

Tamarind Technical Papers

Tamarind Institute, 108 Cornell Avenue, S.E. Albuquerque, New Mexico 87131

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A CONVERSATION WITH JAMES MCGARRELL

James McGarrell's new series of color lithographs is a remarkable achievement in creative use of the medium. In this conversation with Clinton Adams, McGarrell discusses his ideas and images as well as the technical processes he employed in the making of these lithographs. Adams begins the conversation:

When you first worked in lithography you showed little interest in color. Most of your prints were printed in black, off-black, or sepia.

That's right. When I worked at Tamarind, Los Angeles, in 1962-63, my lithographs were one-run prints, usually drawn on stone, although I did a few things on plates. I made one attempt at a multi-color print. The subject was a female torso, but somehow, as it developed, I could never get the color to take over in the way it does in painting. The black and white version was finally more satisfactory to me.¹

Has your attitude toward color changed since then?

Yes and no. I have discovered new ways to make color prints which grew out of resistance to the *separateness* of colors in color prints, as opposed to painting. I felt the problem then but did not learn how to handle it until several years later. I don't (and didn't) like the idea of a controlling key stone, usually printed in some dark color, with the other colors serving only to support it. I tried to avoid the key-stone concept in the Los Angeles lithograph, but I didn't really succeed. It finally depended on the strength of only one of the four colors—the green stone, from which the black and white edition was printed. And I also dislike, at least for my work, what I call the collage concept of color, in which areas of color are simply printed one beside another. This has worked for abstract, hard edge lithographs, as well as for Picasso, Matisse and Bonnard, but not for images that are illusionist, as my images always are. Can you imagine a Caravaggio done this way?

The Los Angeles lithographs were drawn either with crayon or tusche and were in a general way characteristic of the drawings and paintings you were doing at that time.

Yes, very much so. But I didn't really go beyond black and white lithography at that time. It was not until 1970



Quotation with Twister [T 75-130].

when I did a series of lithographs with Jack Lemon at the Landfall Press in Chicago that I developed the kind of thinking upon which my more successful color prints depend. I had been working with transparent glazes in my paintings, with optical mixtures of colors penetrating each other. So when I thought again of color lithography I was seeking means equivalent to these glazes and transparencies. I remembered having seen some acid-tint lithographs by Richard Hunt and Robert Hansen which had the quality of rendering transparent half tones.

Yes, both Hunt and Hansen used the acid-tint technique at Tamarind, Los Angeles.

I actually saw their prints during a visit to Gemini in the mid-sixties. They stayed in my mind as a medium which might permit the kind of transparent color mixing I wanted—provided it could be handled in color separation. Hunt's and Hansen's prints were in black and white.

James McGarrell divides his time between his studio in Italy and his position as Professor of Art at Indiana University. He has exhibited internationally since 1956, including the Kassell *Dokumenta*, Venice *Biennale*, and a number of solo exhibitions. His work is in many public collections in the United States and Europe.



Reflections with Rugs [T 75-128].

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Editor: Clinton Adams
Contributing Editor: John Sommers

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References to TBL in articles and footnotes are to *The Tamarind Book of Lithography: Art and Techniques* by Garo Antreasian and Clinton Adams (New York, Abrams, 1971).

Unsigned notes and articles are written by the Editor.

I had used color glaze techniques to complete six paintings which I called *The Quincy Inventions*. I approached Jack Lemon about doing six lithographs based on those images. I knew I would have to break through the limitations of color printing that had restricted me in the past, and I had the acid-tint process in mind when I talked to Lemon.

The Landfall prints were printed in four colors: two yellows, red and blue. Was this part of your concept from the beginning? To work with color primaries?

I hadn't been thinking in terms of primaries, but I did have in mind a full range of color. To get the colors I wanted, I knew I would need red and blue, but somehow I felt that the greens and oranges might not be rich enough if I were to use only a single yellow. That's how we came to four colors: one yellow that went toward green, another that went toward orange, along with the red and blue. I didn't want to use black. I was hoping that what would happen was what actually did happen—that an optical black would be created when the four colors were overprinted. Of course all of this was just theoretical at that point, I had never made prints that way.

You avoided a black stone in order to avoid a key stone?

Exactly. I thought that if I used a black stone I would fall back into the problem of having the other colors play a tinting or supporting role to the black. I didn't want that to happen.

Then the Landfall prints quite closely resemble your new series here at Tamarind in that each of the printing elements has a comparable weight, no one plate overpowering the others?

Yes. The new Tamarind prints derive directly from the concept begun at Landfall, although the working methods are very different. I really don't know which of the methods is more difficult. I had tremendous

problems in handling the acid-tint process because, as you know, it is not at all precise. There is a lot of guesswork involved when you are working on that ink film with gummed acid.² The longer you leave the acid on the triple ink, the more it etches it, and the lighter the color. So the acid must be sponged off—and when the acid was sponged off there was no way to avoid also taking off the red chalk lines I was using for color registration. So I had real difficulties with registration and with precision in drawing. Each individual stroke of the brush becomes quite visible in that medium and there is no way to achieve great precision without the drawing becoming labored. I wanted a breadth of stroke, not a rendered look, but at the same time I needed a certain amount of precision for realization of the image. It was very discouraging. Several times I was about ready to give up and go back to black and white lithography.

But you didn't. You managed to solve the problems.

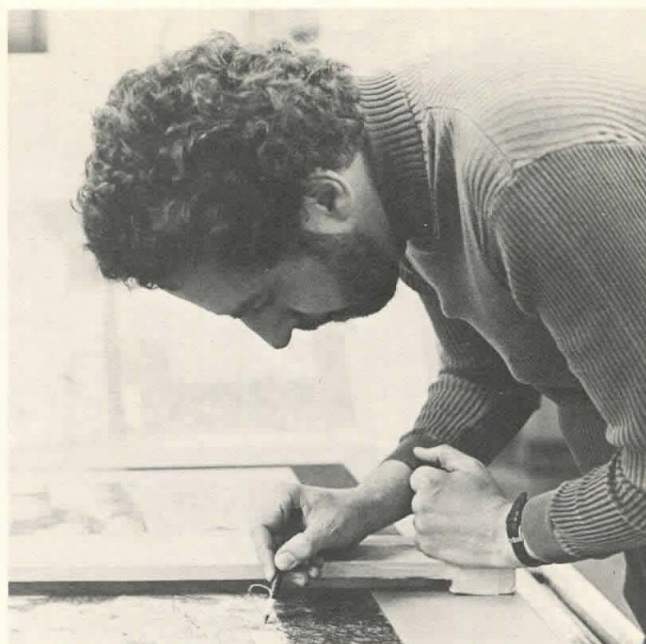
Yes, with Jack Lemon's help. When I first had the idea of using acid-tint in this manner, Jack was very encouraging. He told me that no one had used color acid-tint that way, and he was very excited by its possibilities. We were working on a contract basis, subsidized by George Irwin of Quincy, Illinois, who had commissioned *The Quincy Inventions* for a touring exhibition to circulate throughout the country. And when I began to encounter difficulties maintaining the image on the stones for color registration, Jack was really wonderful. He said "go ahead. If it doesn't work out after we have proofed the stones, I won't charge you anything. We'll do them as one-run, black and white prints." So I managed to do it. I'll never forget the excitement in the shop when we finally laid the last (blue) run down on the first proof, and it was a wild and dissonant color complex that was somewhere in the ballpark of what I had hoped for but had never seen in anyone's prints. Jack humored me into doing something which I had thought might not be possible, and I'll always be grateful to him. He also helped me with the color concept, sharpening my ideas about the specific kind of blue that would be needed, and the specific kind of red.

These were similar to process blue and red.

Yes, although I knew nothing about commercial printing processes, so those concepts meant nothing to me. We stayed with the idea of using two yellows, one warm and one cool, and we didn't use black, which is used in commercial process printing. It worked out, not in an entirely predictable way, because I couldn't have conceived exactly how the colors would combine. But I learned how to aim at and get close to all the secondary colors and all kinds of resonant browns, greys and "off" colors.

Did you use the same four colors in all six lithographs?

Yes, once we mixed the four colors we didn't change them. During the proofing of the first lithograph I learned how they would work together; after that it was a little easier. It was in many ways a negative drawing



James McGarrell draws directly on a stone for *Cumulus Still Life* [T 75-615 and 75-616].

process. I was taking lights out, not putting darks in, which forced me to think negatively in terms of color, a kind of thinking which has been intrinsic to the new Tamarind lithographs.

These are your first color lithographs since the Landfall series?

Yes. When you and I first discussed the prints I might do here, I was thinking of straight crayon lithography and hoping to build up the crayon tones to achieve the kind of richness I wanted. I was still thinking in terms of the four-color concept I had used in the Landfall prints, not really knowing whether there was a way in which I could combine the precision of crayon drawing with the negative aspects of the acid-tint method, working from dark to light. I wanted the control that crayon could give me, but I didn't want to sacrifice depth and richness of color.

So that it was when you became aware of the possibility of drawing on Mylar through the Butler article that you conceived the idea of making Mylar negatives? It was this possibility that attracted you to Mylar?

Yes, I read the technical article you sent me,³ and I got the idea that if I were to draw in negative, it would be possible to eliminate the step of making an intervening Kodolith negative; the lithograph plates could be made directly from my drawings. I must confess that I am a bit wary of photographic techniques; my prints have always been very direct and often simple in technique.

Acid-tint is hardly a simple process.

The processing is complicated for the printer, but for the artist it is at least totally direct. There are difficulties in handling color registration and in conceiving how the various proportions of constituent colors will combine to make new colors, but otherwise it is just like wash drawing, light on dark.

Text continues on page 55.



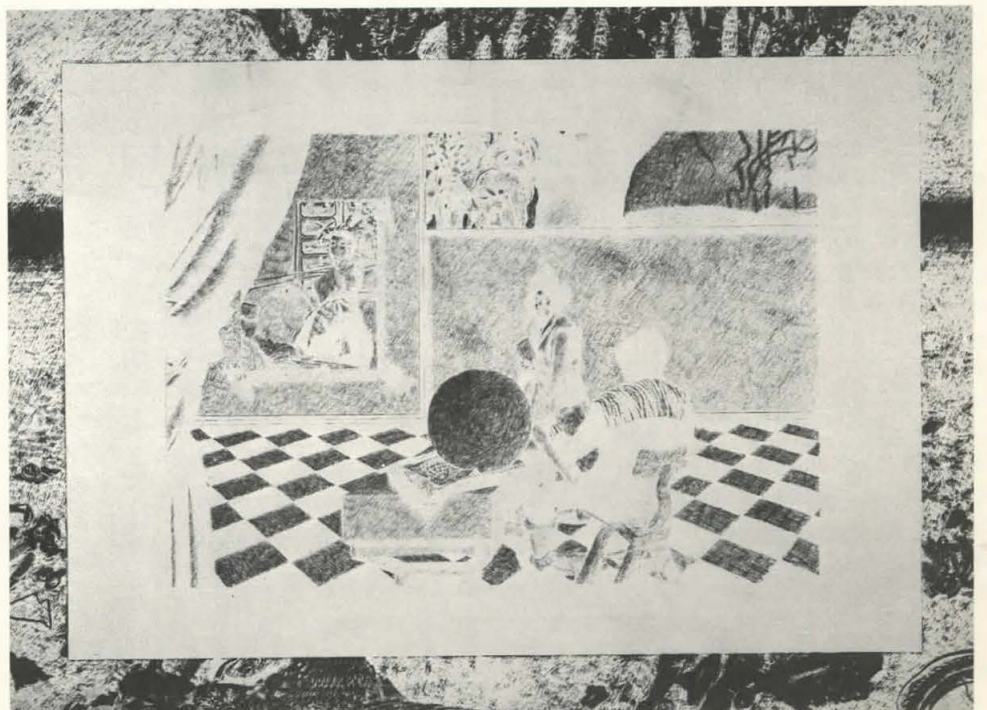
Veracity with Earth (yellow plate).



McGarrell drew "negatives" on Mylar using an All-Stabilo No. 8046 black pencil (see text, page 55). The plates were made directly from these drawings.

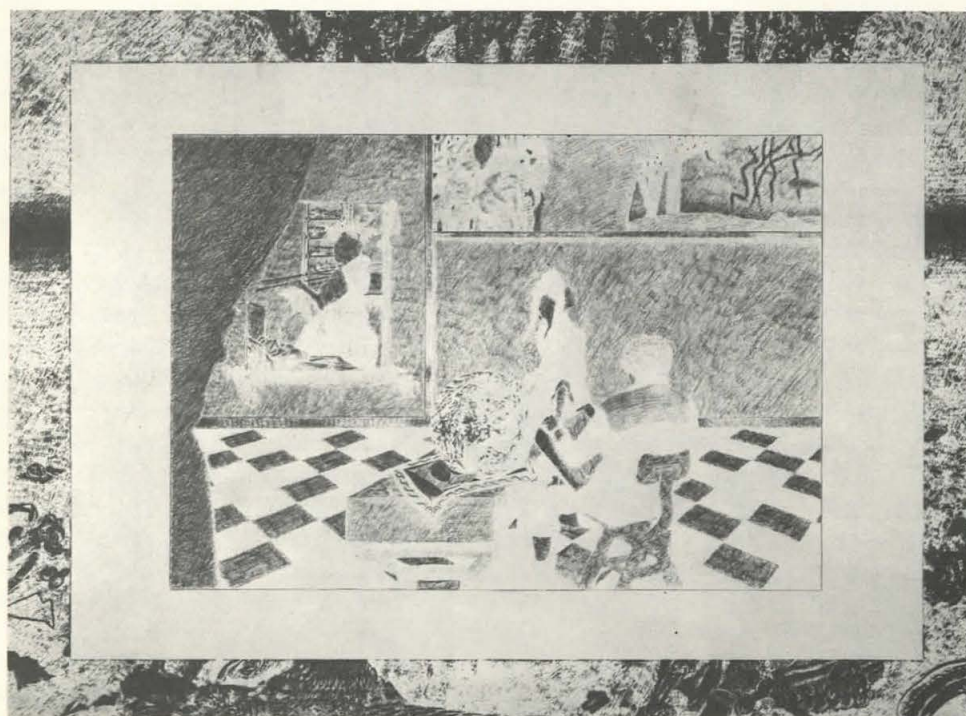


Veracity with Earth (red plate).

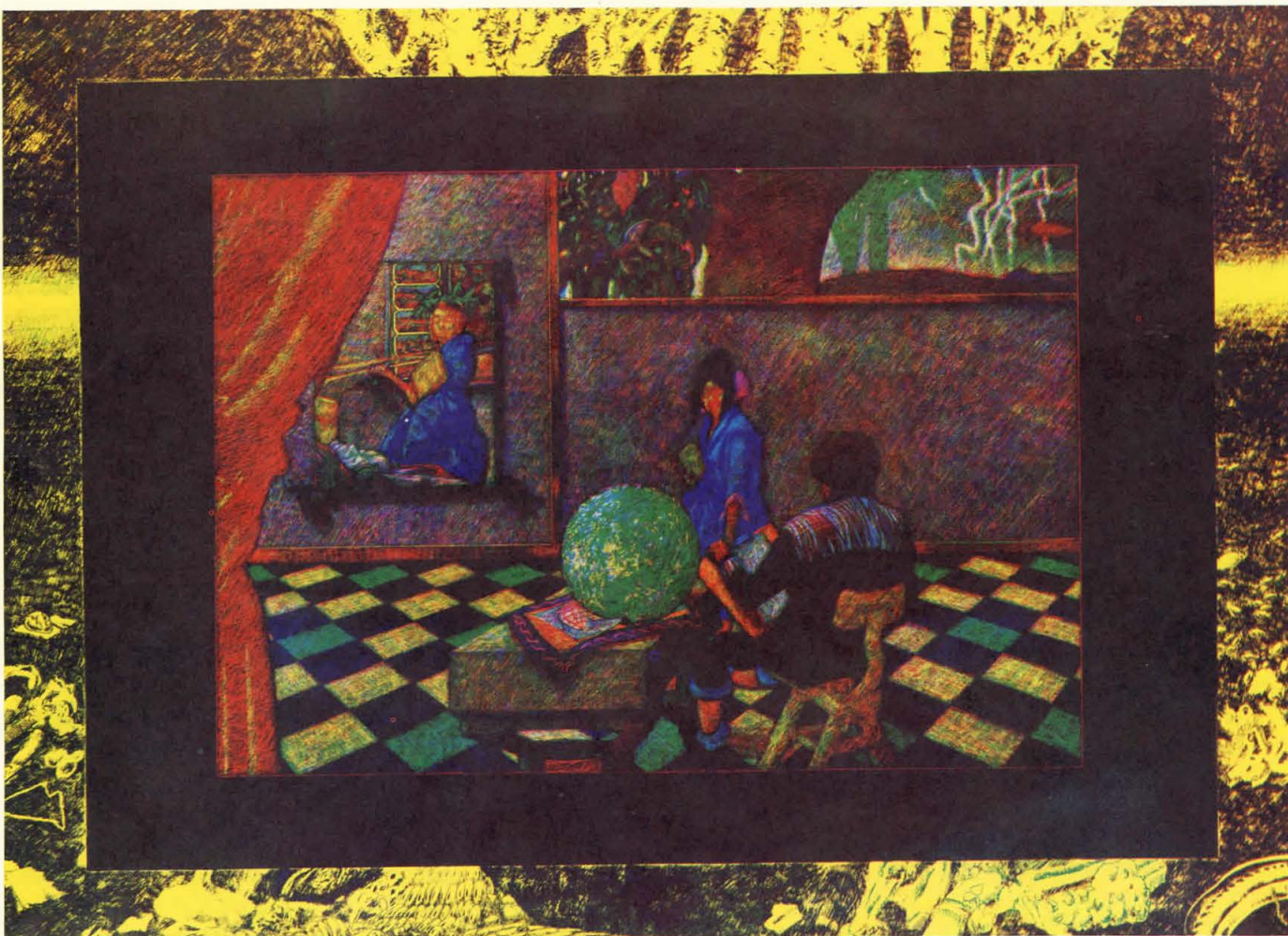




Veracity with Earth (blue plate).



Note: These illustrations do **not** accurately reproduce the colored inks used in the printing of McGarrell's lithograph. Process yellow, red and blue inks have been substituted for the specially mixed warm yellow, red and blue inks used in the lithograph. This series of separations thus demonstrates the process used by the artist, but **not** the character or tonality of *Veracity with Earth*.



Veracity with Earth [T 75-141]. See note on facing page.

The fact that the use of Mylar solved the registration problems must also have been an attraction for you.

Very much so. That appealed to me enormously, although it was only in the last of my four prints at Tamarind that I made use of separate Mylar sheets for each separate color run.

In two of the prints, Dancers with Trash and Reflections with Rugs [T 75-129 and 75-128] you used only a single Mylar drawing, modified by additions and deletions.

That's right. I did one drawing on Mylar, had it shot on a plate, went back and worked on the drawing, had it shot on the second plate, and so on. And in *Quotation with Twister* [T 75-130] I didn't use Mylar at all. The initial drawing was done directly on stone, transfers were then pulled and placed on other stones, and each of the stones was then modified through additions and deletions. This lithograph is thus much in line with my original intention to make direct crayon lithographs. The use of the transfers provided a means to build up the tones and achieve the depth of color that I wanted.

But in Veracity with Earth [T 75-141] you made use of three separate Mylar drawings, each drawn as a negative and registered by overlaying them one upon another.

It was even more complicated than that. While working on *Dancers with Trash* with my printer, Ben Adams, I finally discovered—after five years—that I didn't need the two different yellows. They became so rich that they took over the print and made the color muddy. I found that I could actually get a greater range of color by eliminating one plate, so we dropped one of the yellows from *Dancers*. I kept the fourth plate in the *Reflections* print because it seemed to be working there. Then, as you will recall, I went back to Bloomington, and it was on my second trip to Albuquerque that we worked on *Veracity with Earth*. It was planned from the beginning as a print in three colors, and I made a separate Mylar drawing for each color. But somehow the drawing I had made for the yellow plate was not satisfactory, so we conceived of the idea of making a new yellow plate from a "sandwich" of the Mylar drawings for the red and blue plates, shot simultaneously. I went back into the red and blue drawings and modified them, after they had already had their affect on the yellow run. So it was a fairly complex process.

The whole idea of drawing color separations negatively seems like a terribly difficult thing to do, particularly in

images such as yours, making use of the figure. How would you characterize the problems you encountered?

Basically, you have to adjust to the fact that when you put something in—a line or tone in a drawing—you're really taking something out. And when you make an erasure, you're putting something in. It wasn't so difficult in the blacks and whites as it was in the shades of grey, and in the adjustment of the greys of each separate color in three or four part combinations. I found that I could train myself fairly rapidly to think as I put down a very black mark that it would be white on that color run, and that where I left the Mylar open the color would be full. But a light grey against a darker grey—that still took some translation in my mind. To take out red by drawing heavily on the "red" Mylar drawing was really to make green, unless I also subtracted blue and yellow by drawing on those separations.

You seemed to enjoy the challenge. I remember watching you work in the face of these difficulties, as if thoroughly enjoying the problems they presented.

I love doing things that I think I can't do, not only technically but in terms of imagery as well. But even so, I'm something of a coward. I knew there were going to be these technical complexities in the process we would be using, so I didn't feel quite up to inventing new imagery at the same time. Beyond that, I like the old master idea of using an image more than once—making a painting, then doing a print from the painting, or modifying an earlier conception. So the images of the new Tamarind prints derive from some earlier paintings that I had made in the late 1960s.

Was that also true of the Landfall prints?

Yes, they were directly from the Quincy paintings. The paintings, the lithographs and the preparatory drawings were all conceived as a single project. When I made the lithographs I still felt strongly about the paintings and wanted to see the images again as prints. Of course, they are not at all the same. They couldn't have been, no matter how skillful I might have been in reproducing them—and I wasn't really interested in reproducing them anyway—more like presenting them. In these new Tamarind prints I also changed the images by adding the borders, which are very important to them. The borders started in 1970 with the Quincy prints and since then have been very important to me. Right now, I can't conceive of doing anything without a border. Besides the central images of the Tamarind lithographs coming from pre-border paintings, there have been many other changes—thing added and adjusted, and a number of reinventions. The original image served as a kind of ground plan to determine the major intention of the work in terms of its subject.

Since making the Tamarind lithographs you have developed an extended series of black and white drawings which in a way relate to them. Were these in some way brought about through your experience with the negative Mylar drawings?

Yes, in a rather evolutionary way. In *Cumulus Still Life*

I used as subject matter a rather trashy still life in a panoramic landscape.⁴ It was this idea—its scale and feeling of space—that I wanted to continue to explore, and I began to do so in a series of drawings, in Italy, after I finished at Tamarind.

Did the image in Cumulus Still Life derive from an earlier painting?

No, it was entirely new. I approached it as a "failsafe" drawing in case the negative drawing didn't work out. I drew positively on the Mylar and we had an intervening photographic negative made from it, which was transferred to the plates and stones as a kind of insurance.

Was this your first use of still life in landscape space?

Through a long period of time all my work has been involved with a "rubbing" of foreground incident onto other events in deep space, trying to make a world out of this "rub." So, in a general sense, I have been dealing with subjects of this kind for a very long time. But I had never done anything exactly like the *Cumulus Still Life* before, or like the more recent drawings in black and white.

The image in Veracity with Earth is quite obviously an homage to Vermeer. Have you ever done that before?

Yes, quite often. I have done a number of paintings which were variations on themes, or homages to earlier artists that I have admired. I have made use of themes by Eakins, Cézanne, Velasquez, the Pompeii wall paintings, and others. I like the idea of the work of art within the work of art, not only as a quotation but as a basic structure for a new work, as James Joyce used the *Odyssey* for the framework of *Ulysses*. My painting, *Veracity* (1969), now in the Hirshhorn Museum in Washington, D.C., from which the central panel of this print derives, uses the Vermeer portrait of the artist in his studio both as a fragmentary quotation and as the whole substructure of my own variation.

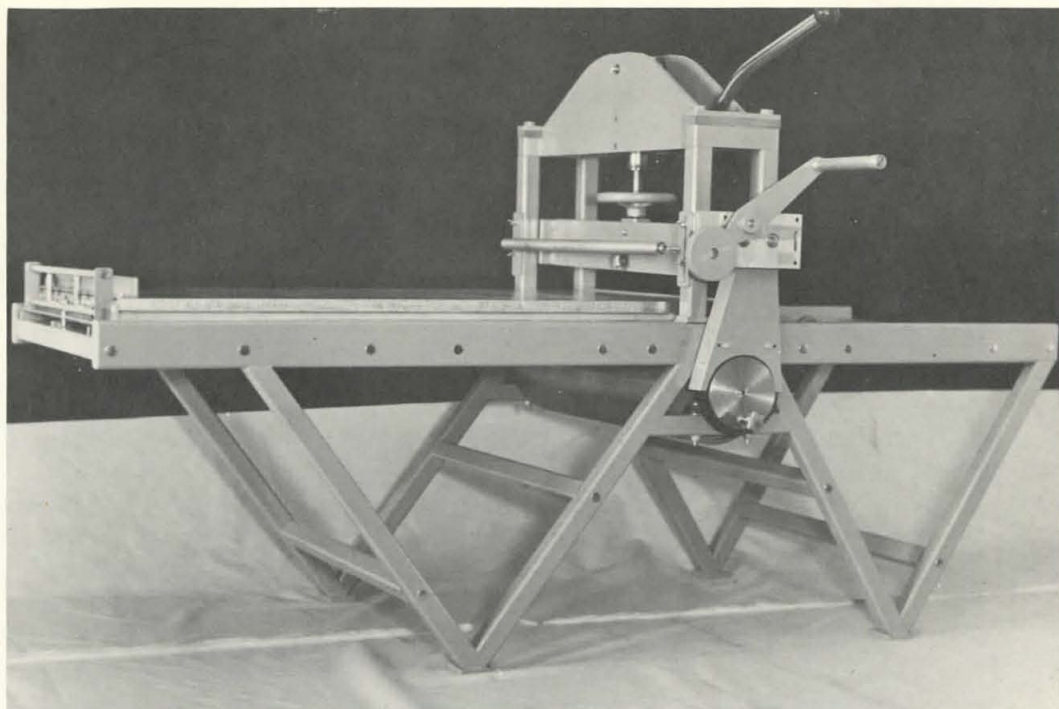
Then you would agree with Motherwell in his comment that for the twentieth century artist, art history is often the subject matter of art.

Yes, very much so. Originality and self-expression are commodities which are so oversold in the naive thinking of the art world, the naive teaching of the art schools and the naive writing of the art press. At any rate, there isn't much that an individual artist can do about becoming "personal" if he isn't—or in suppressing his ego if he is. The grand continuity of artistic traditions, on the other hand, is something he can get his teeth into. He can play with Rubens, he can bounce around with Piero, and feel himself part of an admirable, boisterous family. That is a lot better than spilling your self-conscious guts out as an only child. Joyce, while he was doing work that was revolutionary, had obviously attached himself to larger and older literary traditions.

Much the same thing could be said of Picasso.

Yes, and just about every other artist that I find important. You look at Gorky and see Picasso, you look

Please turn to page 64.



Durability and performance, the essentials of a fine press, are expressed in the engineering and design of the T-G Press.

THE TAKACH-GARFIELD LITHOGRAPH PRESS

by John Sommers

The revival of American lithography since 1960 has in turn led to the manufacture of new lithograph presses designed to meet the needs of contemporary artists and printers.¹ The most recent new press, the *Takach-Garfield Press*, results from the combined efforts of Dave Takach and D. R. Garfield, who between them possess a total of forty-two years' experience in engineering-related fields, and two Tamarind master-printers who sought a completely responsive new press of the highest quality.² In order fully to meet the printers' precise requirements, Takach and Garfield designed and constructed press-systems which provide ease of operation and maintenance, sensitive and uniform pressure control, durability, and an overall appearance that is pleasing and expressive of purpose. Among features exclusive to the Takach-Garfield design are a new pressure system, the bed-drive and support systems and the bed *stop-loc* device. A hardwood bed was designed to minimize warping, allow for easy disassembly, and provide maximum positive contact between the bed and the central drum.

Two pilot presses were built in 1975 incorporating these features; these presses have now been tested under atelier conditions for a period of ten months. The results are impressive, indicating to their printer-owners that this is a truly fine lithographic press, high in performance, and of a quality fully consistent with initial expectations.

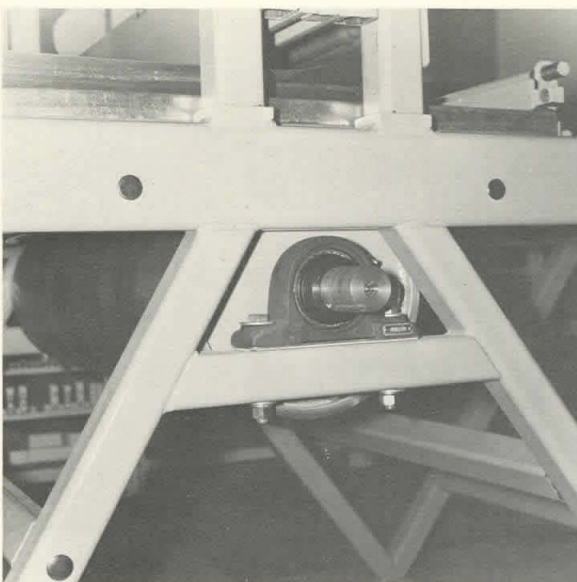
The press bed is constructed of staggered grain, laminated one-inch hardwood, glued together to form

three independent sections. Each section is sixty inches long and approximately eleven inches wide, and is fastened in place only at its ends. Should planing ever be necessary, the sections are easily disassembled and are of a width that can be accommodated by a planing machine. Bolted together at the ends they form a solidly constructed bed. The bed is covered with a one-eighth inch neoprene sheet, providing a cushion over which a galvanized, heavy duty steel cover is placed. The cover will not dent in use, even with printing elements of varying sizes. The bed has a fixed stop to prevent cranking it through too far.

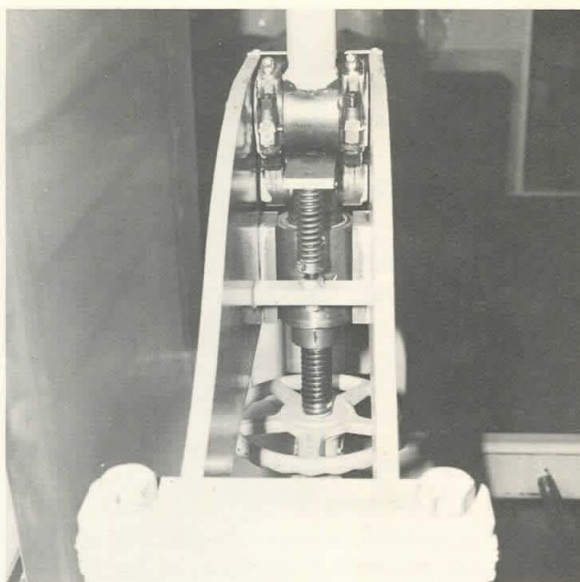
The press incorporates a unique pressure mechanism which provides a wide range of uniform pressures in direct application. It is constructed with a single piston which is driven downward by a double lobe, eccentric cam with greasable bearings at every movable joint. The moving parts, machined to very close tolerances, allow the eccentric to rotate over center from .0005 to .0010 of an inch, thus preventing accidental release of printing pressure.

Pressure adjustment is provided with a hand-turned wheel atop the scraper bar housing unit. This system incorporates a tightly fitted acme screw thread and adjustment wheel which, coupled with the suspended weight of the scraper bar housing unit, prevents pressure from creeping. Minimal adjustment is necessary in order significantly to increase or decrease pressure, while the wheel provides maximum upward or downward movement so as to adjust to the height of

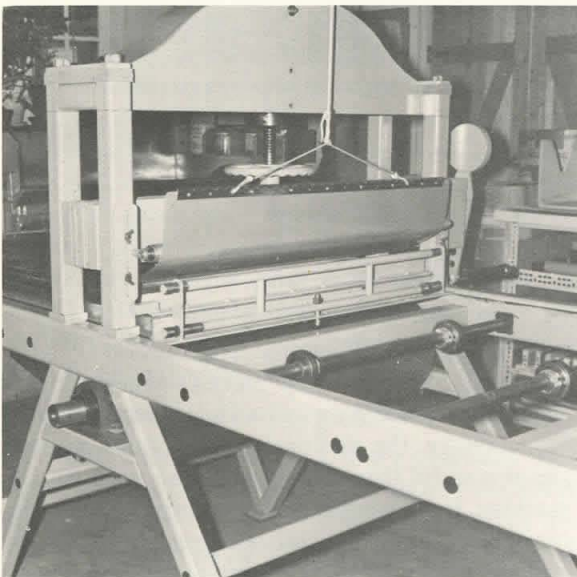
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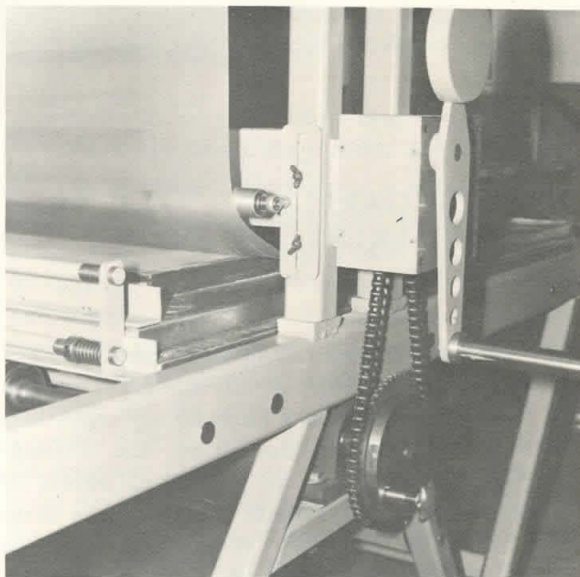
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printing elements. Pressure is engaged and released with a curved hand lever set at right angles to the press, permitting optimal operational leverage. Most printing pressures can be engaged and released with the leverage of one arm. In this action the scraper bar moves approximately three-quarters of an inch, providing generous tympan clearance. Adjustable spring returns lift the scraper bar housing when pressure is released. Additionally, an adjustment screw is provided which controls the arc of the pressure lever. The pressure mechanism is enclosed in an arched steel frame yoke which is bolted to the frame through upright steel posts. Between the mounts are pads which compress when pressure is applied.

The bed is driven by a large-diameter steel drum which is mounted in two heavy duty, self-aligning, ball

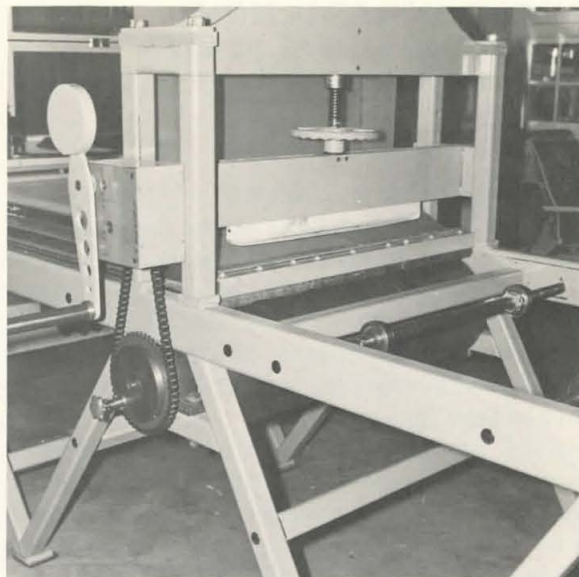
bearing pillow blocks. Minimal drum turns provide drive which is transmitted from a counter-balanced crank through a gear reduction system, with six precision ball bearings at moving points, to a link chain that drives a sprocket wheel. Keyed to this system is the drum driving wheel, provided with a spring loaded clutch pin. The sprocket wheel has twelve holes, one of which will engage the clutch pin with less than one turn of the crank. The drum, thus engaged, drives the bed under pressure with great ease.

Ensuring smooth and level bed travel are twelve eccentric roller bearings placed so as to support the weight of the bed in all positions. Each roller bearing is adjustable to the steel runners on the bottom of the bed. The manufacturers provide simple instructions for adjustment of these bearings. In proper adjustment, the

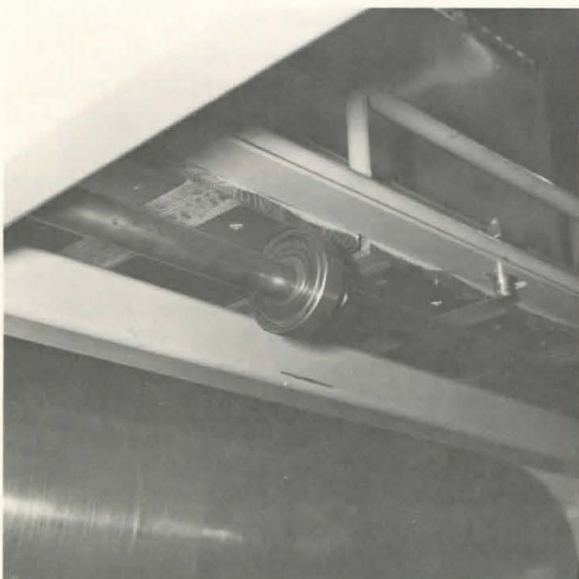
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Illustrations:

1. The yoke of the T-G Press is bolted directly to the one-piece side rails of the frame. The drum is supported independently on a central leg frame providing maximum adjustment for bed alignment. Note the machined keyway provided for motorization if desired.
2. A unique, double-lobe, eccentric cam pressure mechanism is housed in the steel frame yoke.
3. A traveling tympan is provided as optional equipment. The tympan-grease roll-bar is adjustable. Self-aligning bearings at either end prevent the roller from binding. The tympan is made of heavy-duty Mylar press packing. It is bolted to the press bed and is pulled vertically upward through a system of overhead pulleys as the press bed returns.
4. The counterbalanced crank comes to rest in a vertical position. The gear box adjusts for tension on the chain drive. Note the one inch indentation of the press bed, providing space for possible installation of adjustable magnetic stops.
5. As the press bed returns it is engaged by a positive **stop-loc** device. Rubber bumpers absorb shock and reduce noise.
6. Eccentric roller bearings maintain a level press bed in all positions. Lifting and teeter are thus eliminated. Note the polyethylene scraper bar (see TTP, No. 2, p. 21).
7. Each eccentric roller bearing is independently adjustable to the steel runner on the press bed, thus eliminating the need for bed rails. Note the unitary construction of the press bed.

bearings support bed travel with or without pressure; movement is free of bumping, tilting and rocking. A sensitive and uniform pressure is thus provided along the full length and width of the bed's travel.

Return of the press bed to inking position is a one-hand operation. On return, the *stop-loc* mechanism is engaged and the bed is locked in position, completely free of movement or rattle, thus greatly aiding the printer in inking of impressions. Release of the *stop-loc* is accomplished by a pull on the release bar, located to the printer's left, above the press bed.

With an eye to future modification, Takach and Garfield have provided two features that will permit motorization of the press. The drum shaft has a machined keyway at either end. The bed has a full-length metallic strip on the printer's side, thus permit-

ting use of adjustable magnetic stops. This stop bar is set into the bed at frame height and one inch from the edge.

Craftsmanship of construction, quality machined and fitted parts, and well conceived design have together provided a durable machine notable for its ease of operation, resistance to wear, and convenient maintenance. Excellent adjustment systems provide positive action for pressure, travel, return and lock.

Further information and price quotations may be obtained by writing directly to the manufacturers: Takach-Garfield Press Company, 3207 Morningside Drive, NE, Albuquerque, NM 87110.

1. See TBL, Chapter 13, pp. 343-60.
2. John Sommers and Ben Q. Adams.

DELETIONS AND ADDITIONS ON STONE AND METAL PLATES

by John Sommers

The correction or modification of drawings on stone or metal plates is a topic of central importance in lithography. In the interval since publication of TBL in 1971, Tamarind's procedures for the making of deletions and additions have been modified as a result of additional workshop experience. This article serves to summarize current practices and to supplement the discussion of these topics in TBL.¹

Deletion procedures for drawings on stone have characteristically depended on physical removal of portions of the image with hones or blades. Artists often choose to use picks, needles or scrapers as negative drawing tools in order to develop images, and in the process of doing so alter the grain of the printing element. Honing and scraping can often be effective, but it is also possible that they may create more problems than are resolved.

The tooth of the grain, which honing destroys, has two primary functions: it provides maximum surface area to hold an adsorbed gum film, and this gum film in turn holds a maximum layer of water during the process of inking the printing element; and the tooth of the grain imparts to the printed image an appearance characteristic of lithographic drawing materials. Honed areas, because of their decreased surface area, can no longer hold water either in the same amount or with the same consistency. Such areas tend to be easily damaged by abrasion during printing, and the loss of an adsorbed gum film creates conditions in which scumming may occur. Because it is difficult to maintain proper dampness, the honed surface is subject to dry roll. In color lithographs prevention of offset from an earlier press run depends upon the stone's ability to hold water evenly; heavily honed areas may be unable to do so, or may dry unevenly during printing, thus creating offset patterns in flat or heavily inked areas. Further problems occur when additions are to be made in areas previously honed or scraped, as such additions will inevitably have a visual character different from the original drawing on unmarred grain.

In order to avoid or eliminate the faults caused by physical deletions, various methods have been devised for chemical deletions on stones and plates. These processes thoroughly remove unwanted grease, render grease reservoirs inactive, and leave the surface of the printing element essentially unchanged. In making chemical deletions, however, great care must be exercised so as not to mar accidentally portions of the drawing that are to remain unchanged. Since the materials used are in liquid form, one can easily spill or drop them into drawn areas, with highly destructive results. The skill with which materials are handled is the determining factor in the thoroughness of the deletion, the character of the edges that are left, and the degree in which the surface is preserved unchanged.²

It is necessary to think of deletions in two separate contexts: *minor deletions*, the routine cleaning of the printing element made after the initial roll up, and *major deletions*, the substantial alteration of the image through removal of portions of the artist's drawing.

After the first etch and roll up, it is commonplace that a certain amount of "dirt" will appear in the form of smudges, scum dots, wash tests in margins, or residue from use of masking tape. Various other small deletions may also be in order to sharpen or clarify the image. The stone should be fanned dry after roll up, dusted with rosin and talc, buffed lightly, and washed clear with water. The artist should then carefully examine the image, decide what is unwanted or unclear, and determine the minor deletions to be made. Unwanted marks are then removed from the dry surface with Lithpaco Plate Cleaner, a deletion fluid composed of an abrasive material suspended in a solvent and detergent.³

Lithpaco settles out while on the workshop shelf and must be remixed by shaking well before use. A small amount is poured from the container and is applied with a swab, cotton pad, or Q-tip to the minor areas to be removed. The ink is removed through gentle massaging of the surface; additional application then removes the grease reservoir, and the area is permitted to dry. If an area is larger than an inch in diameter it should first be removed with lacquer thinner, then gently massaged with Lithpaco to remove the grease. After all deletions are completed the Lithpaco is allowed to dry to a powdery residue, and the stone or plate is then washed with water. Water activates the detergent in the Lithpaco, cleansing the deleted areas and harmlessly cleaning all portions of the printing element. The stone is washed clear of foam and after fanning it dry the deleted areas are spot etched, using etches (on stone) composed of from ten to twelve drops of nitric acid per ounce of gum arabic. Each etched area should be allowed to react before the surplus etch is removed with a gum sponge. If additional drawing is anticipated in the area of the deletions one might wish, as an alternative, to use several weaker etches (five to eight drops per ounce) rather than an initial stronger one. After spot etching is completed the stone is ready either for its second etch or for counteretching in preparation for additions. The procedure for plates is similar, except that only talc, not rosin, is used after roll up; and the spot etching is done with plate etch (gum arabic and phosphoric acid at a pH of 2.5) or with dilutions of plate etch and gum arabic.

Major and minor deletions may be made at the same time, although if deletions are to be made within an image area a shield must be provided. Tamarind's experience indicates that the best shielding material is transparent, untextured *Contact* brand contact paper. This brand is suggested because our tests with other brands have indicated that they tend to leave an excessive residue of adhesive on the element when they are removed. Usually, a large area or an entire image is covered with contact paper, and the edges of the area to be deleted are then burnished down smoothly (see

illustration, TTP Number 2, p. 15). The shape to be deleted is cut from the contact paper with a knife or blade, using care to cut only through the paper and not into the stone or plate. The edges of the remaining contact paper are again lightly burnished (hard or excessive burnishing may cause the edges to lift), and cleaning proceeds within the cut out shape.

A pad moistened with solvent (lacquer thinner) may first be used to remove the ink. This pad must be moist but not wet; no solvent should squeeze from the pad. Care must be taken not to saturate the edges of the contact paper with solvent, as this might cause it to lift. The center of the exposed image area is cleaned first, remaining away from the edges. Once this is done, the edges, corners and angles are cleaned, always working away from them and toward the open center. Final fine cleaning may then be done with cotton swabs or Q-tips.

After all ink has been removed, the surface should be cleaned with Lithpaco, again using a white cotton pad. Once the grease has been thoroughly removed, a fresh pad will no longer show a yellow or brownish stain. As soon as the Lithpaco is powdery dry, the contact paper may be peeled off. The surface of the element should then be cleaned with hydrogum and magnesium carbonate—using a gum sponge—to remove any residual adhesive that may be sticking to the element. About one teaspoon of magnesium carbonate is put into a pool of hydrogum; the negative areas are gently massaged; the surface is washed, spot etched and gummed down. The image should then be rolled up freshly before applying a second etch or counteretching for additions to the work. Should the cleaning be insufficient, stains can be removed by repeating the deletion process (as described above) prior to the second etch.

ANOTHER METHOD which can be used successfully either on stones or plates involves a gum-out etch. This method may be used for deletions of all kinds, but is particularly useful when sharp definition is required.

The printing element is rolled up, talc is applied, followed by two or three gum films, each buffed down tightly. These several buffed down films together establish a secure, complete mask through which a thorough solvent wash-out can take place. If the image is in lacquer prior to the deletions, an extra solvent wash-out will be needed to insure the removal of residual lacquer prior to burn-out. Ink is removed through the usual wash-out procedures with lithotine. Lacquer thinner is used to wash out the grease, and Lacquer C Solvent or Hancolite are used as a final wash-out to remove all residual grease or lacquer. When there is no longer a stain on a clean white pad, the areas to be deleted are gummed out with an etch mixture. An appropriate gum-out etch for stone (to assure burn out of grease reservoirs) is 10 drops of nitric acid per ounce of gum arabic. For aluminum, plate etch at 1.9 pH may be used. Zinc plates require a gum-out solution of half hydrogum and half cellulose gum, with 3 to 4 drops of phosphoric acid per ounce. When the gummed out area

is thoroughly dry, the image can be rolled up either in lacquer or asphaltum base, and then etched.

1. See TBL sections 2.15, Corrections after the first etch; 4.6, Correcting the image during proofing; 4.7, Removing work by picking, scraping, scratching and honing; 6.21, Corrections on metal plates; 6.22, Correcting drawings before the first etch; 6.23, Corrections between the first and second etch; 6.24, Corrections after the second etch and proofing; 9.13, The chemistry of counteretches on stone; 9.15, The chemistry of counteretches on metal plates; and 10.8, Other materials and small equipment.

2. Elimination of drawing through use of benzine or gasoline in preparation for redrawing is restricted to stone, and is generally further restricted to drawings of a broad character or those which have separate and discrete image areas.

3. Proprietary materials discussed in this article are available from the following sources. It would be well to check with local offset lithography suppliers before placing orders directly with the manufacturers: *Lithpaco Plate Cleaner*, Litho Plate Company, 5200 East Valley Blvd., Los Angeles, CA 90032; *Hancolite*, Handschy Chemical Co., 528 North Fulton St., Indianapolis, IN 46202; *Lacquer 'C' Solvent*, Lith-Kem-Ko, 22 Plaza Drive, Westmont, IL 60559; and *Image Remover*, Western Litho Plate and Supply Co., 3433 Tree Court Industrial Blvd., St. Louis, MO 63122.

PERMANENT ALUMINUM LITHOGRAPH PLATES

by Garo Antreasian

A limited amount of experimental work has been undertaken in the lithography workshop of the Department of Art at UNM, since the spring of 1973, to explore the feasibility of using commercial grades of aluminum plate as a substitute for stones in the printing of lithographs. The rationale for these experiments was as follows:

1. Commercial grades of aluminum plate are easily obtainable in many sizes and thicknesses. As prices are dependent upon size and weight rather than quality and scarcity, plates are available at far lower cost than lithograph stones of average quality and comparable size.

2. Aluminum plates are reusable after regaining with a hand or power levigator in the same manner as stone. As with stones, the original cost of the plates could be amortized over many years of use. By comparison with the cost of single-use, disposable lithography plates, savings could be substantial.

3. Many lithography workshops, particularly in schools and universities, are located at a distance from distribution centers. The use of permanent aluminum plates would relieve these workshops both of high freight costs and the anxieties of delivery services from distant plate distributors and grainers.

4. Because both stones and plates would be grained in an identical manner and with similar abrasive grits, the tooth of stones and plates would be similar, and tonal drawings on plate would resemble those on stone.

5. When not in use as a printing element, the plate

could also serve a secondary function as a uniform and highly serviceable plate support for standard gauge lithography plates.

TWO DIFFERENT PLATES have been used in these experiments to date. One measures 30 x 52 x 2 inches and is composed of a hard alloy designated at 6061-T6 rolled plate. The second, of comparable hardness, measures 30 x 44 x 1 1/4 inches and is a precast alloy called tooling plate. The casting process produces plates to a closer surface tolerance, thus less preparatory grinding is required to level them. By comparison, the rolled plate still has minor ripples and low spots in its surface even after considerable regraining.

The graining of either plate is undertaken in the same manner as for stone. Both hand and power levigators have been used with equally satisfactory results. Experience has shown that a special variety of aluminum oxide grits (#100, #150 and #240) provide a slightly faster graining action and less clogging of surface tooth than do the traditional silicon carbide abrasives.¹ Aluminum is by nature a relatively soft and mushy metal. For this reason, the graining action rapidly clogs the tooth of the plate with ground metal and abrasive, thus slowing the graining process.²

The plate should be thoroughly sluiced with water between each graining cycle and briskly brushed with a soft hairbrush or laundry brush used only for this purpose. It is important that all loose graining particles be dislodged from the plate tooth at this time. Unless this is done, there is danger that such particles might detach themselves during subsequent stages of processing or printing, carrying away at the same time image (or non-image) formations which have falsely attached to these particles rather than to the surface of the plate itself.

After graining, the plate is blotted with a clean newsprint and rapidly fanned dry. Drawings may be placed upon the plate immediately, although it is advisable to counteretch plates either if some time has elapsed since graining or if sensitive crayon or wash drawings are to be made.

The processing and printing of drawings done on aluminum plates has been undertaken in a manner identical to that used for standard gauge, ball-grained aluminum lithography plates,³ and the results have been comparable in quality. Although our experiments have been intermittent and, in our view, the testing far from conclusive, the results to date have been very encouraging and support on every count the original rationale which served as a basis for these experiments.

1. Aluminum Type W, Aluminum Oxide, Norton Abrasive Company, Worcester, Mass.

2. At this time the satisfactory graining of an aluminum plate takes at least as long as a stone of comparable size. It is conceivable that initial graining by sand blasting, belt sanding, or motorized wire brush might speed the process considerably. The outer edges of the plate are easily beveled with a belt sander.

3. For counteretching, processing, and printing formulas and procedures, see TBL, Chapter 6, pp. 123-162.

LAMINATED BACKING ELEMENTS FOR METAL PLATES

In the past it has been common practice to use a stone as a backing element when printing from zinc or aluminum plates. As stones become more expensive and valuable their use in this way is less and less desirable.

In a Tamarind research project undertaken in 1973, Ben Q. Adams followed a path somewhat similar to Garo Antreasian's (see article above) in that both sought a means to eliminate the need for stone as a backing element. Adams' route was to explore whether satisfactory backing elements might be constructed using metal plates, polyester resin, fiberglass cloth and honeycomb aluminum. In the course of his research four prototype elements were made, each differing from the other. Two had aluminum facing plates and were, in effect, "aluminum stones" which could be used and regained in exactly the same manner as the heavy aluminum plates described by Antreasian. The third of the prototypes was purely a backing element and was faced with a phenolic plate; the fourth was a honeycomb core designed to back a thin stone.¹

Adams' research was generally successful in that it proved possible to achieve excellent impressions using these elements. The first of his prototypes, which made use of an aluminum surface plate, one-quarter inch in thickness, measured 17 3/4 by 20 by 3 1/2 inches and weighed only 16 pounds. As a stone of similar dimensions might weigh about 100 pounds, one clear advantage of the honeycomb backing element is its combination of high strength and light weight. It is simple to construct. With use of government salvage for the aluminum honeycomb core, its cost is very low. Adams thus concludes his research paper with the observation that laminated backing elements have much to recommend them. The "materials are cheaper, easier to obtain, lighter in weight and more resilient than stone and, if used in the manner described in this paper, should provide the workshop with a true alternative to stone as a backing element for metal plates."²

1. Earlier experimentation with use of honeycomb aluminum as a backing for stone was done at Tamarind, Los Angeles, by Robert Evermon (see TBL, page 267).

2. In his unpublished paper, "Laminated Backing Elements for Metal Plates: an Alternative to Stone" (17 pp. in typescript), Adams discusses in detail the methods and procedures that were used in construction of these backing elements. Although not yet proven through extended use in a workshop such as Tamarind, laminated backing elements such as he describes would seem to have great promise for further research and development. Xerox copies of Adams' paper may be obtained from Tamarind Institute for \$2.00 (postage paid).

THREE NEW LITHOGRAPHY WORKSHOPS:

Shark's Lithography, Ltd.

A new lithography workshop, Shark's Lithography, Ltd., opened for business in Boulder, Colorado, on February 14, 1976. Operating on a contract basis, Shark's will provide hand printing services to artists in the Denver metropolitan area, as well as to artists from other regions who might be attracted to the workshop's mountain location.

The workshop's director and master printer is Bud Shark. Formerly master printer at Editions Aleto and Petersburg Press in London, Shark has printed for many noted artists, including Bernard Cohen, David Hockney, Henry Moore and James Rosenquist. Shark holds a B.A. degree from the University of Wisconsin, Madison, and an M.A. from the University of New Mexico. He was printer-fellow at Tamarind Lithography Workshop, Los Angeles, in 1969 and subsequently served as artist-teacher (in lithography) in the United States pavillion at the 35th Venice Biennale. He has taught at the Slade School of Art, London, and as visiting artist at the University of Colorado.

Shark's new Boulder workshop is equipped with a Series III Griffin press which is motorized and capable of printing images up to thirty-six by sixty inches. A complete range of printing services is available, including work on both stones and metal plates. At present the number of stones is limited.

The first artist to work at Shark's is Gordon Mansell of Denver. Bernard Cohen, who will visit Colorado in the summer of 1976, plans to complete a series of six editions commissioned by Waddington Graphics.

Shark's Lithography, Ltd., is located at 2886 Bluff Street, Boulder, Colorado 80302. Telephone [303] 443-4601.



Master printer **Judith Solodkin** pulls an impression of a lithograph by **Gilah Hirsch** in the Tamarind studio.

Solo Press

Solo Press is a fine art lithography studio operating on a custom basis and catering to artists and their dealers. Directed by Tamarind Master Printer Judith Solodkin, the shop "is dedicated to assisting artists transform unique images into quality lithographs." It is equipped with a Charles Brand press, plates, stones, photographic materials, handmade paper, quality inks, and all necessary equipment for printing of images up to and including 32 by 52 inches.

Solodkin reports that "the shop's proximity to print and art suppliers enables it to avail itself of additional expertise. Artists whose careers are nourished by the artistic commerce of New York City can incorporate Solo Press into their daily routine." During the past two years Solo Press has collaborated with Dottie Attie, Samuel Bak, Judith Bernstein, Maude Boltz, Susan Crile, Lois Dodd, Sherman Drexler, Mary Beth Edelson, Mary Grigoriados, Richard Haas, Ann Healy, Louise Kramer, Bill Mauldin, Sylvia Sleigh, Nancy Spero, Altoon Sultan, and Rimpoché Trunpa.

Before establishing Solo Press, Judith Solodkin printed for Petersburg Press, completing *Paper Clip*, a mural-size lithograph by James Rosenquist. She also teaches lithography and photo-processes at the School of Visual Arts and the Pratt Graphics Center. She received the M.F.A. degree from Columbia University before entering the printer-training program at Tamarind Institute.

Solo Press is located at 201 Eighth Avenue, New York, NY 10011. Telephone [212] 929-6269.

Western Graphics Workshop

Western Graphics, a new lithography workshop, opened in Albuquerque in November, 1975. The workshop was established to provide custom printing services

on a contractual basis to artists and publishers. The workshop is open to any artist desiring to make lithographs.

Western Graphics is under the direction of master printer Ben Q. Adams. Adams studied lithography at Tamarind Institute beginning in January, 1972, and was awarded a certificate as Tamarind Master Printer in July, 1973. He then accepted an appointment to the Tamarind staff, serving as master printer from July, 1973, to July, 1975, at which time he resigned his position to found Western Graphics Workshop. Since 1972 Adams has printed 142 editions in collaboration with 55 artists, including Nathan Oliveira, Ed Ruscha, Fritz Scholder, Joseph Raffael, David Hare, James McGarrell, and Elaine DeKooning.

Western Graphics is a complete lithographic facility capable of printing images up to 30 by 40 inches either from stone or metal plates. A full range of lithographic techniques is available to artists, and all editions are printed on a press custom built to Adams' specifications by the Takach-Garfield Press Company.

Additional information will be provided on request. Address inquiries to Ben Q. Adams, Western Graphics Workshop, 107 Amherst, SE, Albuquerque, NM 87106. Telephone [505] 266-6344.

MCGARRELL. *Continued from page 55.*

at Picasso and see Ingres, you look at Ingres and see Poussin. Paradoxically, the "revolutionary" work of the early Manet was firmly grounded in seventeenth century Spanish painting, while his boring "academic" contemporaries had no tradition older than that of their teachers, the immediately preceding generation.

I gather that you find it very natural to move from one medium to another. You don't perceive the distinction between the painter and the printmaker to be a particularly useful one.

No. Most all of the great prints I most admire were made by artists who were primarily painters or sculptors. Prints are made by artists, and the most important thing about prints is the artistry, not the technique. I say this in spite of all the complicated technical processes I have used in my work. They were complicated in a technical sense only for my printers; for me the complications were not technical but artistic and formal. It goes without saying that I could never have made these prints without the printers with whom I collaborated. God bless them.

1. *Nude* [T 690] and *Color Nude* [T 690A] were among twenty-four lithographs made at Tamarind Lithography Workshop, Los Angeles, between December 1, 1962 and January 15, 1963.

2. For a description of the acid-tint technique, see TBL, section 15.9, pages 378-86.

3. "Drawing Color Separations on Surfaced Mylar," TTP Number 1, pages 5-7.

4. *Cumulus Still Life* consists of two subjects, similar in color and composition, and printed simultaneously. Some impressions were retained as a single sheet; others were torn, designated *Cumulus Still Life I* and *II* [T 75-615 and 75-616] and signed separately.



While at Tamarind, master printer Ben Q. Adams (right) collaborated with many noted artists. Here he is seen with David Hare.



James McGarrell works on a stone at the press, discussing a proof with Clinton Adams.

Photo credits:

Stephen Marks, page 63.
Kent Rush, pages 51, 64 (below).
Robert Stewart, page 64 (above).
Jerry Teale, pages 57, 58, 59.
UNM Photo Service, pages 49, 50.

Errata: In the article on *Pedra Onyx* in TTP Number 4, pp. 41-42 and 48, Mr. John Y. Mills is incorrectly referred to as Mr. Hill in footnotes 3 and 6. We apologize to Mr. Mills.