Symposium, Max-Planck-Institute of Nuclear Chemistry, Heidelberg, West-Germany. Presented invited talk. April 23-29, 1984.

G.J. Taylor

1. Lunar and Planetary Science Conference, L.B. Johnson Space Center, Houston, Texas. Presented one talk, chaired a session, and co-authored several talks. March 11-16, 1984.
2. Lunar Base Workshop, Los Alamos National Laboratory, Los Alamos, N.M. April 23-27, 1984.

E.R.D. Scott

1. Meteoritical Society Meeting, Max-Planck-Institute of Chemistry, Mainz, West-Germany. Chaired Leonard Medal Committee, attended Council Meeting, chaired one session, and gave one talk. September 4-9, 1983.
2. Lunar and Planetary Science Conference, L.B. Johnson Space Center, Houston, Texas. Chaired one session and gave one talk. March 11-16, 1984.
3. 9th Symposium on Antarctic Meteorites, National Institute of Polar Research, Tokyo, Japan. Presented one invited paper. March 22-24, 1984.

Cyrena A. Goodrich

1. American Geophysical Union Meeting, San Francisco, California. Presented one paper. December 5-9, 1983.
2. Lunar and Planetary Science Conference, L.B. Johnson Space Center, Houston, Texas. Presented two papers. March 11-16, 1984.

Tammy L. Dickinson

1. Geological Society of America Meeting, Indianapolis, Indiana. October 30 - November 3, 1983.
2. Lunar and Planetary Science Conference, L.B. Johnson Space Center, Houston, Texas. Presented one paper. March 11-16, 1984.

3. Rocky Mountain Sectional Meeting, Geological Society of America. May 11-12, 1984.

M.J. Jercinovic

1. Conference of the American Geomorphological Field Group, Northwestern New Mexico. October 6-10, 1983.

4.6.3. Presentations at Professional Society Meetings

Klaus Keil

1. The soil composition of Mars. European Planetary Science Symposium, Heidelberg, West-Germany. April 23-29, 1984.

E.R.D. Scott

1. Type 3 ordinary chondrites - Metamorphism, brecciation and parent bodies. 46th Meteoritical Society Meeting, Mainz, West-Germany. September 5-9, 1983.

Cyrena A. Goodrich

1. Phosphoran pyroxene and olivine in silicate inclusions in natural iron-carbon alloy from Uivfiag, Disko Island, Greenland. Annual Meeting of the American Geophysical Union, San Francisco, California. December 5-9, 1983.

Alfred Kracher

1. Relict grains and the significance of collisions during chondrule formation. 46th Meteoritical Society Meeting, Mainz, West-Germany. September 5-9, 1983.

P.H. Warren

1. Lunar Mg-rich rocks as analogs of terrestrial komatiites: Implications of early outgassing of Earth's volatile elements. 46th Meteoritical Society Meeting, Mainz, West-Germany. September 5-9, 1983.

Addi Bischoff

1. Abundant Al-rich objects in ordinary chondrites. 46th Meteoritical Society Meeting, Mainz, West-Germany. September 5-9, 1983.

4.7. Other Professional Activities

Klaus Keil

1. Member, Program Committee, Lunar and Planetary Science Conference, Houston, Texas. 1981-1983.
2. Member, Advisory Committee on Comparative Planetology, International Union of Geological Sciences. 1982-1985.

3. Associate Editor, Journal of Geophysical Research, American Geophysical Union. 1982-1985.
4. Associate Editor for "Chondrules and their Origin", a volume published by the Lunar and Planetary Institute, Houston, Texas.
5. Associate Editor, journal "Chemie der Erde".
6. Consultant, Sandia National Laboratories, Albuquerque, New Mexico.
7. Reviewed several proposals submitted to NASA for funding.
8. Reviewed eight scientific papers submitted for publication in Geochimica et Cosmochimica Acta, Meteoritics, Science, Nature, Chemical Geology, and 8th Symposium on Antarctic Meteorites (Japan).
9. Several interviews with Lobo, Albuquerque Tribune and Journal.
10. Member, Editorial Board, Journal "Chemical Geology."
11. Chairman, Lunar and Planetary Science Council, Universities Space Research Association, Houston, Texas.
12. Member, Antarctic Meteorite Working Group, National Science Foundation - National Aeronautics and Space Administration.
13. Member, Editorial Board, Tschermak's Mineralogisch-Petrographische Mitteilungen, Vienna, Austria.
14. Member, NASA Solar System Exploration Committee, Subcommittee on Manned Space Exploration.
15. Member, NASA Advisory Committee on Minority Graduate Researchers.

G.J. Taylor

1. Chairman, Lunar and Planetary Review Panel (NASA).
2. Member, Lunar and Planetary Sample Team (NASA).
3. Chairman, Planetary Geosciences Working Group.
4. Reviewed papers submitted to Geochimica et Cosmochimica Acta (2), Science (1), Geophysical Research Letters (2), and Journal of Geophysical Research (1).
5. Reviewed grant proposals to NASA (10) and NSF (1).
6. Served as judge of Science Fair at Wilson Middle School, February 27, 1984.

E.R.D. Scott

1. Member, Antarctic Meteorite Working Group.

2. Reviewed 14 articles submitted for publication in Meteoritics (1), Geochimica et Cosmochimica Acta (6), Mineralogical Magazine (1), J. Geophys. Res. (1), Earth Planet. Sci. Letters (3), Nature (1), Proceedings of the Eighth Symposium on Antarctic Meteorites(1).
3. Reviewed two NASA grant proposals.

Cyrena A. Goodrich

1. Taught SEM laboratory as part of Geology 518L, University of New Mexico.
 2. Trained employees of Signetics in the use of the SEM. January 19, 1984.
 3. Trained several students from New Mexico Institute of Mining and Technology in the use of the SEM. April 30, 1984.
- 4.8. Non-teaching University Activities

Klaus Keil

1. Administration of the Institute of Meteoritics and its collections.
2. Chairman and member of several thesis and dissertation committees in the Department of Geology.
3. Served on UNM - University of Sao Paulo, Brazil joint research and exchange program committee.
4. Participated in Parent Day, UNM.
5. Served as Director of the Caswell Silver Foundation, Department of Geology, UNM.
6. Chaired search committee for Caswell Silver Distinguished Professor, Department of Geology, UNM.
7. Served on several M.S. and Ph.D. comprehensive examinations committees.
8. Assisted in design and supervision of renovation of basement into laboratories, Dept. of Geology Building.
9. Served on Department of Geology Committee to revise requirements for geology Ph.D. program at UNM.
10. Served on UNM Honorary Degree Committee.
11. Hosted the visits of several prospective geology graduate students to UNM.
12. Served on Search Committee for Geology Department Chairperson.
13. Chaired Department of Geology Faculty Promotions Committee.
14. Served on Department of Geology Search Committee for transmission electron microscopist.

E.R.D. Scott

1. Curator, Meteorite Collection, Institute of Meteoritics, University of New Mexico.

4.9. Public ServiceKlaus Keil

1. Many private showings of moon rocks to interested citizens, school classes, civic groups, etc., many of which were after working hours and on weekends.
2. Many private showings of the meteorite museum to interested citizens, school classes, civic groups, etc., many of which were after working hours and on weekends.
3. Investigated without charge many rocks suspected to be meteorites and brought to the Institute by citizens.
4. Presented talk to Albuquerque Astronomers on "The origin of meteorites - from asteroids, comets, Moon and Mars", August 5, 1983.
5. Presented talk on "Meteorites - From asteroids, comets, Moon and Mars" to Albuquerque Rock Hound Club, February 7, 1984.
6. Hosted visit of the Los Alamos Geological Society to the Meteorite Museum, University of New Mexico, February 25, 1984.
7. Hosted visit of Albuquerque elementary school student, Lorena LaRue, to Institute of Meteoritics, March 28, 1984.

G.J. Taylor

1. Set up display for Space Week, July 10-17, 1983, at Coronado Center.
2. Helped in tour of department by Members of Legislative Finance Committee.
3. Many private showings of moon rocks and meteorite museum to interested citizens and school classes.

E.R.D. Scott

1. Tours of meteorite museum and talks on meteorites for five school parties.
2. Investigated suspected meteorites submitted by members of public.

J.R. Connolly

1. Lead field trip through Sandia Mountains with Carol Stein and D. McTigue (Sandia National Laboratories) for high-school students in Sandia - Albuquerque Public Schools summer program course on "Earth Sciences and Energy Resources". July 8, 1983.

2. Member, Board of Directors, Ponderosa Child Care Center (non-profit).

G.H. Conrad

1. Led tours through Department of Geology - Institute of Meteoritics Electron Microbeam Analytical Facilities. January 18, February 17, May 12, and June 7, 1984.

Tammy L. Dickinson

1. Presented talk on "Meteorites" to 4th graders at Longfellow Elementary School.

Cecelia V. Williams

1. Led tour through Meteorite Museum, University of New Mexico, for Parent's Day Visitors. October 1, 1983.
2. Assisted students of Griegos Elementary school with geology and chemistry Science Fair projects. February - March, 1984.
3. Served as judge at Northwest Regional Science Fair. March 16, 1984.

THE REPORT OF THE DEPARTMENT OF HISTORY

July 1, 1983 - June 30, 1984

Janet Roebuck, Chair

I. GENERAL DEPARTMENTAL INFORMATION

A. Significant Achievements:

1. The following courses were offered under 220/320
"Studies in History"

220. The "Sport of Kings" An Historical Approach

320. Recent History of Science

Our Minds: Great Thoughts and Thinkers

of the Western World From the Renaissance

to the Present

Hitler to Walensa

Europe in the Age of the Baroque and Rococo

Latin American Topics

Topics in Andean History

History and Cultures of the Southwest

Comparative History of the American West

and South

2. Activities Beyond the Formal Curriculum:

- a. Three History journals, The Historian, Editor, Gerald D. Nash; The New Mexico Historical Review, Editor, Richard Etulain; and the Hispanic American Historical Review, Editor, John Johnson, Assoc. Editor, Peter Bakewell,

Book Review Editor, Edwin Lieuwen, continued as part of the Department. John Kessell is Director of the Diego De Vargas Project.

- b. We were honored that one of the Graduate School's Lecture Series first speakers was John Hope Franklin who lectured on the development of his most recent book, "Stalking George Washington Williams." He was also kind enough to come to the Department and give a less formal presentation on "Runaway Slaves in the U.S. South."
- c. The departmental Newsletter was edited by Professor Mike Conniff and distributed to 500 universities and History Ph.D. alumni.
- d. Under the direction of Professor Peter Kolchin, the Department continued its series of symposia on historical topics, in which various faculty members and graduate students reported on their research activities.
- e. Many members of the Department, including John Kessell, Anne Boylan, Peter Kolchin and Bill Dabney, participated in this year's particularly successful History Day.

3. Awards

- a. The Charles Florus Coan Award for the graduating senior with the highest GPA was awarded to Barton H. Barbour.
- b. Sandra Blankenburg and Barton H. Barbour were recipients of the Grunsfeld Award.

- c. A Graduate Tuition Award was given to William Cappuccino.

B. Significant Plans and Recommendations for the Near Future:

1. The Department spent much time and effort seeking faculty to fill the positions vacated by Professors Dabney and Roberts. Both searches were successful and we were fortunate in finding some excellent candidates. Dr. Paul Hutton has accepted the position of Assistant Professor in military history and Dr. Melvin Yazawa that in colonial history.
2. We have expanded our M.A. Program to allow for a concentration in Western History.
3. The Department continues to seek a guarantee of the modest annual funding which would allow us to offer a Public History Program.

C. Appointment to Staff:

1. Regular Faculty Appointment
 - a. We are pleased that Dr. John Kessell took up his appointment as Associate Professor. He is an expert in Southwestern and New Mexico history and the Director of the Diego De Vargas Project.
2. Visiting or Part-Time Appointments
 - a. Anne Boylan, Visiting Assistant Professor, U.S. survey academic year (3/4 time), 1983-84.
 - b. John Johnson, Professor (part-time, 1 course); Editor, Hispanic American Historical Review, academic year, 1983-84.

- c. Carl Hanson, Visiting Assistant Professor,
Western Civilization (part-time, fall)
- d. Marc Simmons, Visiting Associate Professor,
(part-time, spring)
- e. Allen Gerlach, Visiting Assistant Professor,
Latin America, (part-time, spring)
- f. Margaret Connell-Szasz, Visiting Assistant
Professor, U.S. survey (part-time, fall-spring)

3. Office Staff Appointments

- a. Yolanda Martinez, who had served for some time
as Department Secretary, accepted the position
of Office Manager. We are pleased to welcome
her to that position and hope that her continued
association with us will be a long and happy one.
- b. Mariana Ibanez, who completed her Masters
Degree in Public Administration, accepted the
position of Department Secretary.
- c. We welcomed Joylene Young both to Albuquerque
and to her position as Staff Secretary.

D. Separation From Staff:

- 1. Professor William M. Dabney, a long time faculty
member and pillar of this Department and the
University community, retired from full-time teach-
ing at the end of 1983. We wish him well in his
retirement but hope that his plans include teaching
and working with us from time to time.

2. Arla Sivinski, who ran the Department office for many years, gave up her position as Office Manager to take extended sick leave.
3. Avis Trujillo, Staff Secretary retired after many years of service.

II. Composite of information requested on individual biographical supplements: (period January 1, 1983 to December 31, 1983.)

1. ADVANCED STUDY

BOYLAN, Anne M. Introduction to Microcomputers, course at UNM, July, 1983

2. SABBATICALS, SUMMER TEACHING, TRAVEL, ETC.

BAKEWELL, Peter J. Travel for research, May-June 83, to Bolivia and Peru. (Research on political activities of Antonio Lopez de Quiroga, Potosi, late 17th century). Archivo Nacional de Bolivia.

CONNIFF, Michael L. Sabbatical leave spring semester to complete book ms. Faculty coordinator, Brazil Summer Institute, Taos, NM July-Aug. 1983.

ETULAIN, Richard W. Visiting Professor, Buffalo Bill Historical Center, June 1983. Visiting Professor Emporia State U., Kansas, June 1983.

IKLE, Frank William History Lecturer, Lindblad Yangtze River Cruises, June-July 1983. Travel in P.R.C. and Japan, August 1983.

KERN, Robert Denied sabbatical without explanation.

KESSELL, John. L. Spain (May-June, 1 mo.), research on Diego de Vargas. Newberry Library, Chicago (July, 1 week), research on Diego de Vargas. Short research trips to New Orleans (Feb.) and Tucson (April).

KRAMER, Steven Philip Leave of absence (see 3).

MACIEL, David R. Visiting Professor at the National University of Mexico April-August, 1983.

PORTER, Jonathan Travel to the People's Republic of China, June 1983 (4 weeks). Travel to Taiwan, Hong Kong, and Macau, December 1983.

SPIDLE, Jake W. Sabbatical, Fall semester, 1983--
extensive travel throughout New Mexico
doing research on New Mexico physicians
of the past century.

3. NEW SCHOLASTIC HONORS, FELLOWSHIPS, ETC.

BAKEWELL, Peter J. Mellon Research Grant (Latin American
Institute, UNM) for research on
political activities of Antonio Lopez
de Quiroga, Potosi, late 17th century.
Travel to Bolivia and Peru.

BOYLAN, Anne M. Listed in Who's Who of American Women.

IKLE, FRANK WILLIAM Listed, Dictionary of International
Biography. Elected: Member, Interna-
tional Center for Asian Studies.
Program Chairman, Western Conference
of Asian Studies, for 1984.

KRAMER, Steven Philip International Affairs Fellow, Council
on Foreign Relations working in Office
of Policy Planning and Coordination,
Inter-American Affairs, Department
of State.

MACIEL, David R. Mellon Post-Doctoral Research Grant.
NEH Research Travel Grant.

NASH, Gerald David NEH Constitutional Bicentennial Grant
for 1983-Principal Investigator Editorial
board, Arizona and the West.

4. PUBLICATIONS

BOOKS

ETULAIN, Richard W. Conversations with Wallace Stegner
of Western History and Literature
(U of Utah, 1983, 207 pp.)
Western Films: A Brief History
(Sunflower U Press, 1983, 100pp.)

KERN, Robert Labor in New Mexico: Unions, Strikes
and Social History since 1881 (UNM Press)
Building New Mexico: The Experience
of a Carpenters Union in the South-
west (pub. by NM Humanities Council &
Carpenters Union).

MACIEL, David R. Chihuahua (Mexico: Secretaria de Educacion
Publica, 1983.)

PORTER, Jonathan

All Under Heaven: The Chinese World,
Pantheon BooksARTICLES

BOYLAN, Anne M.

"Growing Up Female in Young America,"
in Joseph Hawes and N. Ray Hiner,
eds., History of Childhood in America
(Westport, Ct.: Greenwood Press, 1984).

CONNIFF, Michael L.

Research paper Black Labor on a White
Canal: Panama 1904-1980. Completed
book ms. with the same title.

ETULAIN, Richard W.

"Recent Interpretations of the Western
Film: A Biographical Essay." and
the "Introduction" in Western Films:
A Brief History. "Shifting Interpre-
tations of Western Cultural History."
in History and the American West (Univ.
of Nebraska Press, 1983).

IKLE, Frank William

Two articles for Albuquerque Journal
Winds of War Series.

KERN, Robert

"A Century of Labor in New Mexico" in
Labor in New Mexico: Unions, Strikes
and Social History since 1881, pp. 3-24;
pp. 27-9; pp. 55-59; pp. 85-89; pp.
143-6; pp. 179-181; pp. 271-5; and
Index. in Building New Mexico, pp.
21-37; 47-58; 68-74; 83-98; 111-151.
"The Spanish Civil War Revisited," The
Century.

KOLCHIN, Peter

"Reevaluating the Antebellum Slave
Community: A Comparative Perspective,"
Journal of American History, LXX
(Dec. 1983).

KRAMER, Steven Philip

"In Search of Arthur Ranc" in Canadian
Journal of History, August 1983 pp. 217-
226. "Vietnam never ended" in
Commonweal, 2 December 1983, pp. 646-
7; "L'Espoir douceatre et trompeuse
des democrates," la Quinzaine Litteraire,
1 September 1983, pp. 21-22. "Why not one
UNM with campuses statewide," Albuquerque
Tribune.

McCLELLAND, Charles E.

"Professionalization and Higher Educa-

tion in Germany," in Kenrad Jarausch, The Transformation of Higher Learning, 1860-1930 (Stuttgart/Chicago: Klett-Verlag and University of Chicago Press, 1983), pp. 306-320.

NASH, Gerald David

"Mirror for the Future: The 20th Century West,": in Thomas Alexander (ed.), The Twentieth Century West (Provo, 1983), pp. 1-27; "Building the Managerial State," Reviews in American History, Vol. II (March, 1983), pp. 148-153; "American Conservation Policies, 1933-1953," Environmental History Review, vol. 7 (May, 1983), pp. 243-255.

PORTER, Jonathan

Article in Nov.-Dec. issue Asia Magazine.

PUGACH, Noel H.

Four essays in Robert Kern, ed., Building New Mexico: The Experience of a Carpenters Union in the Southwest (Albuquerque: New Mexico Humanities Council 1983), pp. 6-21, 38-43, 59-68, 99-111; "Paul S. Reinsch," Biographical Dictionary of Internationalists, ed. Warren Kuehl (Westport; Greenwood Press, 1983), 604-605; "Twentieth Century Disarmament Efforts in Historical Perspective," Proceedings of Science, Philosophy, Religion Symposium, IX (20-22 January 1982), Air Force Weapons Laboratory, Kirtland Air Force Base, Albuquerque, NM (Pub. Jan. 1983) 9-38; "The United States Crept into World War II Fighting Itself all the Way," New Mexico Independent, Pt. I, Feb. 4, 1983 Pt. 2, February 11, 1983. "World War II Had a Strong Hold on American Mind, Soul." Albuquerque Journal, Feb. 4, 1983.

RABINOWITZ, Howard N.

"Race, Ethnicity, and Cultural Pluralism in American History," in Ordinary People and Everyday Life: Perspectives on the New Social History, eds. James D. Gardner and George R. Adams (Association for State and Local History, 1983, 23-48; "Albuquerque: City at a Crossroads," in Sunbelt Cities: Politics and Growth Since World War II, eds. Richard M. Bernard and Bradley R. Rice (University of Texas Press, 1983); "Albuquerque, 2000: Unable to See the Forest for the Neighborhoods," Century, 3 (May 18, 1983), 10-13.

- ROEBUCK, Janet "The fight for survival: The English people & the Second World War," for NM Humanities Council popular press series. "Grandma as Revolutionary: Elderly Women and some modern patterns of social change" in International Journal of Aging & Human Development, 17(4), 1983, pp. 249-266.
- SPIDLE, Jake W. "La Troienne: Matriarch That Marked the Breed," The New Mexico Horse Breeders' Magazine 4(1983, #1): 26-30. "Frank Burns: No Rhinestone Cowboy," The New Mexico Horse Breeders' Magazine 4(1983, #3): 24-28.
- SULLIVAN, Donald D. "Apocalypse Tamed: Cusanus and the Traditions of Late Medieval Prophecy" in The Journal of Medieval History 9(1983) 227-236.
- SZASZ, Ferenc M. "Religious Fundamentalism and the Ecumenical Movement," Ecumenical Trends 12(May, 1983) 70-72. "Some Thoughts on the Role of Christianity in the Modern World," The St. Croix Review XVI (August-September, 1983), 31-37.
- REVIEWS
- BERTHOLD, Richard M. Review of Jack Carqill: The Second Athenian League in American Historical Review volume 87, June 1983, 754-755. Review of Michael Grant: From Alexander to Cleopatra to appear in American Historical Review, November/December 1983.
- CONNIFF, Michael L. Review of Immigrants on the Land: Coffee and Society in Sao Paul, in the Hispanic American Historical Review 63:1 (Feb. '83): 199-201.
- DABNEY, William M. Review of Edmund S. Morgan, The Genius of George Washington (New York: Norton, 1980) in Journal of the Early Republic, vol. 3, pp. 88-89.

- IKLE, Frank William George Lensen, Review of "Balance of Intrigue: International Rivalry in Korea and Manchuria," American Historical Review, January 1984.
Jean-Pierre Lehmann, Review of "The Rise of Modern Japan," American Historical Review, October 1983.
- KESSELL, John L. Book reviews in American Historical Review, Western Historical Quarterly and Hispanic American Historical Review.
- KOLCHIN, Peter Orville Vernon Burton and Robert C. McMath, Jr., ed., Toward a New South? Studies in Post-Civil War Southern Communities (Greenwood Press, 1982), in Agricultural History (April), 239-40. Vincent Harding, There is a River: The Black Struggle for Freedom in America (Harcourt Brace Jovanovich, 1981), in Florida Historical Quarterly (July), 99-101. Ira Berlin et al, eds., Freedom: A Documentary History of Emancipation, 1861-1867. Series II. The Black Military Experience (Cambridge University Press, 1982), in North Carolina Historical Review (July), 380. Crandall A. Shifflett, Patronage and Poverty in the Tobacco South: Louisa County, Virginia, 1860-1900 (University of Tennessee Press, 1982), in Agricultural History (Oct.), 468-9.
- KRAMER, Steven Philip Two book reviews in AHR.
- LIEUWEN, Edwin Book Review: Romulo Betancourt in Hispanic American Historical Review, Feb. 1983, pp. 186-188.
- NASH, Gerald D. Journal of American History (Bernd Kuennecke, Kulturlandschaftliche Bedeutung-Oregon), American Historical Review (Joseph Udelson, The Great Television Race), Pacific Historical Review (William Kahrl, Water Power, and Larry Schweickart, History of Banking in Arizona), Journal of the West (M. Melosi, Garbage in the Cities and E. Gottlieb, Empires in the Sun), Montana Magazine (Will. Robbins, Lumberjacks and Legislators)

- Business History Review (Peter Buckley, European Direct Investment in U.S.), Pacific Historian (Brad Luckingham, The Urban Southwest), Nevada Hist. Soc. Quarterly (Jerome Edward, The Political Career of Pat McCarran), Agricultural History (Majka and Majka, Farmworkers, Agribusiness and the State).
- PUGACH, Noel H. Review, Frederick Katz, The Secret War in Mexico: Europe, the United States and the Mexican Revolution, in New Mexico Historical Review, 58 (January 1983), 106-108. Review of, Reginald Horsman, Race and Manifest Destiny: The Origins of American Racial Anglo-Saxonism in Hispanic American Historical Review, 63 (February 1983), 213-214. Review of Young Hum Kim, American Frontier Activities in Asia: U.S.-Asia Relations in the Twentieth Century in Pacific Historical Review (August 1983), 343-344.
- RABINOWITZ, Howard N. June Jordan, Civil Wars, Reprint Bulletin-Book Reviews, 23 (Winter 1982-83), 12. J. Morgan Kousser and James M. McPherson (eds.), Region, Race, and Reconstruction: Essays in Honor of C. Vann Woodward, Georgia Historical Quarterly, 67 (Summer 1983), 256-58.
- ROEBUCK, Janet Review of W. H. Fraser, The Coming of the Mass Market in American Historical Review, Feb. 1983.
- SLAUGHTER, Jane Reviews, Social Science Journal, April 1983, 117-18; July 1983, 110-11.
- SPIDLE, Jake W. Book review, David Birmingham, Central Africa to 1870 in Teaching History 8 (1983): 84.
- STEEN, Charlie R. Two book reviews for The History Teacher.
- SULLIVAN, Donald D. Review of Brann, Noel The Abbot Trithemius: The Renaissance of Monastic Humanism, in Church History 52(1983), p.453.

SZASZ, Ferenc M.

Review of Mel Piehl, Breaking Bread: The Catholic Worker and the Origin of Catholic Radicalism in America (Philadelphia: Temple, 1983) in Choice, April 1983. Review of Robert William Mondy, Pioneers and Preachers: Stories of the Old Frontier (Chicago: Nelson Hall, 1980) in South Dakota History 12 (Summer/Fall, 1982). Review of John Patrick McDowell, The Social Gospel in the South: The Woman's Home Mission Movement in The Methodist Episcopal Church, South, 1886-1939 (Baton Rouge: LSU Press, 1982) in Choice, February, 1983. Review of James J. Thompson, Tried as by Fire: Southern Baptists and the Religious Controversies of the 1920's (Macon: Mercer Univ. Press, 1982) in Choice, Dec. 1982. Review of Philip D. Jordan, The Evangelical Alliance for the United States of America, 1847-1900: Ecumenicism, Identity, and the Religion of the Republic (Toronto: E. Mellen, 1983) in Choice, Nov. 1983. Review of James Lee Garrett, et.al, Are Southern Baptists 'Evangelicals?' (Macon: Mercer University Press, 1983) in Choice, July/August 1983. Review of Kendrick Clements, William Jennings Bryan, Missionary, Isolationist (Knoxville: University of Tennessee Press, 1983) in Nebraska History, Fall, 1983.

5. OTHER RESEARCH PROJECTS

BAKEWELL, Peter J.

Book ms. finished: Miners of the red mountain, Indian labor at Potosi, 1545-1650 - to be published by UNM Press, Fall 1984. Continued as Associate editor, Hispanic American Historical Review.

BERTHOLD, Richard M.

Short story and several essays, Rhodes in the Hellenistic Age to be published in March 1984 by Cornell University Press. Weekly column for Lobo.

- BOYLAN, Anne M. Completed and submitted for publication an article, "Women in Groups: An Analysis of Women's Benevolent Organizations in New York and Boston, 1797-1840." Continued work on a book manuscript dealing with American Sunday Schools in the 19th century.
- CONNIFF, Michael L. Completed book ms., Black Labor on a White Canal: Panama 1904-1981, under consideration by a university press.
- DABNEY, William M. NEH grant, The Constitution in a Tri-Cultural State.
- ETULAIN, Richard W. continued work on a book dealing with evangelicals and literature. Beginning work on a general history of the American West. Completing work on a collection of essays on Basques of the Pacific NW. Editing Joan London's memoir of her early years and her father, Jack London.
- IKLE, Frank William Abstractor for CLIO for Monumenta Nipponica and Japan Quarterly. Invited Participant, NEH Conference on "Asian Studies in Undergraduate Education," San Francisco, February 1983.
- KERN, Robert Saragossa in the Spanish Civil War and the Triumph of Francoism -- the second vol. of a projected trilogy on northern Spain during the Spanish Civil War. Europe in Limbo: Intellectuals, Values & Politics 1939-1941 -- a study of the pressure of the Popular Front and the outbreak of war in the USSR. Oligarchies -- a study, based on my earlier studies of caciquismo, of oligarchy in the Hispanic world. I am also beginning to collect material for a book on Latin American labor.
- KESSELL, John L. "Born Old: The Church at Ranchos de Taos, 1815," in Images of Ranchos, UNM Press (scheduled); Foreword to H. E. Bolton, Rim of Christendom, U. of Ariz. Press (scheduled); "Diego de Vargas Writes Home," trsl.

- of his personal correspondence. The Vargas Project: 4-year grant, NEH translations Program, c. \$70,000 outright, \$100,000 matching (FY) grant NHPRC, \$28,000.
- KOLCHIN, Peter Continued work on book manuscript: "American Slavery and Russian Serfdom: A Comparative Study in Unfree Labor."
- LIEUWEN, Edwin Work continues on biography of Alvaro Obregon. Research continues on Latin American energy, and militarism. Signed contract as co-author of The Politics of Energy in Latin America with Univ. Nebraska Press. Book is now in press and is scheduled for release in fall of 1984.
- MACIEL, David R. "Los Chicanos: Su lucha contemporanea, 1965-1983" book chapter to be published in Estados Unidos, Hoy Mexico: Siglo XXI.
- MCCLELLAND, Charles E. "The Humanist and the Computer," essay submitted to NMHC Annual Essay competition; shorter version published under NMHC Newspaper Program, continuing research on rise of modern professions in Germany, 1850-1933.
- NASH, Gerald David "The Historical Contribution of Paul W. Gates," paper presented at "Organization of Historians," April 11, 1983; Book Manuscript completed for "World War II and the West," to be published by Indiana Univ. Press; Editor, The Historian; essay on F. D. Roosevelt for Smithsonian Exhibit, sponsored in NM by NM Humanities Council; "Urban Trends in the West," paper delivered at Amer. Hist. Assoc., PCB, August 11, 1983, San Diego.
- PORTER, Jonathan Editor and contributor, collection of essays on Chinese Society for The School of American Research (in progress). Portugal, China, and Macau: An Interaction of Two Worlds (Book in progress)
- RABINOWITZ, Howard N. Finished several book reviews and review essay; did revisions and read proof for article entitled "A comparative Perspective on Race Relations in Northern and Southern.

Cities, 1860-1900, with Special Emphasis on Raleigh," to be published in 1984; continued work on two books dealing with Albuquerque and sunbelt urbanization 1940-1974 and the New South 1877-1920.

- ROBBINS, Richard G. Research continuing on book about Russian Provincial governors 1880-1917.
- ROEBUCK, Janet Short paper, "Old Age in America" to accompany NM Humanities Council photo exhibit on this topic: complete Sept. 1983.
- SKABELUND, Donald Research into history of recent quantum field theory, and its reworking for classroom purposes.
- SLAUGHTER, Jane Co-editor with Richard Stites, multi-volume series, Women and Revolution (Arden Press, Denver), vols. 1 and 2 in progress. A Break With the Past: Women and the Italian Resistance (manuscript in progress, volume 2 of Arden Press series). Referee, Social Science Journal.
- SPIDLE, Jake W. New Mexico Medical History Oral History Project, funded by UNM Medical Center library and New Mexico Medical Society. U.S. Air Force Weapons Laboratory, history of laser work, ongoing.
- STEEN, Charlie R. Continued to prepare a biography of Margaret of Parma, Regent in the Netherlands (1559-1569)
- SULLIVAN, Donald D. Article completed on varieties of late medieval millennialism.
6. ACTIVITIES IN LEARNED AND PROFESSIONAL SOCIETIES
- BAKEWELL, Peter J. Attended American Historical Association annual meeting, Dec. 27-30, 1983. Chaired session on Trends in socio-economic historiography of colonial Mexico.
- BOYLAN, Anne M. Attended meeting of American Historical Association, Washington, D. C., December 1982. Will attend meeting of American

Historical Association, San Francisco,
December, 1983.

- CONNIFF, Michael L. Organized panel "Sociocultural impact of the Panama Canal" for the American Historical Assn. meeting, 29 Dec. 1983, and presented paper, "Black Labor on a White Canal." San Francisco, Ca. Chaired Program Committee, Conference on Latin American History, for 1984 meeting in Chicago.
- DABNEY, William M. Paper read at the New Mexico Historical Association, May 13, 1983, "The United States Constitution: the New Mexico Experience." Papers delivered at the New Mexico Indian School, Santa Fe and at New Mexico Highlands University on "The Native Americans and the Constitution."
- ETULAIN, Richard W. Attended NM History Conference, Western American Literature, Western History, Pacific Northwest History. Chaired session at WHA. Elected to eight-person Council of the Western History Association. Present papers at WLA and Pacific Historical Branch of American Historical Association.
- IKLE, Frank William "Pan-Asian Ideology in Pre-War Japan," Western Conference of Asian Studies, November 1983; Paper submitted, but not read because no travel funds were made available, for American Historical Society, "Switzerland and the Far East in WWII," San Francisco, Dec. 1983.
- KERN, Robert Elected to second term as member of Board of Directors, Southwest Labor Studies Conference; read paper, "Early Trades in the SW," at 10th Annual conf., San Jose State, May 1, 1983. Invited to present paper on "Caciquismo in the Iberian World" at the American Historical Association's national meeting at San Francisco, Ca., on Dec. 28, 1983, but declined the offer because I could not get travel money.
- KESSELL, John L. NEH Library Conf., New Orleans (Feb.): Association for Documentary Editing,

- Baltimore (Oct.); West. Hist. Assn., Salt Lake City (Oct.), chaired session: Ethnohistory Conf., Albuquerque (Nov.), NMHC evaluator.
- KOLCHIN, Peter Paper delivered at American Historical Association convention, 28 Dec. 1983: "Reevaluating the Antebellum Slave Community: A Comparative Perspective."
- KRAMER, Steven Philip Commentary, "Socialism and Planning in the 1980s" American Historical Association "Foreign Policy of the Craxi Government" INR Conference on Italy, "The United States, the Atlantic Community and Central America," speech delivered to Conference of the Friedrich Nauman Foundation on the "Future of the Atlantic Alliance," Rome, Italy, Dec. 15-19.
- LIEUWEN, Edwin Dec. 27-30, 1983, participated in American Historical Association Meeting in San Francisco. Commentator at session "The Politics of Energy in Mexico and Venezuela" and reported to the Editorial Board of the Hispanic American Historical Review.
- MACIEL, David R. Conference papers read in the Pacific Branch of the AHA. The Latin American Studies Association, symposium on "Culture and technology in the U.S./ Mexico Border."
- McCLELLAND, Charles E. Organized session and read paper, "Toward an historical theory of professionalisation," American Historical Association, San Francisco, CA, 28 December 1983. Read paper, "Hochschullehrer als Elite im deutschen Vormarx" in series "Budingen Vortrage," Schloss Budingen, Germany, March 1983. Read paper, "Professionalization in History," Western Social Science Association annual meeting, Albuquerque, March 1983.
- NASH, Gerald David Paper, Organization of American Historians, April 11, 1983; Paper at American Historical Association, PCB, Aug. 11, 1983, Executive Council, Phi Alpha Theta. Dinner address at U. of Arizona, Tucson, April 27, 1983; chair, Prize Committee, Agricult.

- History Society: Nom. Comm., Western History Assoc., Editor's Roundtable Amer. Hist. Assoc., San Francisco, Dec. 28, 1983.
- PORTER, Jonathan Executive Board, Western Conference, Assn. for Asian Studies.
"On the Silk Road," lecture to the annual meeting of the Western Conference, Assn. for Asian Studies, Tempe, Nov. 11, 1983.
- RABINOWITZ, Howard N. Board of Editors, Journal of Southern History (journal of the Southern Historical Association); Membership Committee, Southern Historical Association; attended Organization of American Historians convention, Cincinnati, April 1983; and Southern Historical Association convention, Charleston, S.C., November 1983.
- ROEBUCK, Janet Discussant for panel "Widowhood & Aging in the American Southwest," Western Social Science Association Conference, April, 1983.
- SLAUGHTER, Jane Participant, UCLA Workshop in Teaching Women's History, Feb. 11-13. Attended: Western Social Science Assoc. Conference, April 28-30, Conference of Europeanists, October 13-15. Outside Evaluator, NEH Extended Teacher Institute in Integrating Women into Secondary History Curriculum, University of Arizona, July 12-14.
- STEEN, Charlie R. Attended Sixteenth Century Studies Conf. in Milwaukee; chaired a session; offered the commentary on another session. Attended Western Society for French History Conf. Chaired a session. Elected Vice-President of the organization.
- SULLIVAN, Donald D. Paper presented at annual meeting of Rocky Mountain Medieval and Renaissance Association: "Varieties of Late Medieval Prophecy."
Member, Executive Committee, Rocky Mountain Medieval & Renaiss. Assn.
- SZASZ, Ferenc M. Talks: "Reality Captured, Reality Tamed: John James McCook and the

Uses of Documentary Photography in Late-Nineteenth-Century America," (With Ralph Bogardus) at the American Studies Association Meeting in Philadelphia, November, 1983.

(Paper written by both of us; paper presented by Bogardus).

"The Story of the Trinity Site Atomic Explosion" given at: The Western Social Science Meeting in Albuquerque, April, 1983.

The UNM History Department, October, 1983. The Albuquerque Historical Society, March 1983.

"The Religion of Abraham Lincoln" for the Discussion Session, First Cong. Church.

"Religion in the American West" at the PCB branch of the AHA, August, San Diego, Ca.

"The Rise of Specialization in American Life" for Pam Minzner's Class in the Law School on the History of the Law, Fall, 1983.

"Denominationalism in American Society," for the NM Council of Churches, May, 1983.

"Antebellum Reform" for Carol Lovato's class at Albuquerque High School.

"The US Home Front" and "The Development of the Atomic Bomb" for the WWII Course.

"Agriculture in the 1930's" for Lou Criss' class on the 1930s in Cultural context.

Led discussion after the showing of "The Day After Trinity" in Belen, November, 1983. Served on dissertation committees for 6 students.

7. Other Professional Activities

- BERTHOLD, Richard M. Guest of Aztec, New Mexico as their Alexander the Great Scholar.
- BOYLAN, Anne M. Served on organizing committee for a Conference on Family and Community History held in Albuquerque, July, 1983. Gave a paper at the Conference entitled, "New Mexico Family Patterns: Historical Perspectives."
- CONNIFF, Michael L. Referee for NEH grant. Contributing

- editor, Handbook of Latin American Studies, vol. 44. Referee for book ms. submitted to Princeton Univ. press. Talk in Great Decisions Program, "Central America and Inter-American Security," Los Alamos, NM 3 Nov. 1983. Talk on "Crisis in Central America," New Mexico Social Studies Teachers Assn. 5 Nov. 1983.
- ETULAIN, Richard W. NEH Panelist on film making: guest lectures at Socorro; read manuscripts for 3 university presses (5 mss) and one journal (two manuscripts) and 37 proposals for the NEH; serve on editorial boards of 4 journals. Nominating Committee for PCB.
- IKLE, Frank William Talk on "Lebanon in Crisis." Great Decisions, Los Alamos, Nov. 1983 Chair and Member, Nominating Committee, Western Conference on Asian Studies.
- KERN, Robert Series of talks for Women. Talk at state convention of AFL-CIO, Labor Day meeting & state convention.
- KESSELL, John J. Off campus talks: Unitarian Church; SW Museum (Los Angeles); Col. of Santa Fe; Sch. of Amer. Res. (Santa Fe); Sandia Hts. Bk. Group; Mission Tour; SMU Sum. Sess. (Ft. Burgwin); Pecos Nat. Mon.; Albuq. High Humanities Forum; Amer. Col. of Physicians, Consultant: CBS News, BBC.
- KOLCHIN, Peter Reader for Louisiana State University Press. Television appearance: interviewed on writing black history, on channel 7's "The Black Experience" (April 10).
- LIEUWEN, Edwin Aug. 5-8, 1983--Series of 3 lectures to the National Security Dept. of the Naval Post-Graduate School in Monterrey, Calif.
- MACIEL, David R. Book review editor of Aztlan: International Journal of Chicano Studies Research.
- McCLELLAND, Charles E. Lectures before Lost Alamos German Club, German Summer School in Taos, UNM Graduate Center in Los Alamos.

NASH, Gerald David

Judge, Afro-Amer. Center Essay Contest, UNM, April 29, 1983; Evaluator, NEH: Consultant, UTEP Press; chair, symposium on Constitution, UNM Law School, Feb. 16, 1983; Symposium on Treaty of Guadalupe Hidalgo, April 29, 1983; Lecturer, UNM Teacher Workshop Economic Education, June 5-6-7, 1983.

PORTER, Jonathan

Consultant, Japanese Family Photographic Album Exhibit, Maxwell Museum. Address to Albuquerque Friendship Force, July 17, 1983.

PUGACH, Noel H.

"Impersonation of Harry S. Truman," New Mexico Humanities Council Chautaugua Program, four appearances, Tucumcari (June 17, 1983), Vaughn (June 30, 1983), Raton (July 23, 1983), Ruidoso (August 5, 1983). Gave four lectures in Second Half of Series, "Understanding the Contemporary Jew," Jan. 19, Feb. 2, Feb. 16, March 2, 1983, supported by grant from the New Mexico Humanities Council. Three lectures on "The Churches and the Holocaust" February 23, Apr. 24, Nov. 16, 1983. Lecture, "Understanding Current Events in the Middle East," Young Leadership Group, Jewish Federation of El Paso Texas, February 9, 1983. "Anti-Semitism" B'nai Israel Sunday School Class, February 13, 1983. "The Origins of the Independent Order of B'nai Brith," B'nai Brith Installation Dinner, June 29, 1983. "The Jewish High Holidays," Northwest Kiwansi, August 25, 1983. "The Historical Background and Value System of the Jewish Festivals," Asbury Methodist Church, September 29, 1983. Interview on KKJY, October 30, 1983, on "Lebanon and Grenada." Participant, "Forum on Lebanon," organized by Congressman Bill Richardson, Santa Fe, November 6, 1983. "Twentieth Century Anti-Semitism in the United States," Jewish War Veterans, November 27, 1983. "National Defense and Israel," Political Action Seminar, Jewish Community Council, December 11, 1983. Consultant, evaluated manuscript, Kent State University Press. Evaluated article for The Historian.

- RABINOWITZ, Howard N. Table Leader, Advanced Placement in American History Readings, Trenton State University, June, 1983; evaluated manuscripts for Journal of Southern History, The Old Northwest, New Mexico Historical Review, University of Chicago Press, University of Nebraska Press, University of Tennessee Press, Louisiana State University Press, Journal of Urban History, St. Martin's Press; "Some Reflections on the Nature of Southern Black Leaders During Reconstruction," a public lecture given at Grinnell College, Grinnell, Iowa, February 17, 1983. "Urban Open Spaces," essay commissioned by the New Mexico Humanities Council to accompany an exhibit of the same name. Panelist, Nation Endowment for the Humanities Fellowship for Independent Study and Research, Washington, D. C. August 1983.
- ROEBUCK, Janet Member of the National Screening Committee, The Fulbright Graduate Student Program. Member of the National Examining Board for the G.R.E. (history). Participant in faculty development teleconference on learning styles and the adult learner Nov. 17. Guest lecture, Theater Arts 437, on "The 1930's: a Revolutionary decade," Sept.
- SKABELUND, Donald Address before Engineering College's UNM/Industry Seminar in Control Systems; address to Charles Bickel's Physics 102 Class--creativity in history of physics; two lectures on History of Quantum Theory to General Studies.
- SLAUGHTER, Jane Keynote Address, New Mexico Council of Women's Organizations, International Women's Day Luncheon, March 8. Panelist, New Mexico Democratic Council, Jobs and Employment, Feb. 12. Lecture, Gay and Lesbian Student Student Union, March 2. Panelist, Coalition of Labor Union Women, Women on the Job, May 7. Lecture, Theatre

Arts, "The Thirties: A Revolutionary Decade" Sept. 20. Albuquerque High School, Humanities Forum, Lecture, Nov. 15. Women's Center Brown Bag Series, Nov. 17. Gay and Lesbian Student Union, Lecture, Nov. 29. Member, New Mexico Commission on the Status of Women. Member, New Mexico Historical Records Advisory Committee.

STEEN, Charlie R.

Offered eight lectures in a continuing series on European ecclesiastical and intellectual history. Given in collaboration with a local theologian and educator, these informal lectures are a useful and pleasant link between the Department and the community. Gave an NEH-sponsored talk in Las Vegas. Offered an NEH four-part series on Western Civ. in Farmington.

SULLIVAN, Donald D.

Presented five part series of lectures on modern history of Christianity to UNM Newman Center, Oct., 1983.

8. NON TEACHING UNIVERSITY SERVICE

BAKEWELL, Peter J.

Fac. Advisor--Student Organization for Latin American Studies. Univ. Curricular. Committee Chair--Library Sub-committee of Policy Committee, Latin American Institute. Policy Committee, LAI...History Department. Graduate Advisory Committee.

CONNIFF, Michael L.

Talk to History Department Colloquium on Race and Labor on the Panama Canal, 18 Nov. 1983. Director, Iber-American Studies Ph.D. program. Member, Latin American Institute Publications committee. Four diss. students.

DABNEY, William M.

Student Standards Committee
Arts and Sciences Teacher Resources Committee.

ETULAIN, Richard W.

Editor, New Mexico Historical Review; graduate committees of 12 graduate students; Graduate Advisory Committee; search committee for 2 positions; UNM Press committee; NM Humanities Newspaper Committee.

- IKLE, Frank William

Asian Studies Committee, Chairman, Academic Exchange with P.R.C. ad hoc committee, Departmental Sabbatical Committee.
- KERN, Robert

Elected member, Faculty Senate (term ended May 1983). Chairman, Undergraduate Academic Affairs committee; member Curriculum Committee; member, Faculty Benefits Committee; member, History Dept. Graduate Entrance Committee, Jan-May, 1983; chairman, Sept.- Dec. 1983; member, History Dept. Salary Committee. Member, Search Committee for the Dean of the General College. President, UNM Chapter, AAUP. Member, Faculty Rally, Sept. 9, 1983. Head of European History section of the History Dept.
- KESSELL, John L.

Board, Friends of the UNM Libraries; Arts and Sci. Com on Southwestern Studies.
- KOLCHIN, Peter

Member, University Curricula Committee (spring), Member, History Dept. Graduate Entrance Comm. (fall), Coordinator, History Department Colloquium.
- KRAMER, Steven Philip

President, Faculty Senate, Chairman, European Studies; Director, French Summer School; Executive Board, Faculty Association.
- LIEUWEN, Edwin

Vice-Chair LA Policy Committee (all university) and Vice-President Latin American Concilium (all university), Book Review Editor of Hispanic American Historical Review; Dissertation Advisor-5 Ph.D.s, 2 MAs.
- VACIEL, David R.

Research Policy Univ. Committee, two other committees for the Latin American Institute.
- McCLELLAND, Charles

Member History Dept. Curriculum Committee, German Language Coordinator.
- NASH, Gerald David

Coordinator, Applied and Public History Program-Dept. History; Dept. enrollment committee; chair, search committee, Col. U.S.; A & S Promotion Comm.; Univ. Honorary Degree Comm.

PORTER, Jonathan Graduate Coordinator, History Department
Faculty Senate member (Spring semester)
Chair, Asian Studies Program

PUGACH, Noel H. University Committees--Research Allocations
Committee; Summer School Chair-
man, History. Department Committees--
(History Department) Graduate Advisory
Committee, Salary Committee, U.S.
Military Search Committee, Branch
Campus Committee.

RABINOWITZ, Howard N. Campus representative for Mellon
Fellowships in the Humanities; Department
Salary Committee; Department Search
Committee for position in Colonial
History.

ROEBUCK, Janet Committee of Five: Womens Studies
Advisory Board.

SKABELUND, Donald A & S Task Force on General Education,
member, then chair; A & S representative
to B.U.S. Advisory Committee.

SLAUGHTER, Jane Department, Promotion Committee, Search
Committee, Fall 1983.
Legislators Day Committee, Spring 1983.
Senate Ad Hoc Committee on Search
Committees, Spring 1983.
Co-Chair, European Studies Committee,
Spring 1983. Athletic Council, Acting
Chair, Spring 1983. Women Studies
Committee, Grievance Committee,
Advisory Committee, Search Committee.
Faculty Representation Association,
President and Vice President.
Latin American Institute, Program Committee
Spring 1983.
Academic Freedom and Tenure Committee.

STEEN, Charlie R. Undergraduate Advisor for History and
Departmental representative for Senior
Day and Parents' Day activities.

SULLIVAN, Donald D. Member, Executive Committee, Religious
Studies Committee.

SZASZ, Ferenc M. Departmental Search Committee;
Undergraduate Honors Advisor; A and S
Curr. Committee; A and S Committee to
hear appeals from students who have
lost their aid.

9. PUBLIC SERVICE

BAKEWELL, Peter J. Faculty Representation Association - secretary.

BOYLAN, Anne M. Additional: Presentation to the History Department Colloquium, "Women's Organizations, 1797-1840: The Roots of Feminism?" January, 1983. Talk on "American Women in the 1930s" delivered to Fine Arts Course on the Thirties, September, 1983.

DABNEY, William M. Various committees for the Episcopal Diocese of the Rio Grande and St. Mark's Episcopal Church. Speeches to honor Washington's birthday and the bicentennial of the Treaty of Paris, Colonial Dames, Daughters of the American Revolution.

ETULAIN, Richard W. Church of the Nazarene: SS Teacher; Chair of Preschool committee of Sonlight preschool.

IKLE, Frank William Albuquerque Committee on Foreign Relations, "21" Club, (Member of Nominating Committee), President, "Friends of Switzerland in New Mexico."

KERN, Robert Team parent, Duke City Soccer League; coach, YBA basketball program, YMCA.

KESELL, John L. Board, Rio Grande Planned Parenthood (past pres.), St. Thomas of Canterbury Episcopal Church (dir. of acolytes)

KRAMER, Steven Philip Board of Directors, Albuquerque Chamber Orchestra.

PUGACH, Noel H. President, Experiment in Jewish Learning; Parent Advisory Committee, Del Norte High School.

RABINOWITZ, Howard N. Chairman, Albuquerque Landmarks and Urban Conservation Commission.

SKABELUND, Donald LDS Sunday School Teacher, New Testament and Church History.

STEEN, Charlie R. Departmental representative for U.C.F.

Report of the NEW MEXICO HISTORICAL REVIEW

July 1, 1983 - June 30, 1984

Richard W. Etulain, Editor

STAFF APPOINTMENTS

Our office staff experienced two major changes in the past year. As of September 1983 Sandra Schackel became our new assistant editor, replacing Cheryl Foote in that position. In addition, because of budgetary cutbacks we were not allowed a workstudy person during 1983-84. The decreased size of our staff placed a heavier work load on other staff members, particularly on Office Manager Nancy Brown, the most experienced and only full-time person in our office. Finally, the editor has completed his fifth year in that position.

We continue to make use of our two editorial boards to read manuscripts, to enlarge our contacts in scholarly and lay communities, and to provide support and counsel for the REVIEW.

OTHER DEVELOPMENTS

We have again reached several of our goals for this year despite a 5% cutback in some of our funding. First of all, we have been on time with all of our issues this year--as we have been for the past four years. Second, we have been able to publish more book reviews this year, thereby providing better coverage of books published about New Mexico and the West. Third, we have added more book-review essays, and in doing so we have put needed emphasis on the most significant volumes printed in our fields of specialty.

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Our readers tell us that we are gaining additional strength and notice as a significant state-history journal. Indeed, some tell us that we rank with the best of the state-history journals in the West. We, of course, like to hear such comments! Hard work, diligence, extra working hours given free to the REVIEW, and new attempts at publicity and circulation--I think--are paying off in this added, positive attention being given to the REVIEW.

Moreover, we have explicitly tried to attract well-known historians to the pages of our journal and have been partially successful in this regard during the last twelve months. We plan to emphasize this goal in the coming year without overlooking contributors in New Mexico, who, by all standards, supply most of the submissions and financial support of our journal. A strong state-history journal should maintain strong allegiances from its home base but not overlook nationally known scholars as a source of submissions; we are trying to maintain this healthy balance.

PROMOTIONAL EFFORTS

Here again we are attempting to maintain a balance in our efforts. Well aware that we must continue our promotional efforts in our region, we have deligitly done so. Our entire staff has been involved in these efforts, but our capable office manager, Nancy Brown, has carried out the bulk of these activities. Consider the variety of our attempts to promote the REVIEW, to add subscribers to our lists, and to sell back issues. Not only have we taken part in several historical conferences--several

times partially at our own expense--we have also tried to sell our journal at a variety of other conferences, both scholarly and general. The following list illustrates some of our on-going efforts to promote the REVIEW.

Traditional efforts to promote circulation and back issue sales at conferences and meetings include:

Sold NMHR at Spanish Village, NM State Fair, September
 Displayed NMHR at NM Writers Coop Booth, NM State Fair, September
 Displayed NMHR at Western Historical Society Conference, Salt Lake City, October
 Displayed NMHR at Women in the West Conference, Tucson, January
 Displayed NMHR at NM Farm Women's Conference, Las Cruces, March
 Sold NMHR at APS Bilingual Education Conference, Albuquerque, March
 Sold NMHR at Colloquium for Research on Women, UNM, March
 Displayed NMHR at Women Writers of NM Conference, Albuquerque, April
 Displayed NMHR at Women's Studies Conference, Portales, April
 Sold NMHR at Historical Society of NM Conference, Albuquerque, April
 Sold NMHR at National History Day, UNM, April
 Displayed NMHR at NM Library Association Conference, Albuquerque, April
 Sold NMHR at Glorieta Civil War Reenactment, Glorieta, June
 Co-sponsored, handled publicity, and sold NMHR for Land Grant Session of American Society of Ethnohistory Conference, Albuquerque, November

In addition we have tried new methods to broaden our circulation base and sales by:

Providing displays of pertinent NMHR material for a series of Local History Workshops held throughout the year at Corrales, Albuquerque, Socorro, Las Vegas, Española, Gallup, Santa Fe, and Roswell

Arranging sales of NMHR issues on local history topics at several area museums including the Rough Riders' Museum-Las Vegas, Old Mill Museum-Cimarron, the Carson, Blumenschein, and Martinez homes-Taos, the University museums at NMSU and W'MU, the Salmon Ruins Museum-Farmington, Billy the Kid Museum-Fort Sumner, Fort Sumner State Monument, Smokey the Bear Museum-Capitan, the Pueblo Indian Museum-Albuquerque, and city museums in Pinos Altos, Folsom, Raton, Farmington, Cloudcroft, Mogollon, Silver City, Madrid, Moriarty, Deming, and Albuquerque. Other places selling

0397 for us are the Navaho Community College bookstore-Chinle, Arizona, and shops in Albuquerque, Raton, Las Vegas, Taos, Santa Fe, and Lincoln.

Visiting many classrooms this year to talk about the NMHR because it is a valuable resource tool for New Mexico and Southwest studies courses. We visited classes taught by Professors M. Weigle, T. Steele, J. Kessell, M. Simmons, T. Duran, R. Larson, M. Szasz, and F. Szasz. As a result several classes are now reading the journal as a part of their regular assignments.

OTHER ACTIVITIES

If we carry out the mission of a strong regional historical journal, we must do more than merely publish scholarly essays and book reviews. To accomplish this goal, we try to promote history, to push for any organization, conference, or gathering that furthers the cause, the interest in, and the study of New Mexico and southwestern history. Consider what we have done in this regard in the past year.

Assistance to the Committee for the Promotion of History
Promotion of events, groups, and special publications on
history in our News and History Notes section of journal
Answering of reference and inquiry letters about state history
Joint sponsorship of Land Grant Conference
Providing sample issues and resource handouts pertaining
to the REVIEW for meetings and workshops

We exchanged ads and notices with the following places:

Historical Society of New Mexico
Most local historical groups
LA JUNTA, journal for the Social Studies
COMMUNIQUE, journal for preservation history
NM Society for the Promotion of History
Rio Grande Historical Collection
New Mexico Genealogical Society

Although we have not been able to buy advertising, most state newspapers have carried notices of REVIEW articles.

Mailings to the following groups to encourage them to subscribe or purchase back issues of the NMHR:

U.S. and foreign members of the Westerners International (Corral of Westerners) who are interested in Western history
 Selected names from the 1984 Directory of New Mexico Historians and Historical Organizations working on our topics
 New Mexico museums and historical sites for which we have material
 Institutional NMHR subscribers and exchange partners
 (which included a questionnaire on their NMHR holdings and NMHR issues needed by their library. Replies from us about NMHR issues available have generated some purchases of NMHR issues by these institutions)
 Key Southwest and New Mexico contact people (who then redistribute our flyers to interested parties in their communities)

Finally, and this activity is important to the university, the REVIEW is used extensively by the UNM library to gain exchange subscriptions to other scholarly journals. In a recent count, the library was exchanging the REVIEW for 175 other journals, meaning that the library and the university we saved \$3,500 through NMHR exchanges. In addition, the library uses other copies of the REVIEW in an attempt to garner new exchanges. The willingness of other libraries to accept, each year, the REVIEW in exchange for their journals indicates a growing appreciation of our journal.

ACTIVITIES OF THE ACADEMIC STAFF

During the past year, the editor has published two books: Conversations with Wallace Stegner (University of Utah Press, 1983) and Western Films: A Brief History (Sunflower University Press, 1983), completed another book to be published in 1985, and is well along in two other book-length projects that will appear in 1985 or 1986. In addition, he published three essays and fourteen book reviews, read five papers at conferences and gave six guest

lectures, and served as a referee for four book manuscripts and numerous essays. He was also elected to the eight-person council of the Western History Association.

Meanwhile, Sandra Schackel, assistant editor of the REVIEW and a graduate student in history, read a paper at the New Mexico Historical Society conference, coauthored a chapter in a forthcoming history of women in New Mexico, and prepared two National Park Service publications. She also attended a conference on women's experiences in the West at Tucson, the annual meeting of the Pacific Coast Branch of the American Historical Association in San Diego, the regional Phi Alpha Theta conference at Las Cruces, and served on history department search committees.

Office Manager Nancy Brown attended several historical and local conferences and gatherings, where she displayed the REVIEW and promoted regional historical efforts. Nancy is a major source of historical information concerning New Mexico in the state and on the university campus.

FUTURE PLANS

In January 1985 the REVIEW will publish a special issue of the journal devoted to Borderlands history honoring Miss Eleanor B. Adams, who edited the REVIEW from 1965 to 1975. Richard Greenleaf, internationally known scholar and director of the Latin American Studies Center at Tulane University, will serve as guest editor of this issue. When combined

with the January 1983 special issue on the Mexican Period (1821-46) of New Mexico history, the Borderlands issue is a continuing indication of our commitment to publish a variety of notable essays on regional history. Tentative plans are underway for other special issues during the next few years stressing additional periods and themes of New Mexico's history.

At the same time we shall attempt to broaden our regional emphasis by reviewing a wider variety of books dealing with the American West. Moreover, in forthcoming issues we shall include other book review essays on the most important volumes in western history and secure notable writers in the field to prepare these review essays.

Let me also note the ways we shall try to add to our subscription list and thereby generate more revenue. First, Nancy Brown will continue writing to local, regional, and national libraries about their holdings of the REVIEW. Second, she will continue checking with scholars closely associated with our journal or the history of New Mexico, asking them to double-check their library's run of the REVIEW. Third, we shall push the REVIEW even harder at the conferences and meetings we attend.

In a further attempt to raise additional revenue, I shall write to members of the Editorial Board of the REVIEW in the next few days asking them to raise the subscription rate from \$12 to \$14 for individuals and from \$12 to \$16 for institutions as of 1 January 1985.

I should like to be able to raise more of the costs involved in editing and publishing the REVIEW--and we are trying to do so.

But there seem to be limits of revenue-raising that scholarly journals reach. We have consistently raised more than enough to offset printing, mailing, and in-house expenses; we have not been able, however, to raise sufficient funds to pay salaries.

Still, our situation is similar to that of other historical journals published at UNM or elsewhere in the West. So far as I know--and I have checked with more than a dozen scholarly journals in western history--none pays substantially more of its support than we do. We shall try hard to raise additional support, but based on the experiences of others at UNM and in the West, we shall continue to need the financial support of our host institution.

We think UNM will want to continue its support of a superior state-history journal. Ask a specialist in western history about the status of the NMHR, and I am confident he/she will tell you the journal is one of the best of its kind. That endorsement, I think, is the best reason for the needed, ongoing support of the REVIEW.