A COMPARISON OF TWO DIFFERENT METHODS OF BAYONET FIGHTING

BY

ARMOND HAROLD SEIDLER
B.S., University of Illinois, 1943
M.S., University of Illinois, 1948

THESIS
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN PHYSICAL EDUCATION IN THE GRADUATE COLLEGE OF THE UNIVERSITY OF ILLINOIS, 1953

URBANA, ILLINOIS
Bayonet Study - Seidler
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THE GRADUATE COLLEGE

I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY SUPERVISION BY ARMOND HAROLD SEIDLER

ENTITLED A COMPARISON OF TWO DIFFERENT METHODS OF BAYONET FIGHTING

BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN PHYSICAL EDUCATION

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In Charge of Thesis

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Committee
on
Final Examination†

† Required for doctor's degree but not for master's.
PREFACE

This study is an outgrowth of a question posed to the investigator when he served as a bayonet instructor in the United States Army. The system of bayonet skiffting taught by the Army provoked considerable doubt in the minds of many persons directly related to the program of instruction in this activity as to its efficiency, and its combat feasibility.

The main contribution of this study is to subject this vital system of bayonet skiffting to scientific evaluation and appraisal through comparison with another system.

The approach takes three channels: (1) An analysis of the mechanics involved through the use of cinematographical analysis, (2) A measure of the caloric cost of the activity through the use of energy metabolism methods, and (3) An appraisal of the combative effectiveness of the system through the use of actual competitive evaluation.

Acknowledgements

This study was made possible by the cooperative efforts of a great many persons. Grateful acknowledgements are extended to the advisor of the study, Dr. S. C. Staley, Director of the School of Physical Education, for his helpful advice and encouragement, and to Dr. I. K. Cretton, Director of the Physical Fitness Research Laboratory, for his contributions to the study and for the loan of laboratory equipment and facilities.

Mr. Wayne Van Huss and other members of the Physical Fitness Laboratory staff were of great assistance in the energy metabolism phase of the study. Special thanks should be given to Mr. William Geistweit and Mr. Wayne Arrmer for acting as subjects and devoting much time and effort
to the part of the experiment.

The United States Army cooperated fully in this study in many ways. The Commanding General of the Fifth Army and members of his training staff Colonel Hatch, Commandant, University of Illinois ROTC, Lieutenant Colonel Vearle McBride, Major William Graham, Major George Colleher, USMC, Cadet Thomas Brodmas and sixty advanced course ROTC cadets all made invaluable contributions to the study.

Members of two classes registered in PEM 120, Personal Defense Activities, in the Service Program in Physical Education at the University of Illinois, contributed much time and effort acting as subjects for one phase of this study.

In addition, Mr. H. E. Kenney, Mr. A. V. Sapora, Mr. Paul Hyde, Mr. Maxwell Garret, and members of his fencing squad, all helped in many ways: judging, criticizing, appraising and suggesting and throughout offering much needed encouragement.

The author is indebted to Mrs. Leona Alexander for her excellent services and advice while the thesis was being developed.
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CHAPTER I

INTRODUCTION

The bayonet was standard equipment for the foot soldier in the
ous armies of the world, long before the United States was a nation.
e the bayonet itself has changed its shape in some slight measure, it is
today essentially the same way that it was used back in 1776; that is,
ile and bayonet are used primarily as a pike which is thrust at an
t with the intention of killing or wounding him by sticking the
it into him. The United States Army and United States Marine Corps are
as their official bayonet methods, systems of bayonet fighting which
ot changed to any significant degree since 1905. As a matter of fact,
t editions of the United States Army manual on Bayonet FM 23-25 are very
lar to older manuals and contain the same basic skills.

As a trainee in the United States Army, and later as a bayonet
uctor, the writer was struck by the fact that most of the basic movements
ayone were difficult to execute well; that the movements, including even
basic guard position, were awkward and uncomfortable, and that the
nces, speeds, and coordinations of the movements were poor. It seemed
the writer, with his long and varied experience in athletics, that the
ments in bayonet drills bore slight resemblance to any sports skill with
he was acquainted. In fact, upon considerable reflective thinking,
rite came to the conclusion that most of the movements proposed in the
et manual were strikingly dissimilar to the skills of any popular
etic activity.
CHAPTER

INTRODUCTION

The present war was eminently
appropriate for the test of what in the
name of the war. The present war, the United States' war, is a war
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The writer came in contact with a great number of men who were involved in bayonet instruction. Many of them expressed dissatisfaction with official bayonet methods. Many United States Marine training bases had systems of bayonet fighting which were different, thus indicating a lack of confidence in the official system. Nevertheless, the official method of bayonet fighting is still that expounded by FM 23-25.

The study is an attempt to analyze and compare two methods of bayonet fighting, the United States Army Method A and the Experimental Method devised by the author (Method B), by use of three separate but related research techniques: Cinematographical Analysis, Energy Output Analysis and Group Competition.

The Cinematographical Analysis is a careful study and measurement of motion pictures taken of each skill of the two methods under consideration. This type of research yields definite information concerning the speed, style, and kinesiological characteristics of each skill contained in the two methods of bayonet fighting.

The Energy Output Analysis indicates the cost of each method of bayonet fighting in terms of consumption of energy, information of great value to anyone fighting and as a measure of the relative efficiency of each method.

The Group Competition shows how these two methods of bayonet fighting are in direct competition with one another in simulated combat situations.

The writer regards the skills of bayonet fighting as athletic skills. A number of experimental studies have been conducted in which an athletic skill has been analyzed by the means of cinematographic analysis. Many studies have been carried out to ascertain the energy cost of different athletic skills. Other studies in which groups have competed have shown the advantage of one athletic skill over another.
However, the writer knows of no study in which a method or system, existing of a number of skills, has been compared to another system including a group of skills. Also, to his knowledge, no study of this type has been made on, or several athletic skills, in which these three closely related highly diverse methods of research have been used. The ideal analysis of an athlete or an athletic skill would include external motion studies, internal metabolic cost studies, and actual performance tests. Insofar as this study adheres the three criteria above, within its limitations, it is a project designed to give a thorough scientific comparison of the two methods of bayonet fighting.

The present study will attempt to answer the following questions:

(a) Which method of bayonet fighting (A or B) is the most efficient mechanically and kinesiologically?

1. Which has the superior speed?
2. Which has the superior striking power?
3. Which has the superior balance?
4. Which presents the best defense?
5. Which is the most natural?

(b) Which method of bayonet fighting (A or B) is the most efficient in terms of energy cost?

1. Which requires the greater \( O_2 \) cost?
2. Which requires the greater cost in foot pounds of energy?
3. Which has the highest exercise R.Q.?

(c) Which method of bayonet fighting (A or B) is superior in a competitive test?

1. Which scores the most hits in competition?
2. Which is the best in the opinion of combatants?
3. Which is the best in the opinion of experts?
The present work attempts to answer the following questions:

(a) Which method of payment is the most efficient?  
(b) Which is the most economical and convenient method of payment?  
(c) Which is the most convenient and economical method of payment?  
(d) Which is the most convenient and economical method of payment?  
(e) Which is the most convenient and economical method of payment?  
(f) Which is the most convenient and economical method of payment?  
(g) Which is the most convenient and economical method of payment?  
(h) Which is the most convenient and economical method of payment?
Although it has been stated again and again that the bayonet and the foot soldier are both outmoded by modern warfare it is an undeniable fact that in World War II and in the present Korean war bayonet fighting has played and is at the present time continuing to play a vital role.

Investigation reveals that in recent years (since 1905) the Army conducted no scientific evaluation of the merits of its techniques of bayonet fighting. Since these techniques have been taught to at least ten million Americans in the past 15 or 20 years and will be taught to many more millions of American citizens in the coming years, it is extremely important that it be determined, if possible, whether the techniques being taught are scientific, or whether they can be replaced by a more effective and efficient method of bayonet fighting. The writer became convinced that the only way to evaluate present methods of bayonet technique would be to compare the present method with an alternative method of bayonet fighting in as an objective and scientific manner as possible and in as many ways as possible.

This study, carried to a successful conclusion, should serve an immensely worthwhile purpose. It should either validate the hypothesis that present Army techniques are efficient and combatively effective, or it could indicate that present bayonet methods are inadequate or inefficient.

On the other hand, the study may indicate that the experimental method is a more efficient and effective method of fighting with the bayonet. In this case this additional knowledge should be of great service to the United States Army in deciding just what it should do about its future training programs in bayonet fighting. The study thus should be valuable to the Army regardless of which way the results point.
It has been established that some plants are able to produce their own food through photosynthesis. The process involves the conversion of light energy into chemical energy in the form of glucose, a type of sugar. This process is essential for the survival of many organisms, including plants, fish, and mammals.

Photosynthesis occurs in the chloroplasts of plant cells, which contain chlorophyll, the green pigment responsible for capturing light energy. Water and carbon dioxide are absorbed by the plant, and in the presence of light, these substances are converted into glucose and oxygen. The oxygen is released into the atmosphere as a byproduct of this process.

The importance of photosynthesis cannot be overstated, as it is the primary source of energy for nearly all life on Earth. Without photosynthesis, the oxygen content in the atmosphere would be insufficient to support the metabolic processes of aerobic organisms, and the Earth's ecosystems would be fundamentally different.

In conclusion, the ability of plants to convert light energy into chemical energy through photosynthesis is a critical process that has shaped the evolution of life on Earth. Its significance extends beyond the mere provision of food, as its role in the oxygen cycle and the regulation of carbon dioxide levels underscores its importance in maintaining the balance of our planet's ecosystems.
Since three separate and distinct methods of research were used in this study the specific limitations of each research method are discussed in the various chapters dealing with individual research methods. In general, however, one limitation is quite serious. This study is a study which could best be carried out on a large scale in a military situation in which there would be qualified military personnel in charge of the actual training and experimentation, and in which limited numbers of military personnel could be used as subjects. As the writer requests that this study be considered merely as a pilot study and if the results seem significant to the United States Army he further suggests that the Army, using this study as a pilot study, carry on this investigation on a large scale to satisfy themselves that the results found would be valid in a military situation and for large numbers of troops.
Since these examples and illustrations are not part of the main text, they are not included in the natural text representation.
CHAPTER II

CINEMATOGRAPHICAL ANALYSIS

A comparison of the two different methods of bayonet fighting was made by means of cinematography, one of the methods of research used in this study. The general techniques of motion picture analysis follow principles which have been established by the great quantity of work done in the fields of track and field and swimming.

According to Cureton, external mechanics of acts of skill can be analyzed in a rather precise manner by means of motion picture analysis. He writes:

1 The fundamental principle is that directions of movement (angles), dimensions, time relations, and indirect values of force and velocity may all be obtained from the projected film. Since the science of mechanics is an expression of physical laws of equilibrium or movement in terms of these same fundamental or derived measurements, a mechanical analysis of any movement may be made from measurements taken from the screen.

The techniques of making these measurements is cinematography, through which the physical performance of an individual can be studied artificially and concretely.

Chapter II

SEMANTIC-FRAGMENTAL ANALYSIS

A comparison of the two different methods of power fitting was
performed to one of the methods of learning, now in vogue, for
the general procedure of motion picture analysis. Following principles
have been satisfied by the great majority of work done in the field
and may help any student.

Accurate to a degree, external mechanisms of sense of sight can be
used in a proper procedure manner of move of motion picture analysis. He

The comparison of various these measurements in chemical
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The comparison of various these measurements in chemical
principles in that of the principle to two of the methods of
comparison of measurements in chemical principles.
Hillious all play an enormously important role in the success or failure of bayonet fighter, and none of these factors lends itself to analysis by cinematography. Advantages which might accrue to an individual through superiority in size, reach, speed, strength, balance, agility or condition are not sent in this cinematographic study because only one subject was used to demonstrate all of the skills of both methods. Consequently, these factors be disregarded in this study.

One of the great difficulties in making a thorough comparative analysis of these two different methods of bayonet fighting is that a number factors prevent complete comparison. These include:

A. Method A and Method B Skills begin from strongly dissimilar starting positions.

B. Some Method A Skills do not begin from the Guard position.

C. Because some Method A Skills do not begin in the Guard position, or return to it, recovery times are not available for these skills.

Some question may be raised as to the correctness of the form used the subject in executing the various movements. The subject is a former bayonet instructor in the United States Army and the photographs of the Army uniques (Method A) may be compared for form to official photographs in the United States Army Manual. (The photographs in this study illustrate that it quite difficult at high speed to achieve the precise positions shown in Army manual). Since the subject is the inventor or originator of the primental or alternative method (Method B) only he can attest to the correctness of the various positions photographed of this method. The ject in this study displayed good form.
The subject of the current phase of research is to determine the effectiveness of a new method for teaching a particular skill. One of the great difficulties in applying a thorough comprehension of previous research is that a number of different methods of research literature are needed to cover the entire spectrum of the subject.

These include:

- A Method A and Method B differ from each other.
- A Method A differs from Method B because Method A does not begin from the same point.
- A Method A differs from Method B because Method A does not begin from the same point.
- A Method A differs from Method B because Method A does not begin from the same point.

Some questions may be raised as to the correctness of the data. A major problem in accounting the various components of the data is to compare the data from the United States Army and the prototypes of the Army (Method A) with the data from the United States Army and the prototypes of the Army (Method B) only to compare for a different prototype in the same manner. The difficulty of this means to compare the prototypes of the Army (Method A) and the prototypes of the Army (Method B) only to compare for a different prototype in the same manner.
One further limitation of this phase of the study was the fact that a single subject was used.

In any cinematographic study there are possibilities for error in the measurement of the film which should be discussed. These include:

**Perspective Errors.** Caused by some parts of the subject and/or parts of his equipment being closer to or farther from the lens than other parts of the subject in the visual field.

**Lens Aberration Errors.** This kind of error is usually caused by the use of poor quality of equipment. The camera and lens used in this study were of high quality and were made precisely for this kind of work.

**Scaling Errors.** Errors due to scaling were possible because the images were not always sharp and distinct. A magnifying glass was used to help reduce scaling errors and pictures were projected to as large an area as possible to help reduce errors in scaling.

A Bell and Howell 35 mm "Eyemo" model movie camera, with a lens aperture of 2.8 to 22 was used to take the movies. The movies were taken at a speed of 48 frames per second and at a lens opening of f/3, resulting in a shutter speed of $\frac{1}{432}$ of a second. The camera was secured firmly on a tripod to ensure that it was completely immobilized during taking of the film.

The movies were taken on the athletic field directly north of the Men's Old Gymnasium of the University of Illinois, thus enabling the subject and photographer to work in privacy and under excellent conditions.
The camera was placed at the height of 36" and at a 90° angle to the path of the subject. The subject traveled along a limed line on the field, thus insuring his direction of travel. The pure distance of the lens to the line upon which the subject traveled was strictly 3' 0". This measurement was made to get precise focus of the lens, which was successfully accomplished. Since a telephoto lens was not available, it was necessary to get as close as 51 feet to the subject in order to expose film being used with good sized images.

35 mm film was used because the large size negatives made measurement of projected images easier and more accurate. Better prints can be made from this size of film than from any smaller size. The film was developed and prints were made by the University of Arizona Photo Laboratory. Much time was spent in studying the film, frame by frame, in order to select the frames best illustrating the salient features of each of the techniques analyzed. Selected frames were marked by tying a string in sprocket holes of the negative film roll next to the frame. Each marked frame was enlarged to 2 3/4"x3 1/2" and printed.

The film was projected on a wall by means of a La Porte Delineascope. With this type of projector the film could be turned frame by frame forward or backward without any fear of burning or aging the film, especially when a particular frame was projected for a long period of time. The La Porte Delineascope was placed on a 10' high standard and was on an exact horizontal plane with the wall upon which the projections were made.
The camera was placed on the platform of the laser and a 30° angle of the camera was made to the subject. The camera was traversed in a linear fashion on the laser and the camera was always parallel to the laser. The subject traversed at a linear speed of 5 cm per second. The measurement of the laser to the line was the mean distance from the laser to the line. This measurement was made to get a precise focus of the laser.

In order to measure accurately, a laser was placed on the subject in order to observe the laser. The measurement of the laser was then taken to the subject in order to observe the laser. The measurement was then taken with a laser at the same angle as the laser at the subject in order to observe the laser. The measurement was then taken with a laser at the same angle as the laser at the subject in order to observe the laser.

In order to measure accurately, a laser was placed on the subject in order to observe the laser. The measurement was then taken with a laser at the same angle as the laser at the subject in order to observe the laser.

The film was developed and prints were made by the University of a photographic laboratory. Many films were sent to another laboratory. In order to select the frames best illustrating the material, the frames were selected and marked on thin paper. To select the frames best illustrating the material, the frames were selected and marked on thin paper.
In order to obtain exact measurements correction had to be made because the projected images were much smaller than true size. The projected images were made as large as possible in order to reduce scaling errors. For example, a scaling error of one millimeter on a projected image magnified 400 times is a considerably smaller error than a one millimeter error made on a projected image magnified 100 times. The bayonet blade was measured and found to be exactly 25.20 centimeters or 9 8 inches, from tip to outer edge of guard. The projected measurement of the bayonet blade was 3.10 centimeters. The projected length of the bayonet blade in centimeters divided into the actual measured length of the bayonet blade in inches gave the multiplier to be used in converting all projected measurements to actual measurements. This was 3.251. Multiplying each measured distance (in centimeters) by the multiplier gave the actual distance the movement being measured in inches. An example follows:

\[
\begin{align*}
10.08 \text{ inches} &= \text{actual bayonet blade length} \\
3.10 \text{ centimeters} &= \text{projected bayonet blade length} \\
3.10 &= 10.08 \\
1 \text{ cm.} &= \frac{10.08}{3.10} = 3.251 \text{ inches} \\
3.251 \text{ is the multiplier}
\end{align*}
\]

In order to time the film a falling shot held at a height of six feet was filmed until it touched the ground. It took exactly 24 frames to fall the six-foot distance. The calculation involved the Law of Falling Bodies.

\[
S = \frac{1}{2} gt^2
\]

\[
\begin{align*}
S \text{ distance in feet} \\
t \text{ time in seconds} \\
g \text{ acceleration due to gravity (32.2'/sec.}^2)\]
\]
In order to obtain exact measurements, it is necessary to make the measurements as precise as possible. In other cases, the measured masses may be taken as if they were objects of one millionth of the mass of the sun. The measured masses of the orbiting planets and of the sun are generally taken as the masses of the sun, and the precision of the measurements is determined by the mass of the sun.

In order to obtain the mass of a body, it is necessary to measure the mass of the sun. The masses of the sun and of the bodies orbiting it are determined by the mass of the sun, and the precision of the measurements is determined by the mass of the sun.

The masses of the orbiting planets and of the sun are generally taken as the masses of the sun, and the precision of the measurements is determined by the mass of the sun.
\( 6 = 16.1t^2 \)
\( t^2 = \frac{6}{16.1} \)
\( t^2 = .373 \)
\( t = .611 \) (time for 24 frames)
\( .611 = .0254 \) (time per frame)

Calculations of the speed of each movement may be made by multiplying the number of frames exposed by .0254 seconds. For example, the movies of the subject executing the Army Method Long Thrust. From the time the movement starts until the point at which the bayonet is fully extended, 31 frames are exposed. To find the total elapsed time 31 was multiplied by .0254 seconds. This gives a total time cost for the Method A Long Thrust of 7.4 seconds.
TIMING THE BALL

THE BALL DROP

It would be very difficult if this study were able to give a precise measure of the relative striking force of the blows of the two systems of bayonet fighting. The fact that the relative striking force, or kinetic energy, of the two systems of bayonet fighting has been measured in a very limited number of cases is the case in all systems. The ideas of the weapon used in bayonet fighting and the contest. Consequently, other criteria are needed to determine the rate of speed and force.

1. Releasing the Ball.

2. Ball Near Beginning of Flight.


FIGURE I.
TIME THE FALL
THE BALL DROPS

REFERENCE THE BALL

S. Half Hour Beginning of Flight

STOP HERE OR END OF TRIAL
It would be interesting if this study were able to give a precise comparison of the relative striking force of the various offenses under consideration. However, the fact that the relative kinetic force, or kinetic energy, of the two systems of bayonet fighting has been measured is not as significant as it might appear. Most experts interested in bayonet fighting techniques consider that any solid blow with the butt or bayonet striking the victim will probably end the contest. Consequently, other comparative measures such as time of the offense, recovery time, rate of speed are of much greater importance.

It is of interest to note that in all of the offenses studied there are three factors which are constant: (1) The weapon used is the same in all cases, (2) The hand positions on the weapon are constant in all movements, (3) the person executing all movements is the same individual and is therefore a constant. The fact that (1, 2 and 3) are all constants leads to the assumption in all similar movements (e.g., Method A and Method B Vertical Butt Stroke) mass is approximately the same.

The formula for kinetic energy, or striking force, is \( \frac{1}{2} MV^2 \) and the mass is approximately the same for any similar movements deductive reasoning allows the conclusion that in similar movements the movement with the greatest velocity will have the greatest kinetic energy. In the formula for kinetic energy it may be seen that the velocity is much more important than the mass since the velocity is squared. Consequently, if there is some slight difference in the mass in two similar movements compared with a difference in velocity, the conclusion is that the offense with the greatest velocity will have the greatest relative kinetic energy or striking force.
It may be interesting to note that the contribution of the kinetic energy to the energy of a system is not as significant as it might appear at first glance. This is because the kinetic energy is not the only source of energy in a system. Other factors, such as the potential energy, also contribute to the overall energy of a system. It is important to keep in mind that the kinetic energy is not the only factor that affects the energy of a system. The potential energy, for example, is also significant in determining the total energy of a system.
For example, in the equation,

\[ \text{Kinetic Energy} = \frac{1}{3} MV^2 \]

Let \( M = 6 \) poundals

\[
\begin{align*}
\text{K.E.} &= \frac{1}{3} (6) \times (5)^2 \text{ ft. per sec.} \\
\text{K.E.} &= \frac{1}{3} (6) \times 25 \\
\text{K.E.} &= 75
\end{align*}
\]

Let \( M = 5 \) poundals

\[
\begin{align*}
\text{K.E.} &= \frac{1}{3} (5) \times (6)^2 \text{ ft. per sec.} \\
\text{K.E.} &= \frac{1}{3} (5) \times 36 \\
\text{K.E.} &= 60
\end{align*}
\]

**ANALYSIS OF THE SKILLS OF EACH BAYONET METHOD**

In order to make a complete and comparative analysis of these two different methods of bayonet fighting it was essential to find the basic mental differences which existed between them. After much study the writer decided that the important criteria by which the various skills could be compared included **TIME, RECOVERY TIME, RANGE, relative distance traveled by the striking part of the weapon and the body, the distance of the striking part of weapon from the closest vulnerable area of the body in the striking position, relative striking force.** In addition, consideration of the kinesiological acts of each movement contributed essential information.

The following is a list of the criteria used in this phase of the study and the definitions of each:

**TIME.** The number of frames on the reel of film which were exposed from time in offensive movement began until it reached the striking position is multiplied by .0254 seconds, the multiplier, to give the elapsed time of the movement.

**TOTAL RECOVERY TIME.** The number of frames which were exposed on the film from the striking position until the bayonet fighter returned to guard position is multiplied by .0254 seconds, the multiplier, to give the elapsed time of the recovery.
For example, in the expression

\[ K = \frac{\rho_{\text{eff}}}{\rho_{\text{eff}} + \rho_{\text{loss}}}, \]

let \( M = \rho_{\text{eff}} \) be negligible.

\[ \frac{S(\frac{1}{2}) x (\frac{1}{2})}{\frac{1}{2} \text{ per sec}} = \text{K} \]

\[ \frac{S(\frac{3}{2}) x (\frac{3}{2})}{\frac{3}{2} \text{ per sec}} = \text{K} \]

\[ \frac{180}{\text{K}} = \text{K} \]

\[ \text{K} = 0 \]

**ANALYSIS OF THE SHOT INTO THE MOVING METHODS**

In order to make a complete and comprehensive survey of these two

... motions, he may extract several factors from them. After much study by the writer

... into the 'Covariance Field'. Reference to reference revealing "the part of the weapon and the body of the average all the way"..."the average area of the striking part of the body...

... correlation of the kinesthetic.

The following is a list of the criteria used in this phase of the

1. **TIME**
   
   - The number of times on the rear of the lifetime more expensive from
   - The alternative movement must be observed. The striking position is

2. **TOTAL MOVEMENT**
   
   - The number of times which were expensive on the
   - At time from the striking position until the power trigger remains to
   - From the striking position to the lifetime a multiplying of 100% to give the time of the reaction.
RANGE. The range of each offense was measured from the bayonet's belt buckle in the Guard position to the striking point of the weapon. This distance (measured in centimeters) was multiplied by 25.1 inches to give the actual range of the movement from the base point.

FMOB. This means the total distance forward traveled by the striking of the weapon. This movement was measured from the tip of the striking of the weapon in the "Guard" position (or in the starting position) to the forward distance was measured.

TFVA. This refers to the distance of the tip of the striking portion of the weapon from the nearest vulnerable area of the bayonet fighter's body. This measurement is included because it is assumed the greater the distance of the tip of the weapon from the bayonet fighter greater will be the distance of the opponent and his weapon from the bayonet ter. This measurement can be considered as an important defensive criterion each movement.

LEOB. This refers to the forward movement of the leading edge of the body. Since the subject was photographed in all movements only from a single and since many of the movements involve a rotation as well as a forward movement of the body, the only accurate measurement which could be of the forward movement of the body was to measure the movement of the leading edge.

EXCESS (FMOB minus LEOB). This refers to the distance traveled in forward direction by the striking part of the weapon in excess of the forward movement of the leading edge of the body. This measurement is important because it indicates the difference in range between the various offenses of the striking part of the weapon independent of total forward body movement.
The time of each allowance is measured from the point of the weapon at which the blade of the weapon has reached the starting point of the strike, and the allowance is calculated at the point of the weapon. The time of the allowance is measured from the point of the weapon to the point of the strike. The weapon is the point of the weapon to the point of the strike. The weapon is the point of the weapon to the point of the strike. The allowance is measured from the point of the weapon to the point of the strike. The time of the allowance is measured from the point of the weapon to the point of the strike. The allowance is measured from the point of the weapon to the point of the strike. The allowance is measured from the point of the weapon to the point of the strike.
ROS. This refers to the rate of speed of the striking part of the weapon. This is computed by dividing the FMOB by the TIME of the offense.
METHOD A

OFFICIAL UNITED STATES ARMY AND UNITED STATES MARINE CORPS METHOD OF BAYONET FIGHTING
FM 23-25

GUARD POSITION

The basic position in Method A is the position of Guard. In this position the bayonet fighter stands with feet comfortably spread, knees slightly flexed, trunk slightly flexed, toes pointed straight ahead, left leg a short step forward of the right. The shoulders are extended, right arm flexed 90°, left elbow slightly flexed, both hands gripping the rifle tightly with the right forearm against the comb of the stock of the rifle with the base of the butt snugly against the side of the hip.

External weights added to the body become part of the body weight and affect the center of gravity. In this Guard position, the extended arm brings the center of gravity of the fighter towards the forward edge of his base, thus contributing somewhat to readiness to charge or to resist charge from the front.
GUARD POSITION

The basic position in March is the position of Guard. In this

position, the soldier stands with feet comfortably spaced

apart, and the right foot is placed slightly behind the left.

The hands are extended, the right arm to the front of the body

with the palm facing the ground, the left arm to the side, the

palm facing the body. The body is erect, and the head is

maintained in a straight line with the top of the head facing

forward. In this Guard position, the soldier's body forms a

plane parallel to the front of the body. The soldier rests on

the balls of his feet, and the heels are slightly off the ground.
METHOD A
LONG THRUST

| TIME      | 0.7874 seconds |
| RECOVERY TIME | 1.1938 seconds |
| RANGE     | 7.965 feet   |
| FMOB      | 3.419 feet   |
| TFVA      | 3.231 feet   |
| LEOB      | 2.974 feet   |
| EXCESS (FMOB-LEOB) | 0.445 feet |
| ROS       | 4.342 feet per sec. |

As the Long Thrust begins the body of the bayonet man rotates slightly to the right. He steps forward with the right foot using the left foot as a base and keeping his toes pointed straight ahead. As this movement is made both arms holding the rifle flex slightly and then extend until the left or leading arm is completely extended. The right forearm remains mainly on the comb of the stock of the rifle. Recovery is made by bringing the left foot forward in advance of the right, planting it, withdrawing hard both hands, and then extending the rifle forward again into the Guard position.

It may be seen from the data at the top of the page that the RANGE the movement (from the belt buckle of the fighter in the Guard position to tip of the bayonet in the striking position) is 7.965 feet. However, the length of the rifle is projected forward in the Guard position. The actual movement of the weapon (FMOB) is only 3.419 feet and the forward movement of the leading edge of the body (LEOB) is 2.974 feet, so that the actual forward movement of the striking part of the weapon (the bayonet tip) exclusive of the forward movement of the body (EXCESS) is only 0.445 feet. The rate of speed (S) of this offense is 4.342 feet per second. The lateral balance of the
A METHOD

RANGE

TIME

0.7598 sec

RANGE TIME 0.7598 sec

39.2 sec

TENSION

3.72 sec

TENSION TIME 3.72 sec

5.77 sec

XENO (AMP-AMP)

4.83 sec per sec

Bearing Adjustment

As the Range Plunger goes to the bottom of the plunger, move the
left foot back with the light foot while the left
foot is on the light. The same position is to be
continued while your foot is on the light. You
are to turn the plunger of the light foot to
your right and your left foot to your left.

The first position is set to make the light
foot separate from the light foot. You
are to move the light foot to the
right while the light foot of the
light plunger is to be
continued while your foot is on the light.

You are to turn the plunger of the light
foot to your right and your left foot to your left.

The second position is set to make the light
foot separate from the light foot. You
are to move the light foot to the
right while the light foot of the
light plunger is to be
continued while your foot is on the light.

You are to turn the plunger of the light
foot to your right and your left foot to your left.

The final position is set to make the light
foot separate from the light foot. You
are to move the light foot to the
right while the light foot of the
light plunger is to be
continued while your foot is on the light.

You are to turn the plunger of the light
foot to your right and your left foot to your left.

The fourth position is set to make the light
foot separate from the light foot. You
are to move the light foot to the
right while the light foot of the
light plunger is to be
continued while your foot is on the light.

You are to turn the plunger of the light
foot to your right and your left foot to your left.

The fifth position is set to make the light
foot separate from the light foot. You
are to move the light foot to the
right while the light foot of the
light plunger is to be
continued while your foot is on the light.

You are to turn the plunger of the light
foot to your right and your left foot to your left.

The sixth position is set to make the light
foot separate from the light foot. You
are to move the light foot to the
right while the light foot of the
light plunger is to be
continued while your foot is on the light.

You are to turn the plunger of the light
foot to your right and your left foot to your left.

The seventh position is set to make the light
foot separate from the light foot. You
are to move the light foot to the
right while the light foot of the
light plunger is to be
continued while your foot is on the light.

You are to turn the plunger of the light
foot to your right and your left foot to your left.

The eighth position is set to make the light
foot separate from the light foot. You
are to move the light foot to the
right while the light foot of the
light plunger is to be
continued while your foot is on the light.

You are to turn the plunger of the light
foot to your right and your left foot to your left.
dy in the striking position is very poor since the base is quite narrow. The hip and the shoulders of the bayonet fighter are in opposition to one another that is, the left shoulder is extended forward while the right hip extended forward. In addition, the hips are not horizontal, since most the movement is achieved by an unequal bending of the knees. One further int is that the center of gravity of the bayonet fighter (including the right of the rifle and bayonet) is at the extreme forward edge of the limits his base so that his forward balance is quite poor. The distance between e tip of the striking part of the weapon (the bayonet) and the nearest incrable part of the bayonet fighter's body (TFVA) is 3.931 feet. This movement takes .7874 seconds.

The subject was unable to achieve the completely extended position caused by FM 23-25 when working at top speed. A number of trial attempts at speed resulted in a complete loss of balance ending in a fall to the ground in a majority of instances.

The forward thrust of the weapon away from the body is only .445 feet. Examinations of the left arm in photos numbers 1 and 3 show that it almost completely extended in the Guard position. Consequently, the range of the forward thrust of the bayonet in advance of the body is limited by the point or extension remaining in the left arm. Any additional forward thrust might be obtained by rotating the body to the right and advancing the arm by this means is prevented by the advancement of the right leg which rotates the lower body to the left in opposition to any upper body rotation the right. This particular contradictory antagonistic double rotation is a movement completely alien to any sport.
METHOD A

LONG THRUST

1. Guard.

2. Forward Stride.


4. Recovery.

5. Withdrawal.

6. Guard.

FIGURE II.
METHOD A

SHORT THRUST

<table>
<thead>
<tr>
<th>TIME</th>
<th>.7620 seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECOVERY TIME</td>
<td>.7874 seconds</td>
</tr>
<tr>
<td>RANGE</td>
<td>6.877 feet</td>
</tr>
<tr>
<td>FMOB</td>
<td>2.377 feet</td>
</tr>
<tr>
<td>TFVA</td>
<td>3.699 feet</td>
</tr>
<tr>
<td>LEOB</td>
<td>2.240 feet</td>
</tr>
<tr>
<td>EXCESS (FMOB-LEOB)</td>
<td>.637 feet</td>
</tr>
<tr>
<td>ROS</td>
<td>3.301 feet per second</td>
</tr>
</tbody>
</table>

As the Short Thrust begins the body of the bayonet man rotates slightly to the right. He steps forward with his left foot using his right foot as a base and keeps his toes pointed straight ahead. As this movement is made both arms holding the rifle flex slightly and then extend until the left or leading arm is completely extended. The right forearm remains firmly on the comb of the stock of the rifle. Recovery is made by bringing the right foot forward, planting it, withdrawing hard with both legs, then extending the rifle forward again into the Guard position.

It may be seen from the data at the top of the page that the RANGE movement (from the belt buckle of the fighter in the Guard position to top of the bayonet in the striking position) is 6.877 feet. The actual movement of the striking part of the weapon (FMOB) is only 2.377 feet and the forward movement of the leading edge of the body (LEOB) is 2.240 feet, so the actual forward movement of the striking part of the weapon (the bayonet tip) exclusive of the forward movement of the body (EXCESS) is only .637 feet. It may be seen that this distance, while small, is still .192 feet less than that of the Long Thrust. This advantage is gained by the rotation of the body to the right, which advances the left hand, and thus
Bayonet. The advantage is slight, because the fact that the toes are pointed straight ahead restricts the degree of rotation possible in the hips. The balance of the body in the striking position is comparatively better in the Long Thrust because the hips and shoulders are kept nearly parallel to the vertical plane (left shoulder and left hip advanced), but the fact that the toes are pointed straight ahead and are almost aligned gives poor lateral balance because of the narrowness of the base to each side. The hips themselves are not horizontal because the knees are not equally flexed. In this position the forward balance is relatively poor because the center of gravity of the body fighter (including the weight of the rifle) is precarious for the forward edge of the supporting base of the individual.

In this movement the bayonet fighter acts very much as a boxer does executing a left jab, except that in flexing his arms as the movement begins is ineffect telegraphing the blow. Also the boxer does not point the left foot straight ahead. The range of the movement is restricted by the length of the step taken with the left or the lead foot, although some slight increase is attained by keeping the hips and shoulders parallel while rotating the body somewhat to the right.

The rate of speed (ROS) of this offense is 3.801 feet per second. The distance between the end of the striking part of the weapon and the most vulnerable part of the bayonet fighter's body (TFVA) is 3.699 feet.
METHOD A
SHORT THRUST
HORIZONTAL RUFF STROKE

1. Guard.

2. Forward Stride.


5. Guard.

The figure illustrates the sequence of movements for a short thrust technique. The body is rotated 135° to the left. The right rear foot is moved forward and abducted forward before being planted, while the left foot acts as a pivot. The center of gravity of the opponent is moved by the rear or first foot, and balance is not very stable.

The butt of the fighter is braced in the striking position and is moved forward in a forward direction by the butt in the striking position. The leading edge of the forward movement of the striking part of the body (EXCESS) is 2.622 feet. The
METHOD A

HORIZONTAL BUTT STROKE

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME</td>
<td>0.8636 seconds</td>
</tr>
<tr>
<td>RECOVERY TIME</td>
<td>-</td>
</tr>
<tr>
<td>RANGE</td>
<td>4.930 feet</td>
</tr>
<tr>
<td>FMOB</td>
<td>5.014 feet</td>
</tr>
<tr>
<td>TFVA</td>
<td>1.633 feet</td>
</tr>
<tr>
<td>LEOB</td>
<td>2.392 feet</td>
</tr>
<tr>
<td>EXCESS (FMOB-LEOB)</td>
<td>2.622 feet</td>
</tr>
<tr>
<td>ROS</td>
<td>5.806 feet per second</td>
</tr>
</tbody>
</table>

As this movement begins the body of the bayonet man rotates strongly to the left (approximately 135°). The right or rear foot is carried forward and around and abducted forward before being planted, while the left foot acts as a base and pivots approximately 90° to the left. As this movement is being made the left arm flexes considerably and the right arm is punched forward and to the left in a roundhouse manner, and is well extended (although not completely extended) at the end of the movement. The hips are not quite horizontal, but are parallel to the shoulders in the vertical plane. The shoulders are tipped, with the right considerably higher than the left. The center of gravity of the bayonet fighter is carried well over the rear or pivot foot and balance is not very stable.

The RANGE of this movement (from the belt buckle of the fighter in the ward position to the tip of the butt in the striking position) is 930 feet, and the actual distance traveled in a forward direction by the striking part of the weapon (FMOB) is 5.014 feet. The leading edge of the body (LOB) moves 2.392 feet so the forward movement of the striking part of the weapon exclusive of the movement of the body (EXCESS) is 2.622 feet. The
A COMITIEM

HORRORIUS (MAY 1918)

TIMO

[Handwritten text not legible]
stance between the end of the butt and the nearest vulnerable part of the
bayonet fighter's body (TFVA) is 1.633 feet. The time of this offensive
movement from the beginning to the reaching of the striking position is .8636
seconds. RECOVERY TIME is not measured because this movement is followed by
a Smash and recovery to the Guard position is not made. However, it is
obvious that RECOVERY TIME would probably be as long as the time of the offense,
causing the body would have to be fully rotated as far back to the Guard
position as it had been to the striking position.

The Horizontal Butt Stroke is in effect a movement very similar to
a right hook used in boxing. However, a basic difference exists in that
this movement the bayonet fighter's body is rotated approximately 135° to
the left as the butt of the rifle is brought around in a horizontal arc to
the striking position. In order to achieve this rotation the right or rear
foot is brought around in a semicircular movement and planted well in advance
of the left. The disadvantage of this particular movement is that it takes a
considerable time to effect the movement of the entire body mass, and the
bayonet fighter in the striking position is in an extremely vulnerable position
his opponent is still able to retaliate. The boxer does not move his feet
using the right hook.
A CONTENT

HOMELAND

TATE 2794. - TIME
TATE 2794. - UN
TATE 2794. - MAN
TATE 2794. - HOME
TATE 2794. - AVEN
TATE 2794. - COMIL
TATE 2794. - (COMIL) REMIL
TATE 2794. - NO.

This content is not readable in the image.
METHOD A

HORIZONTAL BUTT STROKE

1. Guard. The right or rear foot is carried forward and around and abducted forward before being planted, while the left foot acts as a base. As this movement is being made the right arm is punched forward to the side and the body is rotated strongly to the left. (approximate)

2. Stride.


FIGURE IV.
METHOD A

VERTICAL BUTT STROKE

<table>
<thead>
<tr>
<th>TIME</th>
<th>.7874 seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECOVERY TIME</td>
<td></td>
</tr>
<tr>
<td>RANGE</td>
<td>4,009 feet</td>
</tr>
<tr>
<td>FMOB</td>
<td>4,561 feet</td>
</tr>
<tr>
<td>TFVA</td>
<td>.731 feet</td>
</tr>
<tr>
<td>LEOB</td>
<td>2.438 feet</td>
</tr>
<tr>
<td>EXCESS (FMOB-LEOB)</td>
<td>2.123 feet</td>
</tr>
<tr>
<td>ROS</td>
<td>5.792 feet per second</td>
</tr>
</tbody>
</table>

As this movement begins the body of the bayonet man rotates strongly to the left (approximately 135°). The right or rear foot is carried forward and around and abducted forward before being planted, while the left foot acts as a base and pivots approximately 90° to the left. As this movement is being made the left arm flexes almost to complete flexion and the right arm is punched forward and up in an uppercut. At the end of the movement both arms are flexed greatly. The hips and shoulders are parallel to the vertical plane, but the right hip and right shoulder are slightly high and the center of gravity is closer to the left foot than to the right. The butt of the rifle is approximately as high as the face of the bayonet fighter.

The RANGE of this movement (from the belt buckle of the fighter the Gard position to the tip of the butt in the striking position) is 4,009 feet and the actual distance traveled in the forward direction by the striking part of the weapon (FMOB) is 4,561 feet. The leading edge of the y (LEB) moves 2.438 feet so the forward movement of the striking part of weapon exclusive of the movement of the body (EXCESS) is 2.123 feet. The distance between the end of the butt and the nearest vulnerable part of
The bayonet fighter's body (TFVA) is .731 feet. The time of this offensive movement from the beginning to the reaching of the striking position is .7874 seconds. Recovery time is not measured because this movement is followed by a Smah rather than a recovery. However, it is obvious that recovery time would probably be as long as the time of the offense because the body would have to be rotated as far back to the Guard position as it had been to the striking position. The rate of speed (ROS) of the offense is 5.792 feet per second.

The method A Vertical Butt Stroke is a movement which is quite similar to the right uppercut used in boxing. However, it is essentially different in that as the right hand (and the butt of the rifle) are brought upward and in a vertical arc the body is strongly rotated to the left approximately 135° and the right foot is carried forward and around and antedwell in front of the left foot. The hips and shoulders are kept parallel at all times in the vertical plane. In the striking position the bayonet fighter is extremely vulnerable to attack by an opponent. The advantage of this movement is that it takes a considerable amount of time for the movement of the entire body mass from the starting to the striking positions and the balance in the movement is not good. The balance of the striking position is questionable because most of the weight of the body is supported on the left or rear foot.
The statement for the allocation of the aircraft position at the recessed position of the aircrew to the vertical or horizontal position by the first item in the statement of the decimal point, at least 30 feet, at least 150 feet, and at least 600 feet, respectively.

This statement describes the allocation of the aircraft position at the vertical or horizontal position by the first item in the statement of the decimal point, at least 30 feet, at least 150 feet, and at least 600 feet, respectively.
METHOD A

VERTICAL BUTT STROKE

1. Guard.

The starting position of the Vertical or Horizontal Butt Stroke. As the movement begins the batter steps forward vigorously with his left foot, at the same time extending both arms somewhat forward to full extension. The left leg and the right or base feet are in opposition, the lateral base is quite narrow and the striking position (the type of the fighter in the starting position to the type of the butt, with the striking position) is 7.016 feet. The forward movement of the butt (PMB) is 4.243 feet. The leading edge of the movement of the body (EXCESS) is 1.306 feet per second.

2. Stride.


FIGURE V.
METHOD A

SMASH

<table>
<thead>
<tr>
<th>TIME</th>
<th>.8382 seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECOVERY TIME</td>
<td></td>
</tr>
<tr>
<td>RANGE</td>
<td>7.016 feet</td>
</tr>
<tr>
<td>FMOB</td>
<td>4.443 feet</td>
</tr>
<tr>
<td>TFVA</td>
<td>2.549 feet</td>
</tr>
<tr>
<td>LEOB</td>
<td>3.532 feet</td>
</tr>
<tr>
<td>EXCESS (FMOB-LEOB)</td>
<td>.911 feet</td>
</tr>
<tr>
<td>ROS</td>
<td>5.306 feet per second</td>
</tr>
</tbody>
</table>

The starting position for this offense is the striking position on the vertical or Horizontal Butt Stroke. As the movement begins the bayonet steps forward vigorously with his left foot, at the same time extending the arms somewhat to the rear. As the left foot is planted well in front of the right or base foot, both arms are thrust vigorously forward to full tension. In the striking position the hips and shoulders are in opposition, the left leg and the right shoulder being advanced forward. The lateral base is quite narrow and both knees are flexed to some degree.

The RANGE of this movement (from the belt buckle of the fighter the starting position to the tip of the butt in the striking position) is 7.016 feet. The forward movement of the butt (FMOB) is 4.443 feet. The ading edge of the body (LEOB) moves forward 3.532 feet, which means that the movement of the striking part of the weapon exclusive of the forward movement of the body (EXCESS) is .911 feet. The rate of speed of this offense (ROS) is 306 feet per second.

The Smash is a movement which is dissimilar to any movement in the field of sports with which the writer is acquainted. The disadvantage of
The statement on the previous page is the correct position. The vertical position of the statement is incorrect. Please correct accordingly. The statement should be moved to the correct vertical position. The statement is as follows:...
is movement is that it cannot be executed except following a Vertical or rizontal Butt Stroke. In other words, it cannot be used from the Guard starting position. As the butt is smashed forward at the opponent with a right hand leading (in effect a right jab executed by a left handed boxer) a left leg is carried forward and planted out in front. This position to a great degree, restricts the range of the movement because the rotation of e hips to the right is in opposition to the rotation of the shoulders to e left. The hips are not horizontal. In the opinion of the writer this eensive movement is the least sound of all the movements being considered his study.
METHOD A

SMASH

SLASH

1. Starting Position.

As this step is taken the batter advances his right rear foot and rotates his body somewhat to the left. He plants the right foot well in front of the left, extends the left arm to the right approximately 110°, and turns the body approximately 90°. A slight step forward with the right leg helps keep the left leg slightly flexed, and brings the left arm in front of his body back to the basic guard position.

2. Stride.

The actual distance traveled in a fast throw is 10.550 feet. The forward movement of the striking tip of the striking point of the weapon (EXCESS) is 15.373 feet and the rate of speed of the offense (40) is 19.983 feet per second.


FIGURE VI.
METHOD A

SLASH

<table>
<thead>
<tr>
<th>TIME</th>
<th>0.9652 seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECOVERY TIME</td>
<td>0.4572 seconds</td>
</tr>
<tr>
<td>RANGE</td>
<td>6.448 feet</td>
</tr>
<tr>
<td>FMOB</td>
<td>-10.408 feet</td>
</tr>
<tr>
<td>TFVA</td>
<td>-3.373 feet</td>
</tr>
<tr>
<td>LEOB</td>
<td>-5.551 feet</td>
</tr>
<tr>
<td>EXCESS (FMOB-LEOB)</td>
<td>-4.875 feet</td>
</tr>
<tr>
<td>ROS</td>
<td>-10.783 feet per second</td>
</tr>
</tbody>
</table>

The starting position for this movement is the striking position of the Sash. As this movement begins the bayonet man advances his right rear foot and rotates his body somewhat to the left. He plants the right foot well in front and then takes a long forward step with the left foot. This step is taken the bayonet man rotates his body to the right approximately 110°, sweeps the rifle forward in an arc (approximately 45°), bends he left arm almost completely, and extends the right elbow to approximately 90°. In recovering, the bayonet fighter takes a slight step forward with the right or rear foot, rotates the body to the left slightly, cross both arms, and brings the rifle and his body back to the basic Guard position.

The RANGE of this movement is 6.448 feet. The actual distance veled in a forward direction by the striking part of the weapon (FMOB) is 10.40 feet. The leading edge of the body (LEOB) moves 5.551 feet. Actual movement of the striking part of the weapon exclusive of the forward movement of the body (EXCESS) is 4.875 feet. The distance of the tip of the striking part of the weapon from the nearest vulnerable area of the body (TFVA) is 73 feet and the time of the offense is 0.9652 seconds. The rate of speed of the offense (ROS) is 10.783 feet per second.
The table below shows the recovery times for various conditions. The columns represent different conditions and the rows represent different times. The table is as follows:

<table>
<thead>
<tr>
<th>Condition</th>
<th>10 min.</th>
<th>20 min.</th>
<th>30 min.</th>
<th>40 min.</th>
<th>50 min.</th>
<th>60 min.</th>
<th>70 min.</th>
<th>80 min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recovery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>10 min</td>
<td>20 min</td>
<td>30 min</td>
<td>40 min</td>
<td>50 min</td>
<td>60 min</td>
<td>70 min</td>
<td>80 min</td>
</tr>
<tr>
<td>High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This table is used to determine the recovery time for different conditions. The time in minutes is recorded for each condition.
This slashing movement is used only as a follow-up of the Smash, starting position being the striking position of the Smash. The fact that the Slash is not executed except following the Smash greatly restricts its usefulness as an offense. In executing the Slash the bayonet fighter moves the right or rear foot, taking a long forward step, thus bringing hips and shoulders approximately parallel to one another. He then takes an additional step forward with the left or rear foot, rotating the body directly to the right (approximately 110°), at the same time swinging the rifle forward in an arc of approximately 45° from the ground. This movement has a considerable range. However, it takes a long period of time to execute the movement because two full steps are required to reach the striking position, and the body is rotated first to the left and then to the right before the strike is completed. Balance is not good in this movement because the knees are bent unequally, thus tipping the hips out of the horizontal. The fact that the entire body mass is required to make several large rotations greatly slows down the time of the skill.
DISCUSSION OF METHOD A

Method A consists of eight different offensive: The Long Thrust, the Short Thrust, the Vertical Butt Stroke, the Horizontal Butt Stroke, the Slash, the Smash, the Parry Right, and the Parry Left.

METHOD A

In this analysis the Right and Left Parries have not been examined because they are essentially the same as the Long and Short Thrusts. The difference is that in the Parry the butt of the weapon is moved to the position of the weapon. A weapon which is executed from the Guard or basic position. The Slash and the Smash cannot be used.

1. Starting Position
2. Stride. The opponent thrusts the point of the weapon at the bayonet fighter; his chances of defense are poor.

FIGURE VII. Bayonet with a weapon which is parallel to the attacking bayonet are not good.
DISCUSSION OF METHOD A

Method A consists of eight different offenses: The Long Thrust, the Short Thrust, the Vertical Butt Stroke, the Horizontal Butt Stroke, the Slash, the Smash, the Parry Right, and the Parry Left.

In this analysis the Right and Left Parries have not been examined because they are essentially the same as the Long and Short Thrusts. The only difference is that in the Parry the butt of the weapon is moved to the right or to the left several inches as the thrust is made.

The only movement in Method A which seems to the investigator to be natural or non-artificial movement is the Short Thrust. All of the other movements are essentially dissimilar to the common movements of competitive sports. That is, they involve body positions and balances which are not seen in good athletic performances. The Long Thrust, the Short Thrust, the Parry Right and Parry Left, the Vertical and Horizontal Butt Strokes can all be executed from the Guard or basic position. The Slash and the Smash cannot be executed from this basic position. The Long Thrust and Short Thrust can be used in combination, but the Long Thrust involves such precarious balance at times is a distinct possibility that the bayonet fighter would have difficulty making any progress from the Long Thrust to anything else.

The position of Guard with the rifle and bayonet pointing directly at the opponent is not a good defensive position. It is a fact that parallelism does not meet. If the opponent thrusts the point of his weapon at the bayonet fighter, his chances of deflecting the bayonet with a weapon which is parallel to the attacking bayonet are not good.
METHOD B

GUARD POSITION

The basic position in Method B is the position of Guard. In this position the bayonet fighter stands with feet comfortably spread, knees slightly flexed, trunk slightly flexed, toes pointed straight ahead, left slightly forward of the right. The left elbow is flexed to about 75°, right elbow approximately 110°, both hands grasping the rifle firmly. The rifle is held in a low port position, roughly parallel to the bayonet fighter’s body in the lateral plane and crossing his body at about a 35° – 40° angle in the anterior-posterior plane.

This position is a relaxed but alert position from which any and all of the skills of Method B can be executed. The fact that the rifle is close to the body contributes to the equilibrium of the fighter in this position.
The basic position is to the port side of the guard. In this position the face of the fighter remains with feet comfortably spaced, knees slightly flexed, arms straight or slightly flexed, face looking straight ahead. The feet are at about a 45° angle to the plane of the fighter. The left hand grasps the fighter's rear edge of the upper portion of the fighter's lower edge. The right hand grasps the fighter's lower edge. The back of the hand is on the fighter's rear edge. The palm is on the fighter's lower edge. The palm is on the fighter's lower edge.

This position is a relaxed but alert position from which any move to the port or starboard plane can be executed. The facts that the fighter is close to the fighter contrary to the position of the fighter in this case.
METHOD B
SLASH

TIME - .2540 seconds
RECOVERY TIME - .4572 seconds
RANGE - 4,370 feet
FMOB - 3.278 feet
TFVA - 3.147 feet
LEOB - 5.230 feet
EXCESS (FMOB-LEOB) - 2.755 feet
ROS - 12.905 feet per second

As the offense begins the bayonet fighter steps forward with the left foot and rotates his body to the right, using the right foot as a base pivot. His left arm opens to almost full extension and the right arm flexes to 90°. As this movement is made the bayonet blade is swung downward in an arc of approximately 40° which is aimed at the neck area of the opponent.

In recovering the bayonet fighter flexes the left arm, extends the right, takes a step forward with the right or rear foot, rotates his body to the left and drops back into the Guard position.

The range of the Slash is 4,370 feet (measured from the belt buckle of the fighter in the Guard position to the tip of the bayonet in the striking position). The forward movement of the bayonet tip (FMOB) from the Guard position to the striking position is 3.278 feet. The forward movement of the striking angle of the body (LEOB) is 5.230 feet, indicating that the actual movement of the striking part of the weapon exclusive of the forward movement of the body (EXCESS) is 2.755 feet. The distance of the tip of the striking part of the weapon from the nearest vulnerable area of the bayonet fighter's
As the officer begins the pray-a-tight edge forward with the right hand on the top of the light, time the light tool as a case begins, the left hand on the light extension may the light.

As the moment to make the pray-a-tight right begins, the light is held on the point of the gun to where the position is seen or the opponent is seen at the point of the gun.

To make a step forward with the light on rear, without the body, a part of the flat and above back into the gun position.

The range of the road is 150 feet (measuring from the flat), and the range in the gun position to the tip of the position in the outline

The forward movement of the pray-a-tight (FTD) & 250 feet, the forward movement of the pray-a-tight (FTD) & 250 feet. This indicates that the outline

The position of the weapon on the grip of the weapon to the tip of the position in the outline

The position of the weapon on the nearest and the outline of the pray-a-tight.
(TWA) is 3.147 feet and the time of the movement is .254 seconds. The
rate of speed of the offense (ROS) is 12.905 feet per second.

The balance of the body in the striking position is good, the center
gravity being carried almost directly above the center of the base of the
sho. The forward step taken to achieve the striking position is actually
abduction of the left leg, and the left foot and right foot are parallel
one another, resulting in a widened base and greater stability. As
illustration number 3 clearly shows, the weight of the body is following
the weapon, and the step is not completed when the bayonet reaches the
striking position.

The Slash in Method B is almost the same as the left jab in boxing.
Body is rotated to the right, the left arm is sharply extended and the
left leg advanced forward (abducted sideward). The extension of the left arm,
the forward step taken with the left leg, and the rotation to the right furnish
the capability of range of movement to this offense. It may be seen that this
movement is the fastest of all the skills being analyzed in this study.

From the striking position recovery is quite simple, and, if the
action demands, the striking position is a natural position from which to
the method B Vertical or Horizontal Butt Stroke. The Slash and the
vertical Butt Stroke are paired movements and each is a natural follow-up
the other, since they operate in the same plane.
METHOD E

SLASH

HORIZONTAL SLASH

1. Guard.

4. Recovery.

2. Stride.

5. Guard.


FIGURE VIII.
METHOD B

HORIZONTAL SLASH

<table>
<thead>
<tr>
<th>TIME</th>
<th>.5334 seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECOVERY TIME</td>
<td>.3556 seconds</td>
</tr>
<tr>
<td>RANGE</td>
<td>4.930 feet</td>
</tr>
<tr>
<td>FMOB</td>
<td>4.145 feet</td>
</tr>
<tr>
<td>TFVA</td>
<td>3.359 feet</td>
</tr>
<tr>
<td>LEOB</td>
<td>1.327 feet</td>
</tr>
<tr>
<td>EXCESS (FMOB-LEOB)</td>
<td>2.818 feet</td>
</tr>
<tr>
<td>ROS</td>
<td>7.770 feet per second</td>
</tr>
</tbody>
</table>

As the offense begins the bayonet fighter steps forward with the left foot, at the same time flexing the left arm and swinging the bayonet around to the left, dropping it until it is almost horizontal. As the step continues the bayonet fighter rotates his body sharply to the right andishes this step by abducting his left or lead leg forward and planting it firmly on the ground, pivoting the right foot to the right. The right arm pulse across the body and the left arm is swung to the right in a wide sweeping movement. Recovery is made by flexing the left arm, raising the left leg, and dropping the right hand, at the same time rotating the body to the left and advancing the right or rear foot back to the starting position.

The range of this movement (from the belt buckle of the fighter in a guard position to the tip of the bayonet in the striking position) is 930 feet. The forward movement of the striking part of the weapon (FMOB) is 4.145 feet. The leading edge of the body (LEOB) moves forward 1.327 feet. The forward movement of the striking edge of the weapon exclusive of the forward movement of the body (EXCESS) is 2.818 feet. The TIME of this offense is .5334 seconds. RECOVERY TIME is .3556 seconds. The rate of speed of the offense (ROS) is 7.770 seconds.
This movement is basically a strong rotating movement in which the weapon is dropped to the horizontal and then swung violently against the waist of the opponent. The Horizontal Slash is executed exactly as a left hook used in boxing. The only difference is the fact that the rifle and bayonet shell in the hands.

The Horizontal Slash is very similar to the Slash, the difference being that the movement closely resembles a left hook in boxing rather than left jab. There is some telegraphing (the striking part of the weapon is pulled back slightly before being swung forward) which lengthens the time of the offense. After the striking part of the weapon is dropped to the horizontal position the movement is quite similar to the Slash in that the body is rotated strongly to the right, the left foot is carried forward and the left arm is extended, although not completely. The balance in this movement is quite good since the base is wide, the hips are parallel, and the center of gravity is well within the limits of the base. From the striking position it is easy to recover to the Guard position or to execute either the horizontal or Vertical Butt Stroke. The Horizontal Slash and the Horizontal Butt Stroke are paired movements, and each is a natural follow-up for the other, since they operate in the same plane.
METHOD B
HORIZONTAL SLASH
VERTICAL BUTT STROKE

1. Guard.

2. Stride.


4. Recovery.

5. Guard.

FIGURE IX.
METHOD B

VERTICAL BUTT STROKE

| TIME       | .4326 seconds |
| RECOVERY TIME | .3810 seconds |
| RANGE      | 3.169 feet    |
| FMOB       | 3.015 feet    |
| TFVA       | 2.484 feet    |
| LEOB       | .357 feet     |
| EXCESS (FMOB-LEOB) | 2.658 feet |
| ROS        | 6.566 feet per second |

As this movement begins the bayonet fighter rotates his body slightly to the right and then rotates his body strongly back to the left. The left arm is to almost complete flexion, the right hand is pulled back slightly, and the elbow flexed slightly, and then thrust forward and upward in a right percussive movement with the right arm extending to a great degree. The feet of the bayonet fighter remain in the starting position, but both knees flex and the right hip is carried forward so that the hips and shoulders of the bayonet fighter remain approximately parallel to one another, as the body rotates to the left.

Recovery is made by rotating the body back to the right, extending the knees back to the starting position, pulling the right hand back and down, flexing the right arm back to the starting position, while at the same time advancing the left hand and slightly extending the left arm back to the starting position.

The RANGE of this movement (from the belt buckle of the fighter in Guar position to the tip of the butt in the striking position) is 3.619 feet, and the actual distance traveled in the forward direction by the striking part of the weapon (FMOB) is 3.015 feet. The leading edge of the
(LEL) moves .357 feet so the forward movement of the striking part of the weapon exclusive of the movement of the body (EXCESS) is 2.658 feet. The distance between the end of the butt and the nearest vulnerable part of the opponent's body (TFVA) is 2.484 feet. The time of this offensive movement from the beginning to the reaching of the striking position is .4326 seconds. RECOVERY TIME from the striking position back to the Guard position is .3810 seconds. The rate of speed of the offense (ROS) is 6.566 feet per second.

Balance in this offense is quite good, as the hips and shoulders are parallel, the base is large, the weight is carried well over the base.

The Vertical Butt Stroke is executed almost exactly like the right cut in boxing. The body is rotated to the left as the right hand and rifle butt are brought forward and upward, the rotation being effected by twisting of the shoulders to the left, at the same time bringing the right hip forward while keeping the feet in place. Recovery can be executed merely rotating the body back to the left and carrying the rifle back to port position. From the striking position of the Vertical Butt Stroke, Slash, the Horizontal Slash, or the Jab, may be executed without returning to the Guard position. The Vertical Butt Stroke and the Slash are paired moves and each is a natural follow-up for the other, since they operate in the same plane.
METHOD B

VERTICAL BUTT STROKE

HORIZONTAL BUTT STROKE

1. Guard.

2. Uppercut.


4. Recovery.

5. Guard.

FIGURE X.
METHOD B
HORIZONTAL BUTT STROKE

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME</td>
<td>0.4318 seconds</td>
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<tr>
<td>RECOVERY TIME</td>
<td>0.3556 seconds</td>
</tr>
<tr>
<td>RANGE</td>
<td>3.332 feet</td>
</tr>
<tr>
<td>FMOB</td>
<td>3.203 feet</td>
</tr>
<tr>
<td>TFVA</td>
<td>2.819 feet</td>
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<tr>
<td>LEOB</td>
<td>0.241 feet</td>
</tr>
<tr>
<td>EXCESS (FMOP-LEOB)</td>
<td>2.967 feet</td>
</tr>
<tr>
<td>ROS</td>
<td>7.429 feet/second</td>
</tr>
</tbody>
</table>

As this movement begins the body of the bayonet fighter rotates rongl; to the left. The left hand drops several inches and the right hand swan upward and pulled back slightly, the elbow flexes somewhat, and then a right hand is swung around to the left in a strong right hook movement the ad of which the right arm is almost completely extended. The rifle es flt on its side in the striking position. Both feet remain in the startng position, but the right knee is flexed sharply (approximately to 100°) and the hips are rotated around the left keeping nearly parallel to the shoulders.

Recovery is made by flexing the right arm and dropping the right hand back to the starting position, at the same time raising the left hand several inches. While this is taking place the body of the bayonet fighter rotates the right back to the starting position and the right knee is extended back to the original starting position.

The RANGE of this movement (from the belt buckle of the fighter in a Guar position to the tip of the butt in the striking position) is 3.332 feet, the actual distance traveled in the forward direction by the striking part the weapon (FMOP) is 3.203 feet. The leading edge of the body (LEOB) moves 41 feet, so that the forward movement of the striking part of the weapon
The Horizontal Butt Stroke of Method B closely resembles the right hook in boxing. The hips and shoulders are rotated sharply to the left, and the right hand, with the butt of the rifle, is raised to the horizontal and swung in an arc to the left while the feet remain in the starting position. The movement is effected by rotating the body and carrying the weapon back to the starting position. The Slash, Horizontal Slash, and Jab may be executed from the striking position of the Horizontal Butt Stroke. The Horizontal Butt Stroke and the Horizontal Slash are paired movements, each of which is a natural follow-up for the other, since they move in the same plane. Since one is the same as a left hook in boxing, and the other the same as a right hook, they are closely related.
### Table: Technical Specifications

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Note: This section appears to be a table with technical specifications, but the specific details are not clear due to formatting issues.
METHOD B
HORIZONTAL BUTT STROKE

1. Guard

2. Hook

3. Striking Position

4. Recovery

5. Guard

FIGURE XI.
METHOD B

JAB

TIME: \(0.6604\) seconds
RECOVERY TIME: \(0.3556\) seconds
RANGE: \(6.474\) feet
FMOB: \(6.450\) feet
TFVA: \(4.125\) feet
LEOB: \(2.383\) feet
EXCESS (FMOB-LEOB): \(4.067\) feet
ROS: \(9.781\) feet per second

This offense begins exactly like the Method B Slash. The left foot is advanced forward, the right foot acts as a pivot, and the body rotates sidely to the right. The left arm is lowered and the right arm raised so that the right forearm lies along the side of the stock of the rifle which now carried in a flat position. As the movement continues, the left leg abducted further sideward (to the front), the trunk is flexed to the nt, and both arms are extended hard sideward (to the front).

Recovery is made by advancing the rear or right foot, rotating the y to he left, extending the trunk, flexing the left elbow considerably slighty extending the right elbow, bringing the body and the rifle back the basic Guard position.

The RANGE of this movement (from the belt buckle of the bayonet hter n the Guard position to the tip of the bayonet in the striking ition is \(6.474\) feet. The forward movement of the striking part of the pon (MOB) is \(6.450\) feet. The forward movement of the leading edge of the y (LEB) is \(2.383\) feet, so that the forward movement of the striking part the wepon exclusive of the forward movement of the body (EXCESS) is
The above table shows the success rate of various measures. The success rate of each measure is indicated in the right column. The success rate is calculated based on the ratio of successful outcomes to the total number of attempts. The measures are ordered from highest to lowest success rate. The highest success rate is shown in the top row, and the lowest success rate is shown in the bottom row.
967 feet. The distance of the tip of the striking part of the weapon to the nearest vulnerable part of the body is 4.125 feet. The TIME of the sense is .6604 seconds. RECOVERY TIME is .3556 seconds. The rate of speed of the offense (ROS) is 9.781 feet per second.

The salient feature of this offense is the fact that it begins as a flash and then is extended into a thrust, the range of which is dependent on the distance from the target. The balance in this movement is extremely good because the hips and shoulders are held horizontal and parallel to one another and the center of gravity is well within the limits of the breadth of the stance.

The Jab is a movement which is almost exactly like the long loft in boxing. It is an extremely fast movement for its range; and either recovery or the Vertical or Horizontal Butt Stroke can be quickly executed from the striking position of this movement.
METHOD B

DISCUSSION OF METHOD B

JAB

Method B consists of five basic movements: the Jab, Slash, .

1. Guard.

2. Slash.


4. Recovery.

5. Guard.

The Guard position in Method B is an excellent defensive position.

The weapon is carried in the vertical plane; any thrust at the bayonet.

Allowing the tip of the attacking weapon's rifle and then smartly striking

the weapon out of line of the weapon is deflected the bayonet fighter

FIGURE XII.
DISCUSSION OF METHOD B

Method B consists of five basic movements: the Jab, Slash, Horizontal Slash, Vertical Butt Stroke and Horizontal Butt Stroke. Any one of these movements may be executed from the Guard position. The Vertical Butt Stroke and the Slash are paired movements, that is, it is quite easy and natural to execute these two movements in sequence regardless of which used first.

Similarly, the Horizontal Slash and the Horizontal Butt Stroke are paired movements, that is, it is quite easy and natural to follow either of these movements with the other, and it might prove quite feasible in combat to press an attack by alternating one, and the other, of either of these pairs of paired movements.

The Jab is the long-range movement of this offense and the only movement which is of a thrusting type. This movement combines well as a follow-up for a Slash which is short or as a follow-up for a Horizontal Vertical Butt Stroke which proves to be short. Also any of the other movements except the Slashes can easily be executed following a Jab.

The Guard position in Method B is an excellent defensive position. Since the weapon is carried in the vertical plane, any thrust at the bayonet fighter should be parried easily by allowing the tip of the attacking weapon to pass the line of the bayonet fighter's rifle and then smartly striking up or down into the attacking weapon and at right angles to it. Should be quite easy to deflect the attacking weapon out of line of the bayonet fighter's body. After this weapon is deflected the bayonet fighter
ould be able to counter quite effectively with any of his close range
tense, namely, the Horizontal Slash or Slash or the Vertical or Horizontal
Butt Strokes.

The Method A Vertical or Horizontal Butt Strokes, the Slash and
ash can all be parried rather easily from the Method B Guard position by merely
ring the bayonet fighter's weapon toward the striking part of the opponent's
pon. As the blow is checked by contact with the held rifle, it is quite
y to counter with a Slash or Vertical or Horizontal Butt Stroke.

Each of the offenses in Method B closely resembles the offenses
boxing. The Horizontal Slash and the Horizontal Butt Stroke closely
proximate the left and right hook in boxing. The Slash and the Jab are
y similar to the short and long left jabs in boxing. Finally, the
Vertical Butt Stroke is executed exactly like the right uppercut in boxing.

The fact that the five offenses in Method B are almost exactly like
five basic offenses of boxing is extremely significant for several reasons.
ing is one of the oldest sports known to man and the development of its
movements which are so similar to the Method B movements has been the
uit of many hundred years of experimentation and trial and error. These
vements are natural, efficient, and economical, and the fact that most
American men and boys have some background in the sport of boxing would
icate that acquisition of the skills of Method B would in most cases be easy
rapid.
The method of horizontality, butt stroke, is as follows:

To commence with a blind on vertical or horizontal, butt stroke, the shot may mimic the blow of the opponent's weapon, shoving the striking part of the opponent's weapon to the side or downward, and then move the blow to the point of contact with the blade's strike, as the blow.

To commence with a blind on vertical or horizontal, butt stroke, the shot may mimic the blow of the opponent's weapon, shoving the striking part of the opponent's weapon to the side or downward, and then move the blow to the point of contact with the blade's strike, as the blow.

The horizontal, blind on horizontal, butt stroke, may mimic the blow of the opponent's weapon, shoving the striking part of the opponent's weapon to the side or downward, and then move the blow to the point of contact with the blade's strike, as the blow.

The horizontal, blind on horizontal, butt stroke, may mimic the blow of the opponent's weapon, shoving the striking part of the opponent's weapon to the side or downward, and then move the blow to the point of contact with the blade's strike, as the blow.

Patch butt stroke is executed exactly like the light blow in boxing, where the opponent's strike is returned with a blow to the side or downward, and then move the blow to the point of contact with the blade's strike, as the blow.

The fact that the five odors in method A are exact replicas of these, may mean that the method of horizontality, butt stroke, is as follows:

The method of horizontality, butt stroke, is as follows:

The method of horizontality, butt stroke, is as follows:

The method of horizontality, butt stroke, is as follows:

The method of horizontality, butt stroke, is as follows:

The method of horizontality, butt stroke, is as follows:

The method of horizontality, butt stroke, is as follows:
A COMPARISON OF METHOD A AND METHOD B
HORIZONTAL BUTT STROKE

<table>
<thead>
<tr>
<th></th>
<th>Method A</th>
<th>Method B</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME</td>
<td>0.8636 seconds</td>
<td>0.4318 seconds</td>
</tr>
<tr>
<td>RECOVERY TIME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RANGE</td>
<td>4.930 feet</td>
<td>3.332 feet</td>
</tr>
<tr>
<td>FMOB</td>
<td>5.014 feet</td>
<td>3.208 feet</td>
</tr>
<tr>
<td>TFVA</td>
<td>1.633 feet</td>
<td>2.819 feet</td>
</tr>
<tr>
<td>LEOB</td>
<td>2.392 feet</td>
<td>0.241 feet</td>
</tr>
<tr>
<td>EXCESS (FMOP-LEOB)</td>
<td>2.622 feet</td>
<td>2.967 feet</td>
</tr>
<tr>
<td>ROS</td>
<td>5.306 feet/second</td>
<td>7.429 feet/second</td>
</tr>
</tbody>
</table>

It may be seen from the above figures that the Method A Horizontal Butt Stroke takes twice as long to reach the striking position that of Method B. On the other hand, the RANGE of the Method A Butt Stroke is 1.598 feet longer than the Method B Horizontal Butt Stroke. Both of these differences can be explained by the fact that the Method B Horizontal Butt Stroke is executed without any major body movement, while Method A Horizontal Butt Stroke requires a large major body movement, as the fact that the butt starts from a position behind the starting site of the Method B Horizontal Butt Stroke.

The forward movement of the butt (from the starting position to the striking position) (FMOB) in the Method A Horizontal Butt Stroke is 0.06 feet greater than that of Method B's Horizontal Butt Stroke. On the other hand, the TFVA of Method B is 1.136 feet greater and the LEOB is 1.52 less than Method A's.

The significant difference between these two skills is that the execution of the Method B Horizontal Butt Stroke is exactly twice as fast...
<table>
<thead>
<tr>
<th>Method A</th>
<th>Method B</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.278 sec</td>
<td>3.296 sec</td>
</tr>
<tr>
<td>3.278 sec</td>
<td>3.296 sec</td>
</tr>
<tr>
<td>2.303 sec</td>
<td>2.303 sec</td>
</tr>
<tr>
<td>2.303 sec</td>
<td>2.303 sec</td>
</tr>
<tr>
<td>2.303 sec</td>
<td>2.303 sec</td>
</tr>
<tr>
<td>2.303 sec</td>
<td>2.303 sec</td>
</tr>
<tr>
<td>2.303 sec</td>
<td>2.303 sec</td>
</tr>
</tbody>
</table>

It may be seen from the above figures that the Method A is definitely faster than the Method B. On the other hand, the Number of the Method A is 120, while the Number of the Method B is 10. This indicates that the two methods have different efficiencies. Method A is more efficient than Method B, as it requires less time to complete the task.

A comparison between Method A and Method B reveals that Method A is superior in terms of efficiency and speed. Therefore, it is recommended to use Method A for future applications.
that of Method A. The advantage in range which belongs to the Method A
horizontal Butt Stroke is compensated for by a disadvantage in balance, in
VA, 1: LEOB, in RECOVERY TIME, and in a lower EXCESS (FMOB-LEOB).

In addition, the butt moves at a rate of 5.806 feet per second
the method A Horizontal Butt Stroke as compared to a speed of 7.429 feet
second in the Method B Horizontal Butt Stroke.

It appears that the Method B Horizontal Butt Stroke is in most
superior to the Method A Horizontal Butt Stroke. It is apparent that
an outstanding feature of the Method B Horizontal Butt Stroke is that it
essentially a movement of the weapon and does not rely much on body
movement. On the other hand, the Method A Horizontal Butt Stroke is primarily
body movement, which furnishes most of the range and the disadvantage which
is present in this offense.
A part of Method A. The characteristics in range which depend on the Method of Fire must be determined for a given machine in range, in recess, in excess of lower recovery time, and in lower excess (t.WD-L). In addition, the table above at point of 2.00 feet per second may be used.

If necessary, the putts move at a rate of 2.00 feet per second in the Method of Fire. This stroke is compared to the speed of 0.80 feet per second in the Method of Fire. If necessary, the Method of Fire must be used. The Method of Fire is specified in the Method of Fire, and the Method of Fire is specified in the Method of Fire. 

By means of a movement of the weapon and due not rely upon other means. On the other hand, the Method of Fire is specified in the Method of Fire, and the Method of Fire must be used in this area.
A COMPARISON OF METHOD A AND METHOD B  
VERTICAL BUTT STROKE

<table>
<thead>
<tr>
<th></th>
<th>Method A</th>
<th>Method B</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME</td>
<td>.7874 seconds</td>
<td>.4826 seconds</td>
</tr>
<tr>
<td>RECOVERY TIME</td>
<td></td>
<td>.3310 seconds</td>
</tr>
<tr>
<td>RANGE</td>
<td>4.009 feet</td>
<td>3.169 feet</td>
</tr>
<tr>
<td>FMOB</td>
<td>4.561 feet</td>
<td>3.015 feet</td>
</tr>
<tr>
<td>TFVA</td>
<td>.731 feet</td>
<td>2.484 feet</td>
</tr>
<tr>
<td>LEOB</td>
<td>2.438 feet</td>
<td>.357 feet</td>
</tr>
<tr>
<td>EXCESS (FMOB-LEOB)</td>
<td>2.123 feet</td>
<td>2.653 feet</td>
</tr>
<tr>
<td>ROS</td>
<td>5.792 feet per second</td>
<td>6.566 feet per second</td>
</tr>
</tbody>
</table>

It may be seen from the above figures that the Method A Vertical Butt Stroke takes .3048 seconds longer than the Method B Vertical Butt Stroke. Method A is superior in RANGE, having an advantage of .840 feet over Method B. It is also 1.546 feet longer in FMOB, both of these factors being accounted for by the fact that the Method B Vertical Butt Stroke is executed with no great movement, while there is considerable body movement in Method A. In fact, LEOB of Method A is 2.081 feet more than that of Method B. Also the striking position of the butt in Method A requires that a greater FMOB be made. On the other hand, the TFVA of Method B is 1.753 feet greater than that of Method A. The rate of speed (ROS) of the striking part of the weapon (the butt) Method A is 5.792 feet per second as compared to a rate of speed (ROS) of 6.566 feet per second for Method B.

A study of these two styles of Vertical Butt Strokes indicate that Method A is superior in terms of range and forward movement of the butt in terms of distance. The Method B Vertical Butt Stroke is superior in TIME of...
A COMPARATIVE STUDY OF VERTICAL AND HORIZONTAL

<table>
<thead>
<tr>
<th>Method</th>
<th>Time (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
</tr>
</tbody>
</table>

A study of the two types of Vertical and Horizontal strokes indicates that

A method, Vertical stroke is superior in terms of ease and forward momentum of the put in

The Metric Vertical stroke is superior in terms of ease and
cution, balance, RECOVERY TIME, TFVA and LEOB. It is apparent that the
Method I Vertical Butt Stroke is executed primarily with the weapon, that is,
no much movement of the bayonet fighter's body is required. On the other
hand, the Method A Vertical Butt Stroke is primarily a body movement with a
majority of the effect of the movement being attributed to body movement.
A COMPARISON OF METHOD A AND METHOD B SLASH

<table>
<thead>
<tr>
<th></th>
<th>Method A</th>
<th>Method B</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME</td>
<td>.9652 seconds</td>
<td>.2540 seconds</td>
</tr>
<tr>
<td>RECOVERY TIME</td>
<td>.4572 seconds</td>
<td>.4572 seconds</td>
</tr>
<tr>
<td>RANGE</td>
<td>6.448 feet</td>
<td>4.370 feet</td>
</tr>
<tr>
<td>FMOB</td>
<td>10.408 feet</td>
<td>3.278 feet</td>
</tr>
<tr>
<td>TFVA</td>
<td>3.373 feet</td>
<td>3.147 feet</td>
</tr>
<tr>
<td>LEOB</td>
<td>5.551 feet</td>
<td>.523 feet</td>
</tr>
<tr>
<td>EXCESS (FMOB-LEOB)</td>
<td>4.875 feet</td>
<td>2.755 feet</td>
</tr>
<tr>
<td>ROS</td>
<td>10.783 feet per second</td>
<td>12.905 feet per second</td>
</tr>
</tbody>
</table>

It may be seen from the table above that the Method B Slash is most four times as fast an offense as the Method A Slash, its total TIME being .2540 seconds as compared to .9652 seconds for the Method A Slash. EVERY TIME from each Slash is identical, being .4572 seconds.

On the other hand, the RANGE of the Method A Slash is approximately greater than the Method B Slash, being 6.448 feet as compared to 4.370 ft in the Method B Slash. The advantage in RANGE which belongs to Method A this offense is due to the great LEOB, which is 5.551 feet as compared to 3.0 feet in Method B. This difference indicates that the Method B Slash essentially a movement of the weapon, while the Method A Slash relies to a great degree on the forward movement of the bayonet fighter's body.

The rate of speed (ROS) of the striking part of the weapon is 2.25 feet per second for the Method B Slash as compared to 10.783 feet per second for the Method A Slash.

The significant differences between these two Slashes are:

(1) The Method B Slash is much faster, (2) The Method A Slash has greater range, (3) The Method B Slash is essentially a weapon movement while
Method A Slash is essentially a body movement, (4) The Method B Slash is the fastest offense of any of the offenses analyzed in this study.

<table>
<thead>
<tr>
<th>Method Thrust</th>
<th>Thrust Time</th>
<th>Thrust Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method A Long</td>
<td>0.522 sec</td>
<td>6.240 feet</td>
</tr>
<tr>
<td>Method B Short</td>
<td>0.522 sec</td>
<td>5.33 feet</td>
</tr>
<tr>
<td>Method B Long</td>
<td>0.523 sec</td>
<td>6.601 feet per second</td>
</tr>
</tbody>
</table>

It may be seen from the table above, Method B Short Thrust takes almost the same time as Method A Long Thrust is slightly faster. The table can be executed in 0.016 seconds less. Method B skill is less than half the other one-third that of the Method A Long.

The Method A Long Thrust has a Half of the Method A Short Thrust and a Half B Jab. It is apparent that the ROC of either Method A Thrust, one of the standing position is from much further back, and B Jab is slightly superior to the superior to the Long Thrust, but slightly.

The rate of speed (ROC) of the method (the bayonet), as Method A Short Thrust has Thrust 4.342 feet per second, and
A Table

<table>
<thead>
<tr>
<th>A Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Table</td>
</tr>
</tbody>
</table>

The table above is not legible and contains multiple entries that are not clearly visible. It seems to be part of a larger document that is not fully visible in the image.
A COMPARISON OF THE THREE THRUSTS --
METHOD A LONG THRUST AND SHORT THRUST
AND METHOD B JAB

<table>
<thead>
<tr>
<th></th>
<th>A - Short Thrust</th>
<th>A - Long Thrust</th>
<th>Method B Jab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>.7620 seconds</td>
<td>.7874 seconds</td>
<td>.6604 seconds</td>
</tr>
<tr>
<td></td>
<td>.7874 seconds</td>
<td>1.1938 seconds</td>
<td>.3556 seconds</td>
</tr>
<tr>
<td>Recovery Time</td>
<td>6.877 feet</td>
<td>7.965 feet</td>
<td>6.474 feet</td>
</tr>
<tr>
<td></td>
<td>2.877 feet</td>
<td>3.419 feet</td>
<td>6.450 feet</td>
</tr>
<tr>
<td></td>
<td>3.699 feet</td>
<td>3.931 feet</td>
<td>4.125 feet</td>
</tr>
<tr>
<td></td>
<td>2.240 feet</td>
<td>2.974 feet</td>
<td>2.383 feet</td>
</tr>
<tr>
<td></td>
<td>.637 feet</td>
<td>.445 feet</td>
<td>4.067 feet</td>
</tr>
<tr>
<td>Speed (MOB-LEOB)</td>
<td>3.801 feet per second</td>
<td>4.342 feet per second</td>
<td>9.781 feet per second</td>
</tr>
</tbody>
</table>

It may be seen from the table above that the Method A Long Thrust Method B Short Thrust take almost the same time for execution, although the Short Thrust is slightly faster. The table also indicates that the Method B can be executed in .1016 seconds less time. Furthermore, RECOVERY TIME the Method B skill is less than half that of the Method A Short Thrust and than one third that of the Method A Long Thrust.

The Method A Long Thrust has a RANGE of 1.008 feet more than the E of the Method A Short Thrust and a RANGE of 1.481 feet more than the od B Jab. It is apparent that the FMOB of the Jab is much greater than of either Method A Thrust, one of the main reasons being that the ting position is from much further back than in the A Thrusts. The od B Jab is slightly superior to the Method A Thrusts of TFVA and is rior to the Long Thrust, but slightly inferior to the Short Thrust in LEOB.

The rate of speed (ROS) of the movement of the striking part of the on (tie bayonet) is Method A Short Thrust 3.801 feet per second, Method A Thrust 4.342 feet per second, and Method B Jab 9.781 feet per second.
A COMPARISON OF THE THREE THRUSTS
METHOD A LONG THRUST AND SHORT THRUST
AND METHOD B WAR

<table>
<thead>
<tr>
<th>Method</th>
<th>A Long Thrust</th>
<th>A Short Thrust</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.03 sec</td>
<td>7.94 ft</td>
<td>7.98 ft</td>
</tr>
<tr>
<td>0.06 sec</td>
<td>7.94 ft</td>
<td>7.98 ft</td>
</tr>
<tr>
<td>0.1 sec</td>
<td>2.72 ft</td>
<td>2.77 ft</td>
</tr>
<tr>
<td>0.15 sec</td>
<td>2.72 ft</td>
<td>2.77 ft</td>
</tr>
<tr>
<td>0.2 sec</td>
<td>2.72 ft</td>
<td>2.77 ft</td>
</tr>
<tr>
<td>0.3 sec</td>
<td>2.72 ft</td>
<td>2.77 ft</td>
</tr>
<tr>
<td>0.4 sec</td>
<td>3.39 ft</td>
<td>3.39 ft</td>
</tr>
</tbody>
</table>

It may be seen from the table above that the Method A Long Thrust is slightly faster than the Method B Short Thrust, indicating that the Method A Long Thrust may be preferred in terms of speed. Furthermore, the Recovery Time for the Method A Long Thrust is significantly shorter than for the Method B Short Thrust.

The Method A Long Thrust has a Range of 0.03 feet more than the Method B Short Thrust, with a Range of 0.41 feet more than the Method A Long Thrust.

In general, the Method A Long Thrust is preferred due to its faster speed and shorter Recovery Time. The Method A Long Thrust is also slightly more efficient than the Method B Short Thrust.
The basic difference between these three offenses is that the
method A Long Thrust, while having the greatest RANGE, is handicapped by
taking slower and in much poorer balance than the B Jab. The Method A Short
thrust takes almost the same TIME to execute as the Method A Long Thrust and
has better balance than the Method A Long Thrust but poorer than the Method
B Jab. The basic kinesiological difference between the three offenses is that
Method B Jab depends upon a large body rotation to the right with a long
action step taken by the left or lead foot. This combined rotation and
action gives good RANGE and fine balance with fairly fast time of execution.
Method A Short Thrust is a movement in which there is some slight body
rotation to the right, but the left or lead foot is carried directly to the front
both feet are pointed forward at all times. The knees are flexed, but not
slightly. The balance is poorer than in the Method B Jab, but superior to that in
Method A Long Thrust.

The Method A Long Thrust is essentially executed by moving the mass
directly forward advancing the right or rear foot, keeping both
pointed straight ahead. The balance in this position is quite poor and
quite difficult to execute a rapid recovery from this position.

In the striking position the TFVA of Method B Jab is slightly
better than that of the Method A Long and Short Thrust.
The peak difference between these two actions is part of the Law of Thought, which explains the concept of the interaction of the two actions. A recent study has shown a large body of evidence that the Left Hand helps to reinforce the action of the Right Hand. This finding supports the hypothesis that the two hands are in constant interaction and that this interaction is essential for the performance of certain tasks.

The study also found that the Left Hand performed better in tasks that involved a greater degree of precision and coordination. The Right Hand, on the other hand, was more effective in tasks that required a greater degree of force and power. These findings suggest that the two hands have different strengths and that they should be used in different ways depending on the task at hand.

The study concluded that the interaction between the two hands is a critical factor in the performance of certain tasks. It is therefore important to understand the nature of this interaction and to develop strategies that can optimize its effectiveness. In the future, researchers may be able to develop new techniques that can help to improve the performance of individuals in various fields, from sports to music and beyond.
Figure 12, page 65, is a planned double exposure which was taken showing the relative maximum range allowed by the Method A Long Thrust and the od B Jab. The camera was carefully placed on a tripod and was never allowed ove. In this photograph the same individual began each movement from the d position of each offense with the heel of his right foot touching the k box in the lower left hand section of the photograph. A piece of tape placed on the tip of the bayonet so that it would be visible against the as backdrop. The marks on the scale are exactly two inches apart.

The demonstrator stepped from the Guard position into a Method A Thrust reaching as far forward as he could in the Thrust position without losing balance. The picture was then snapped. The demonstrator assumed the Guard position of Method B with his foot against the end extended himself into the Method B Jab reaching as far forward as built and still maintain good balance.

A study of the photograph indicates that the Method B Jab has an stage of almost 10 inches in range. Analysis of the photograph indicates the key differences in the two positions are:

In the Method B Jab the body is rotated sharply to the right and left shoulder and left arm are carried well forward. Also the step ward is an abduction of the left leg and the right elbow and forearm areed flattening the rifle onto its side and carrying it to an almost bontal position. In the Method A Long Thrust position the toes are ed straight ahead and the bayonet fighter's hips are considerably nd of the position of his hips in the Method B Jab. The bayonet fighter's iders in the Long Thrust are almost as far forward as his shoulders in the
lab, but since his right leg is advanced his shoulders are prevented from ating to the right so the left shoulder and left arm are held back approximately 9 or 10 inches behind their corresponding position in the hod B Jab.

One of the questions which might arise as a result of a study of a photograph and a study of the measured ranges of these two offenses on motion picture film might be: Why is the Method A Long Thrust longer in case and shorter in the other? The answer seems to be that when working high speed it is difficult for the bayonet fighter always to reach full ension in any movement. Furthermore, the A Long Thrust and the B Jab wereographed at high speed just once. There is a good possibility that in particular shots taken the B Jab was not extended to its full potential ge. A comparison of the body angles in the high speed movie and the posed ble exposure shows that the movie action was less than all outfor this ll, there is little doubt in the mind of the researcher that the Method B is actually superior to the Method A Long Thrust in terms of RANGE, TIME, EVERY TIME and balance.
Comparison of Method A Long Thrust and Method B Jab.

FIGURE XIII.
<table>
<thead>
<tr>
<th>Method</th>
<th>Time (Seconds)</th>
<th>Recovery Time (Seconds)</th>
<th>Range (Feet)</th>
<th>Forward Movement of Butt or Bayonet (FMOB) (Feet)</th>
<th>Striking Tip from Vulnerable Area (TFVA) (Feet)</th>
<th>Leading Edge of Body (LEOB) Excess (FMOB - LEOB) (Feet)</th>
<th>Rate of Speed (ROS) (Ft./sec.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Vertical Butt Stroke</td>
<td>.7874</td>
<td>.3810</td>
<td>4.009</td>
<td>4.561</td>
<td>.731</td>
<td>2.438</td>
<td>2.123</td>
</tr>
<tr>
<td>B - Vertical Butt Stroke</td>
<td>.4826</td>
<td>.3810</td>
<td>3.169</td>
<td>3.015</td>
<td>2.434</td>
<td>.357</td>
<td>2.658</td>
</tr>
<tr>
<td>A - Horizontal Butt Stroke</td>
<td>.8638</td>
<td>.3556</td>
<td>4.930</td>
<td>5.014</td>
<td>1.633</td>
<td>2.392</td>
<td>2.633</td>
</tr>
<tr>
<td>B - Horizontal Butt Stroke</td>
<td>.4318</td>
<td>.3556</td>
<td>3.332</td>
<td>3.208</td>
<td>2.819</td>
<td>.241</td>
<td>2.967</td>
</tr>
<tr>
<td>A - Slash</td>
<td>.9652</td>
<td>.4572</td>
<td>6.448</td>
<td>10.408</td>
<td>3.373</td>
<td>5.551</td>
<td>4.875</td>
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<td>B - Slash</td>
<td>.254</td>
<td>.4572</td>
<td>4.370</td>
<td>3.278</td>
<td>3.147</td>
<td>.523</td>
<td>2.755</td>
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<td>A - Smash</td>
<td>.8382</td>
<td>.3556</td>
<td>7.016</td>
<td>4.443</td>
<td>2.549</td>
<td>3.532</td>
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SUMMARY AND CONCLUSIONS

A study of the summary table on page 66 indicates that in most of measurements made each Method B skill is superior to its corresponding Method A skill.

For example:

(1) In **TIME** all Method B skills are faster than their corresponding Method A skills.

(2) **RECOVERY TIME** for all Method B skills is faster than the **EVERY TIME** for corresponding Method A skills. Although no **RECOVERY TIME** is plotted for the Method A Vertical and Horizontal Butt Strokes, it is obvious that it would take a considerably longer time to recover from these from the Method B Vertical and Horizontal Butt Strokes because a larger rotation would be required in each offense. No **RECOVERY TIME** is plotted the Smash, but it is obvious that the Recovery would be a fairly complex, thus slow, movement. The **RECOVERY TIME** for the Method A and the Method B in were identical.

(3) If the assumption can be made that the Guard position is the bayonet fighter's best defensive position, then the time that each offense dire the bayonet fighter to be out of the Guard position should prove to of some significance. This out of Guard time can be computed by adding the 4 of the offense and the **RECOVERY TIME** back to the Guard position. Method a superior in the total time out of Guard in a comparison of all like cases. Although **RECOVERY TIME** is not available for the Method A Vertical Stroke, Horizontal Butt Stroke and Smash, it is quite obvious that the
SYNOPSIS AND CONCLUSIONS

A study of the earnings cycle on base of information that is made in the examination was made. Method B skills are superior to the conjunctional for B and are preferred by the conjunctional in the skill. For example:

In time the Method B skills are related then part conjunctional.

The Method A skills are related then time.

To test the Method A superiority over Method B, a skill test was performed. It is apparent that the Method A skill test is better than the Method B skill test. The METHOD A test was given to the Method A and the Method B. The METHOD B test was given to both Method A and the Method B. The METHOD A test was better than the Method B test. The METHOD A test was given to both Method A and the Method B. The METHOD A test was better than the Method B test.

We have laboratory.

The METHOD A test was given to both Method A and the Method B. The METHOD A test was better than the Method B test.

If the test is made on the base of the same outcome, the time that each outcome is given, a clear demonstration is that the METHOD A is superior.
VERY TIME in each case would be sufficiently great to make the total time of Guard for each of these offenses much larger than for its Method B
terpart. One further point is that, although the assumption is made
the Guard position is the best defensive position in each method of
net fighting, it is the opinion of the investigator that the Method A
d position is in fact an extremely poor defensive position. Since the
and bayonet are held parallel to the direction the opponent's weapon
take, it is unlikely that this position would prove particularly
essful in parrying enemy offensive strokes.

(4) Method A was superior in RANGE for each movement over its
responding B movement, with no exceptions.

(5) Method A had the greatest forward movement of the striking
of the weapon (FM0B) in the Vertical Butt Stroke, Horizontal Butt Stroke
the Slash, but was inferior in the Long and Short Thrust as compared with
corresponding offenses in Method B.

(6) All Method A offenses (except the Short Thrust) had a greater
than their Method B counterparts. The Method A Short Thrust had a
fter shorter LEOB than the Method B Jab.

(7) Method B was superior in the distance of the striking tip
he weapon from the nearest vulnerable area of the bayonet fighter (TFVA)
ll offenses except the Slash, in which it was slightly inferior to its
nd A counterpart.

(8) The EXCESS (FM0B-LEOB), which is the measure of the forward
ment of the striking part of the weapon over and above the forward
ment of the leading edge of the body gives a clear cut superiority to
Method B offenses over their counterparts, except in the case of the Slash.
MY TIME in each case would be multiplied greatly to make the total time

able to count for each of these alterations much longer than for the Method of

Each point is that, although the assumptions in each method of

The correct method is the best alternative position in each method of

A great deal in the opinion of the instructors that the Method of

method to least an extremely poor alternative position, since the

seems to be immediately that this position would prove particularly

Note if in practice every alternative position

Method A was superior in range for each moment over the

expected to be moment, with no exception.

Method A had the best average for moment of the striking

the weapon (V.M.G) in the vertical plane slightly. Nevertheless, the

If I had an opportunity of the long arm shot (except the sportsman) had a greater

then their methods & comments.

As a contrary, I Loan the Method A as

Method B was superior to the accuracy of the striking the

When the weapons from the nearest comparing these of the previous光纤, the

All alternative except the Sharp, in which I was entirely inferior to the

Two compared.

The (V.M.G) EXHIBIT: The in the presence of the owner.

The method a comparison part of the weapon and may some the formula.

The presence of the eldest age of the body gives a greater understanding to

The presence of alternative weapon, compared, except in the case of the Sharp.
Method A Slash has a greater EXCESS than the Method B Slash because it is executed as a follow-up of the Method A Smash with the tip of the bayonet held to the rear so that the FMOB is greatly exaggerated in this movement and much greater than it would be if this offense were executed from the Guard position. Note: It is impossible to execute this offense from the Method A position.

(9) The Rate of Speed (ROS) is an indication of the speed of the striking part of the weapon. This is determined by dividing the TIME of the phase into the FMOB. In all offenses the Method B skill has a higher rate speed than its Method A counterpart.

The measurements which have been made in this chapter have indicated clearly the basic differences between these two methods of bayonet fighting. In general, it may be said that all of the skills in Method A, with the possible exception of the Method A Short Thrust, are essentially difficult movements. That is, they are movements which are not natural. An assumption is based upon the fact that these movements are never seen in any phase of competitive sports. The Method A offenses are primarily movement, that is, most of the effect of each movement is produced by the bayonet fighter's body rather than by his weapon. This great reliance on massive body movements results in slower times of execution, since it as a good deal longer to move 200 pounds of body than it does 10 pounds less of weapon. In addition, recoveries from these full body movements require additional major body movements, which in turn are also slower than movement of the weapon would be.

Another common characteristic of the Method A offenses is that in practically all movements the knees are bent unequally, causing the hips to tip out of the horizontal, greatly contributing to poor balance. In
A method of determining the presence of a substance in a sample is described. It involves the use of a detector system that responds to the presence of the substance. The method consists of several steps:

1. Preparation of the sample.
2. Application of the sample to the detector system.
3. Analysis for the presence of the substance.
4. Interpretation of the results.

The method is sensitive and can detect very small amounts of the substance. The results are usually obtained within 24 hours. This method is useful for monitoring the presence of substances in various environments, such as in water, air, or soil.
Method A offenses except the Butt Strokes the feet are kept pointed
right ahead. Keeping the feet pointed straight ahead and in line
barily results in an extremely narrow lateral base which makes the
onet fighter relatively insecure as far as his equilibrium is concerned.

One further characteristic of Method A is that it is impossible to
cut all of the offenses in Method A from the Guard position. It is
dicult in many cases to perform Method A skills precisely as taught in
official manual. In some cases the bayonet fighter follows a prescribed
ern going from one offense directly to another. This adherence to a
scribed pattern makes for a restricted ability to meet contingencies which
se in the heat of combat.

Method B is characterized by a group of offenses each of which can
executed from the Guard position, each of which can be recovered from
ply to the Guard position, and each of which is paired with at least one
Method B offense. All of the Method B movements are essentially
on movements as opposed to body movements. As a result these offenses
consistently much faster in execution and much faster in recovery to the
osition than are their counterparts in Method A. Each of the offenses
ethod B is a natural movement, and this fact is evidenced by the strong
larity between each of these movements and movements which are quite
on in the field of competitive sports. The fact that each of the Method B
enses is similar to common movements in sports indicates that this method
ayonet fighting should be quite easy to learn, since there should be a
at deal of carry over. The Guard position of Method B is a relaxed natural
ation and one which offers an excellent defense against any offense an
ent might direct at the bayonet fighter. Since the weapon is held at right
es any simple movement of this weapon upward or downward will allow the
METHODS A: Analyzing example. The first stroke of the head are to keep
high speed in checking the head position exactly as it was in the
lateral position in an extramary manner. In fact, since the mass in the
object is of the nature of a method A, it is impossible to
One important characteristic of METHOD A is the "strange position".
It is
much to many cases to maintain METHOD A all the process as called in
although moment. In some case, the process is quite different. For a beginning
This phenomenon to a
can come from one or more characteristic of METHOD A. The
characteristic to meet complications with
acting between strategy for a natural position to meet complications with
in the part of company.
METHOD A: A characteristic of METHOD A is the slow of the object can
are from the extramary position, the one can be recognized from
vital to the extramary position, and each of which is passing while at least one
METHOD A: All of the METHOD B & consequence are essentially
METHOD B: A characteristic of METHOD B is the same as the consequence of METHOD A.
B can be a natural moment, and this lead to valuable the situation
characteristic common in METHOD B is a natural moment.
METHOD B: A characteristic of METHOD B is a natural moment.
the mass in the object is of the nature of a method B, it is impossible to
METHOD C: A characteristic of METHOD C is a natural moment.
fighter to deflect or block his opponent's weapon and then to counter immediately with a Butt Stroke or Slash. The basic kinesiological features of this method of fighting are rotations of the body which keep the hips and shoulders parallel to one another, forward steps with the lead foot which involve an abduction of the leg, hips held horizontal at all times, and continued good balances.

The fact that professional boxers have developed a style of fighting consisting of a number of offenses which greatly resemble the offenses of chod Flends support to the theory of the writer that this method of fighting addition to its other advantages has the greatest striking force. Although there is no scientific evidence presented in this study to support this hypothesis, logical deduction seems to indicate that this hypothesis may be validated upon fact.
The text that accompanies the figure has been lost.

The method of lifting the rock is to place the beam on top of the rock and then use the beam to lift the rock.

The beam is then attached to a crane and the crane is used to lift the rock to the desired location.

The use of the crane and beam is an efficient method of lifting heavy objects.

The crane is capable of lifting objects of various sizes and weights, making it a versatile tool for construction and industrial purposes.

The crane is operated by a skilled operator who controls the crane's movements to lift and lower the beam and rock.

The crane's lifting capacity is determined by its design and the weight of the objects it is lifting.

The crane is equipped with safety features to ensure the operator and others are protected from accidents.

Overall, the use of a crane and beam is an effective method of lifting heavy objects safely and efficiently.
CHAPTER III

ENERGY COST

A study of the energy cost of each method of bayonet fighting of great importance. The method of bayonet fighting requiring the least amount of O2 is the one which would allow the combat soldier to sit for a longer period of time; or conversely, would allow the fatigued soldier to perform more efficiently, since he could use this method of fighting with an expenditure of less energy. This fact is of great significance in modern combat because the soldier engaged in close combat frequently in a partially fatigued condition. This type of fighting is place after a charge up a hill, after a long march, or after a lod of little or no sleep. It is obvious that if one method of bayonet fighting is significantly more economical than the other under some of the re-mentioned conditions the difference in energy cost would likely mean difference between life and death to any combat personnel.

The greatest limitation of this phase of the study was the fact that only three subjects were used. Because of time involved, and the great amount of training necessary, and since phase is only a pilot study, it was not practical to train more subjects perform the various skills of both methods of bayonet fighting to the level necessary for a valid comparison of energy cost. The intention this phase of the study is merely to determine trends. It should be treated with an adequate sample in a later study.
CHAPTER III

MINERAL COST

A study of the energy cost of each method of powered lighting is of great importance. The method of powered lighting determining the exact amount of QH is the one which will allow the coal to solidify to a lower degree of fusion. It also allows the formation of a larger percentage of coke, while allowing the method of the process of the same. The task of great importance in the extraction of coke requires the use of coal compacted in a perfectly rectangular condition. This type of lighting is placed after a much of a period after a long period of powered.

The greatest limitation of this phase of the stuff may be the fact that only these methods were used. Not much importance is only a factor, and the ease and expense of training necessary, and since the various things of both methods of powered lighting to the least necessary for a valid comparison of research, it should be done with no emphasis, some in a later study.
O₂ Requirement - The O₂ used during exertion and recovery less that which would have been used during the same period of complete rest. This is the true measure of energy expended during any activity.

Energy Cost - Essentially the same as the O₂ requirement, but is generally expressed in foot-pounds or calories.

Gross O₂ Intake - Total amount of O₂ consumed during an exercise.

Gross O₂ Debt - Total amount of O₂ that is consumed during the end of recovery following an exercise.

Net O₂ Debt - O₂ used in the recovery period, minus the amount which had been used in the resting state.

Respiratory Quotient - (Commonly referred to as the R.Q.). The O₂ off in expired air divided by the O₂ picked up by the blood in inspired air. It is always expressed as a ratio.

The determination of the energy cost of a physical activity is an accepted, routine laboratory technique.¹

Inter has published a table showing the energy cost of a large number of physical activities. Dill² and his co-workers at the Harvard Fatigue Laboratory adapted and further refined the energy cost techniques of the former European workers. In the last ten years, Cureton³ has adapted the technique to physical education research and has routinely used it in the


of all-out performance. At the present time energy cost determinations
readmill runs, bicycle ergometer rides and other selected activities
routinely made in the Physical Fitness Research Laboratory at the
University of Illinois. 5

A careful search of the literature has revealed no energy cost
determinations of bayonet techniques. Any review of the related literature of
activities would be superfluous to this phase of the study.

Methodology

The experiments in energy cost were conducted in Room 302,
a gymnasium adjoining the Physical Fitness Research
Lab, and in the laboratory itself. Equipment used included a stand
upin; four Douglas bags, a light portable gas collecting rig which was
used by the subjects while performing,* a metronome, a counter, a chair, an
Rifle and bayonet.

Since Method A, the United States Army method, contains 8 basic
skills and Method B, the experimental method, contains 5 basic skills, each
subject was trained to execute the 8 basic skills of the Army method (Method A)
prescribed order and this order was repeated 10 times in succession so
that the subject actually executed a total of 80 skills in an experimental run.

In addition, each subject trained until he had learned the 5 basic skills
of the experimental method (Method B) in a prescribed order and he repeated
these 16 times, giving him a total of 80 skills executed in an experimental

The number of skills in an experimental run was set after successive
trials to determine the optimal rate. A faster rate did not allow adequate
repetition of the movements. The maximum rate allowing complete and distinct

*See pictures on page 75.
ENERGY COST EXPERIMENT

1. Taking the SMR.

2. Light Rig (Front View).

3. First Recovery.

4. Light Rig (Rear View).

5. Bag Partially Inflated (Exercise Gas).

6. Second Recovery

FIGURE XIV.
ments was sought in order to emphasize whatever difference in energy it was indicated by the data. The rate of work (number of skills per t of time) and time duration of gas collection were held constant during the experimental period.

A Sitting Metabolic Rate sample of gas of ten minutes duration was selected after 30 minutes rest before an experimental run began. The Douglas equipment and chair were placed at one end of Room 300. When the subject was ready to make an experimental run the metronome was started at a rate of 1½ seconds per count or a total of 40 per minute. An assistant stood next to the metronome and held in his hand a list of the skills to be executed in the correct order. When the experimental run began the assistant called the names of the skills to be executed as the metronome sounded so that the subject executed 40 skills per minute for a total of two minutes, a 180° turn at the end of the 40 skills which enabled him to finish the experimental run right at the Douglas bags. As soon as his 30 skills were completed he was placed on the chair, the mouth piece on his portable removed from his mouth while he held his breath, and the mouth piece being to the four Douglas bags placed in his mouth. This change in mouth pieces was almost instantaneous. Two samples of recovery gas, the first a minute sample and the second an additional 10-minute sample, were then collected in the sitting position.

During the experimental run laboratory assistants used a counter a laboratory clock for the purpose of counting the number of skills to ensure correctness of the total and to time the experimental run and the first and second recovery periods. All experimental runs for which data were recorded were timed in exactly two minutes and contained precisely 30 skills. If there was any discrepancy in time or number of skills the experiment...
stopped and repeated on another testing day.

Since this experiment was an attempt to evaluate the energy cost of
up of movements, (Method A) in comparison with the energy cost of another
of movements (Method B), the relative physiological condition of each
subject was not of great importance. Only two days passed between each subject’s
first and second experimental run, allowing little time for change in the
subject’s physiological condition. However, the ability to perform the skills
of bayonet fighting with equal facility and precision was of
concern to the investigation. Two of the three subjects, Seidler and
weit, had served as bayonet instructors in the United States Army and
third, Armer, in the United States Navy. Although Armer had little experi-
with the rifle and bayonet, he practiced arduously until both Seidler
seitweit were satisfied with his performance of the Army Bayonet Method.
iser, the originator of Method B, trained Geistweit and Armer in the per-
ce of Method B and gave final approval on their technique.

In order to make a valid comparison of the two methods of bayonet-
ing (Methods A and B), the rate of work, the duration of work, and the
registration times had to be standardized. In all of the experimental runs
and duration of work was held rigidly constant. In addition, the
use gas samples were sampled and metered while the subject was in
ery; and first and second recovery gas bags were sampled immediately
the completion of the second recovery period.

Six successful experimental runs were completed by the three subjects,
Geistweit and Seidler. Armer and Seidler made their runs using the
method (Method A) on a Tuesday and finished with their experimental run
the experimental method (Method B) on the following Thursday; while
Since the experimental use of the method of mental arithmetic does not require the mental co-ordination of a mental process with the exercise of any ability to perform the mental skill of the experimentalist, I have taken the opportunity of investigating the effect of the presence of a subject who has not been thoroughly trained in mental arithmetic on the accuracy of the method. A subject was taken who had little or no experience with the method of mental arithmetic. He was trained for a period of one month, the instruction given being that the subject should be as accurate as possible.

In order to make a valid comparison of the two methods of mental arithmetic, the subject was given practice in both methods. The method of mental arithmetic was taught first, followed by the method of mental arithmetic. The subject was given practice in both methods, and by the end of the month he was able to perform the methods with a high degree of accuracy. In this way, the subject was able to compare the two methods and determine which is more effective.
stweit made his experimental run using the experimental method (Method B) on a Thursday and finished by executing his experimental run using Army method (Method A) on the following Saturday. Each subject had two of rest between each run to prevent any fatigue carry-over. Two subjects, Her and Armer, performed Method A first and Method B last, while one subject, Geistweit, performed Method B first and then finished with Method A.

In the cases of all six of the successful experimental runs the gas metered within 10 minutes after the end of the experimental run by a tent Wet Test Gas Meter and two samples were taken of the exercise gas first and second recovery bags. The gas was analyzed using the Sargentane Gas Analyzer which is in common use for this type of gas analysis.

Discussion

The Oxygen requirement, which is generally regarded as the most meaningful figure in energy cost work, consists of gross oxygen intake during the exercise plus the gross oxygen debt recovery minus the oxygen which would have been used during the same od of time in the resting state. (SMR) It is interesting to note in these that all of the measures which make up oxygen requirement are not cemently in favor of Method B. Geistweit's exercise oxygen intake for the od B was greater than for Method A, as was Armer's second recovery. len found the same phenomenon in his data and concluded that there may to day variations in the intakes possibly due to different physiological s of debt payment.

The oxygen requirement figures, however, in all three cases show


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Skills: 40 per minute. Total - 80. Rate - Controlled by Metronome.  
Average Difference - 54,261 foot-pounds.  
Average Rate of Difference - 27,130 foot-pounds.
od B to be the most economical despite the differences noted above. The most meaningful figures in the data are the oxygen requirement (total \(O_2\) above the SMR) the rate of net cost, and the figures derived by converting these data to foot-pounds of work.

The conversion of total \(O_2\) to foot-pounds was computed by summing products of net \(O_2\) for exercise, first recovery and second recovery each multiplied by the caloric value for its R.Q. These caloric values were determined from Carpenter's tables. The values obtained were then multiplied by 0.87, a constant used to convert calories to foot-pounds. The oxygen data converted to foot-pounds only to make the data more understandable.

It may be seen from Table II, in the case of these three experimental subjects, the Army method (Method A) was considerably more expensive in terms of energy cost than was the experimental method (Method B). The subjects, each executing a total of 30 skills in a period of two minutes averaged a cost of 54,261 foot-pounds of work per subject more using Army techniques than using the experimental method.

In addition Cureton says:

The relatively low R.Q. during all-out exercise seems to indicate greater efficiency in the all-out effort. In this gross way the R.Q. may be considered an efficiency index, inversely related to economy, i.e., the lower the R.Q. the greater the economy.

In the cases of all three subjects, the exercise R.Q.'s were considerably lower for Method B than for Method A.

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may be taken as a further indication of Method B's greater economy.

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With three subjects, the data were consistent throughout this phase of the study.

1. The three subjects averaged a Net O2 Cost (total O2 above SMR) 1.274 liters per subject more using Method A than Method B per experimental run. The average Net O2 cost in liters per minute (or rate) was .6371 more for Method A than for Method B.

2. The measures derived from the O2 requirements for Method A and Method B and converted into foot-pounds show Method B to be more economical than Method A by an average of 54,261 foot-pounds per experimental run, or an average of 27,130 foot-pounds per minute.

3. The exercise R.Q.'s were higher for Method A than for Method B in the case of all three subjects. The average difference in R.Q. amounted to higher for Method A than for Method B.

As a consequence of 1, 2, 3, above, it was concluded that Method B has a considerably lower energy cost than Method A.
CHAPTER IV

GROUP COMPETITION IN BAYONET FIGHTING

In spite of the fact that one method of bayonet fighting may be more mechanically and calorically more efficient than another, the test of the relative combative effectiveness of one method over the other is in actual competition. The limiting factor in conducting competition between two methods of bayonet fighting is the obvious fact that it is impossible for two men to attempt to defeat one another experimentally using rifles and bayonets, because the weapons which weigh approximately 10 pounds undoubtedly inflict severe damage or possible death to the unsuccessful participant. Consequently, it was necessary to devise a substitute method of simulating competition. The writer is aware of the fact that two men fighting with a substitute weapon (the pugil stick, a stick well padded at both ends the exact length of the rifle plus bayonet, but much lighter in weight) would be open to the charge that the substitute weapons would produce some relative effectiveness that the rifle and bayonet would produce. However, since it is impossible to test these two methods of fighting with actual weapon, e.g., the rifle and bayonet, the substitute used seemed the most feasible way to simulate real fighting conditions. In addition, since combatants use the same weapons, any advantages this substitute might offer a real rifle and bayonet should accrue to all participants equally.

This phase of the study was subject to five major limitations. (1) The investigator had no authority over the military personnel involved and thus was not able to get absolutely desirable performances from them. (2) There were no real experts in bayonet techniques...
able to help with this phase of the study. (3) All simulated bayonet
sims were conducted with the use of pugil sticks which were much lighter
than the actual weapon. The safety of the participants demanded the use of
a substitute weapon. (4) The attitudes of the participants were necessarily
more aggressive than that of combat troops. (5) The number of participants avail-
able for this phase of the study was much smaller than would have been desirable.

The first experimental groups were two regularly registered classes
college age boys, in the main, freshmen and sophomores, who had elected in
Fall of 1951-52 to register for PFM 120, Personal Defense, in the Service
program offered by the School of Physical Education. Students registered
for this course were selected because their choice of this combative activity
catered an interest in hand-to-hand fighting. Five sections (classes)
for this course were offered at varying times and the researcher was assigned
as an instructor in two of these sections, one meeting at 8 a.m. Monday, Wednesday,
Friday and the other at 9 a.m. Tuesday, Thursday and Saturday.

The researcher selected which of his two classes was to be instructed
in the Army method of bayonet fighting (Method A), or Method B, by the flip
of a coin witnessed by Mr. H. E. Kenney, Supervisor of the Service Program
in Physical Education for Men at the University of Illinois. As a result
the coin toss Section 120, A, meeting at 8 a.m. Monday, Wednesday and Friday was
selected as the class to be taught Method A, and Section 120, K, meeting at
Tuesday, Thursday and Saturday, was selected to be taught Method B. After
period of training which extended for eight 30-minute class periods for a
period of four hours, students in each class who had been absent during any
of the training periods were eliminated. Following this each class was sized
according to height and given identifying initials from A to Z. Then subjects
same letters in Sections A and K were matched in a bout which consisted
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three scoring points.

Pugil sticks, heavily padded at each end and the exact length of
military rifle plus bayonet, were used. Protective equipment comprised foot-
helmets and cup-type supporters. Scoring areas were designated as the
head, torso, abdomen and groin. Non-scoring areas were legs, hips, arms and
shoulders. Each combat consisted of a total of three scores, a score being a
direct blow landed with either end of the pugil stick to a scoring area.

The following are the rules which were used in scoring bayonet combats:

1. Each contest will go to a total of 3 scores.
2. Only head, neck, torso are scoring areas.
3. A score is a solid, hard, blow with either end of a
Pugil Stick to scoring area.
4. Simultaneous blows by opponents will not be counted.
5. Each judge will be furnished a whistle. When any judge
sees a score he will blow the whistle, stopping action.
Majority of judges must agree on score before it is
recorded as a score.
6. No score will be counted if the scorer removes either
hand from his weapon.
7. No score will be counted if it is made by a skill,
technique or movement which is obviously not a part of
the scorer's bayonet method. (This competition is a
test of the competitive effectiveness of two different
methods of bayonet fighting).

Judges selected for the actual combat included Mr. H. E. Kenney,
former Wrestling Coach at the University of Illinois, Mr. Charles Pond,
former bayonet instructor, U. S. Marine Corps, and Mr. A. Y. Sapore, former
Col. I. S. Paratroopers. However, on the day of the combat the temperature
was approximately 8 below zero and Mr. Kenney and Sapore were unable to appear.
Mr. C. P. Pond failed to appear because of automobile
trouble. Acting as judges were researcher A. H. Saidler, Paul Hyde, instructor
The following are the items which were used in scoring the paper:

1. Keep correct within a total of 3 scores.

2. Only keep correct, note the scoring phrase.

3. A score is a "right" word, from either one or a pre-set (right) score.

4. No time score, keep score as a score.

5. No score will be counted if it is made by a written method.

6. No score will be counted if it is made by a mental method.

7. Scoring phrase "A score is a score" is scored as a score.

8. Scoring phrase "Keep score as a score" is scored as a score.

9. Scoring phrase "Right score as a score" is scored as a score.

10. Scoring phrase "Correct score as a score" is scored as a score.

11. Scoring phrase "Keep score as a score" is scored as a score.

A meeting of the selection committee including R. E. Kennedy.

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PERSONAL DEFENSE, Mr. Robert Peterson, doctoral candidate in Physical Education, Professor Henry Mueller, a student of judo, and members of both individual defense classes (Sections A and K) who had already participated in individual combats.

In actually judging these combats all light blows were ignored, all hit or misses were discounted, and any questionable scores (e.g., not sharp enough blows, blows not agreed upon by judges) were notted.

Neither group was emotionally coached. All participants were forced to fight using only the techniques of the method taught them. Members of group A exhibited a strong tendency to take leave of their techniques and had to be warned constantly to stick to form. Members of Group A used A techniques aggressively they were often out of balance frequently fell down, indicating poor balance.

RESULTS

Twenty-one contests were held. No participant was allowed to observe a contest until after his own. This was to prevent learning by watching to influence their conduct in their own contests. Method B was victorious in 9 contests, Method A victorious in 4. In total points scored (three per set), Method B scored 45, Method A, 13. In actual bayonet fighting one assumes that the first score would probably win a fight of this type. In total points scored Method B scored 19, Method A scored 2. Accompanying this is a breakdown of the actual scores of each bout as well as a tabulation of frequency that each technique in the several methods were successful. III, page 36, lists this data.
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It is the researcher's observation that Method B demonstrated itself to be a much superior bayonet fighting technique than Method A. As aggressiveness of the combatants increased this superiority manifested itself to a greater degree. Conversely, as the opponents demonstrated a lack of aggressiveness the differences between the two techniques became less apparent. A study of the final score chart along with the comments pertaining to each bout indicates that the bouts in which the Army method (Method A) enjoyed most success were those bouts in which there was a decided lack of aggressiveness.

Although the Army method (Method A) stresses the long thrust as its basic offensive maneuver, only three of the 18 points scored by contestants using the Army method (Method A) were scored by use of the long thrust. Conversely, 14 of the scores by the Army method were short thrusts and one a Vertical Butt Stroke. In Method B, however, the scores were well distributed among the five basic skills, indicating a better balanced total defense.

A questionnaire answered by all of the participants in this experiment proved revealing. Of the men using Method A who answered question 6, "If you had your choice, which method of bayonet fighting would you prefer to use in actual combat?", 14 out of 19 indicated they would choose Method B, and of the four men who had won their individual fights three preferred Method B. Of the ten men in Group B who answered this question, all 20 men preferred Group B. The four men who lost in this group all indicated that they attributed their losses to superior individual ability of their opponents rather than to superior technique. There was not much doubt in the minds of any of the participants
### United States Army Method
(METHOD A)

**Questionnaire for Participants in Bayonet Experiment**

<table>
<thead>
<tr>
<th>Method A (19 questionnaires)</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>Do you like this method of bayonet fighting?</td>
<td>6</td>
<td>13</td>
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<tr>
<td>Do you feel confident using these techniques?</td>
<td>5</td>
<td>14</td>
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<tr>
<td>Do you think the method used by you is as good a method as the one used by your opponent?</td>
<td>4</td>
<td>15</td>
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<tr>
<td>Did you win your combat?</td>
<td>4</td>
<td>15</td>
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<tr>
<td>Do you think the results reflect the difference between the techniques used or between you and your opponent's individual abilities?</td>
<td>Tech. 10, Ind. 4</td>
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</table>

If you had your choice, which method of bayonet fighting would you prefer to use in actual combat? A 5, B 14

**Comments:**

"Not enough balance in Method A. Feels like you are going to fall over after a long thrust."

"Method I used was a too wide open method. Your body was open most of the time."

"B gives its man a nearly impenetrable defense, and is equally effective at long or close range. The primary objective of a bayonet attack is to eliminate the threat of the enemy's bayonet, then to kill him. Method B is best suited for this."

"The new method is far superior to the Army Method."

"Ditch the Army method."

"I think that some of Method A is very good, but the better part of it can easily be beaten by Method B."

"Method A is awkward, unnatural, and makes you feel off-balance, especially on thrusts. The parry is dangerous and inefficient."

"Method B seems to have more freedom in the use of their hands. Ours is too rigid."
Table V
Experimental Method
(= Method B =)

Questionnaire for Participants in Bayonet Experiment

<table>
<thead>
<tr>
<th>Method Used</th>
<th>Method B (20 Questionnaires)</th>
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<tbody>
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<td></td>
<td>Yes</td>
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<tr>
<td>Do you like this method of bayonet fighting?</td>
<td>20</td>
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<td>Do you feel confident using these techniques?</td>
<td>20</td>
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<tr>
<td>Do you think the method used by you is as good a method as the one used by your opponent?</td>
<td>20</td>
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<tr>
<td>Did you win your combat?</td>
<td>16</td>
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<tr>
<td>Do you think the results reflect the difference between the techniques used or between you and your opponent's individual abilities?</td>
<td>Tech. 16, Ind. 4</td>
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<tr>
<td>If you had your choice which method of bayonet fighting would you prefer to use in actual combat?</td>
<td>A 0, B 20</td>
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</table>

Comments:

"I think Method B would be much more effective in actual combat than the other method."

"Method B is superior although it is more difficult to learn. With adequate training one could easily defeat a person using Method A."

"I think our way is better."

"Method B was, in my opinion, a much better offense. I know I would feel more confident using Method B than the other."

"I think our method was by far the best. It provided a good defense as well as a fast offense which the other method seemed to be lacking."

"I think that anyone given a reasonable amount of training in B method has little to fear from a man using the other method."

"I think this method of fighting (B) is far superior to the other due to the relation between it and the principles of other sports: a. balance, b. speed, c. technique."

"Method B any old day. More chances for different offensive movements and better chance to defend yourself. Just better in my opinion all the way around."

"I think method (b) is much better than method A due to the fact that one can parry his opponent much easier."

"Method B is definitely better."
Simulated Bayonet Combat Using Pugil Sticks.

Measurements of Pugil Stick

Material - White Pine.

Weight - 4 3/4 pounds.

Length - 59.2 inches.

Width - 2 inches.

Width of Pad - 5.5 inches.

Length of Pad - 10.0 inches.

Pad - Leather covered foam rubber.

FIGURE XV.

The Army group won a majority of their fights when they had not learned the techniques they were using while their opponents had. The reason appears to be in the observers' opinions, that the Army group was emotionally coached and was much more aggressive in the actual competition. There is no question but that an aggressive fighter, regardless of technique, will usually defeat an unaggressive fighter. Inquiry indicated that the group using the Army method was emotionally keyed up by their instructor who gave them a number of "pep" or fight talks. The group using the experimental techniques (Method B) were so confident of the superiority of their method that overconfidence quite possibly was a factor in their lack...
Measurements of Front Edge

Material - Always Fine
Width - 3/4" Nominal
Length - 3/4" Fixture
Width - 2" Fixture
Width at Leg - 2 1/2" Fixture
Length of Leg - 1 1/2" Fixture
Pay - Letter covered from普
place, Stillery, University of Illinois ROTC. At the end of this competition a score was 16 bouts to 11 bouts in favor of the Army techniques.

However, upon consultation with a number of combative experts who were present as observers the experimenter has decided that the results obtained in this competition were not valid for the following reasons:

A. It is the consensus of the expert's opinions that both groups were using techniques of the experimental method of fighting. (See pp. 95 to 109). This indicates:

1. That the experimental techniques are natural techniques.

2. That there is something basically incorrect about Army-technique indicated by the fact that the group of 30 volunteer cadets, all interested in this subject, who had just finished an intensive program of Army-techniques under excellent military instruction, almost completely refused to use any of the techniques taught them when exposed to a competitive situation. (Note: A photographer who knew nothing at all about Army-techniques but who was engaged merely to shoot action shots took a total of 20 pictures. In only one of these photographs is an Army position or Instruction visible).

B. The obvious question arises as to why the Army group won a majority of their fights when they had not learned the techniques they were using while their opponents had. The answer appears to be, in the observers' opinions, that the Army group was emotionally coached and was much more aggressive in the actual competition. There is no question but that an aggressive fighter, regardless of technique, will usually defeat an unaggressive fighter. Inquiry indicated that the group using the Army method were emotionally keyed up by their instructor who gave them a number of "pep" or fight talks. The group using experimental techniques (Method B) were so confident of the superiority of their method that overconfidence quite possibly was a factor in their lack
of aggressiveness. In addition, their instructor carefully avoided emotional coaching in the interests of research.

C. The judging was by three men who were not qualified by experience or training for this type of assignment. Although all three judges made a sincere and enthusiastic attempt to do a competent job, they lacked the ability to see many scoring blows. This weakness in judging was an important contributing factor to the failure of this phase of the experiment.

A meeting was held Tuesday, April 8, with a majority of the participants in this bayonet competition. At this meeting the group decided that they were dissatisfied with the results of the competition. They were desirous of learning all there was to learn about bayonet fighting and they were convinced as a group that these results were inconclusive. Although 54 men competed in this competition and each was asked afterward which method of fighting he favored, all 54 men were convinced that the method which they individually used was superior. In the previous study when the competition was over, almost all men competing agreed that one method was a superior fighting technique to the other). These facts indicated further the lack of conclusion that may be drawn from the competition.

An attempt was made to have these groups meet once again to settle, if possible, the superiority of one group over another. However, this was at the end of the semester and on the night planned only four boys were able to compete.

In an attempt to remedy the outstanding weakness in the military competition, namely, the lack of effective judging, Mr. Maxwell R. Garret, Fencing Coach, University of Illinois, was enlisted and five of his varsity fencers volunteered to serve as judges to decide when a blow was scored. In addition, Mr. H. E. Kenney, Supervisor, Service Program in Physical Education,
In their introduction, the authors note the importance of the experiment.

They point out the inherent limitations of the experiment, including the difficulty of controlling for variables. The authors mention the need for caution in interpreting the results of the experiment, as they may not be generalizable to all situations.

The experiment involved a group of participants who were randomly assigned to two conditions. The first condition involved a control group, while the second condition received a treatment.

The results of the experiment showed a significant difference between the two groups, with the treatment group performing better. The authors discuss the implications of these findings, including the potential for future research in this area.

Overall, the experiment provides valuable insights into the effectiveness of the treatment, and highlights the need for further research in this area.
University of Illinois, Mr. A. V. Sapora, Assistant Professor of Physical Education, and Mr. Charles P. Pond, Instructor in Physical Education, acted as judges, whose function it was to determine if a score which had been ruled by Garret and his associates had been executed by a valid technique. The scoring combatant; that is, combatants were to be restricted to the use of techniques which were part of the method which they were using in competition. Although only four men competed, each fight was carried to a total of five sets. James Brademas and Thomas Edwards, using the experimental method won 9 of their contests by a total of 9 to 1, Brademas winning 5-0, Edwards 4-1; although each man had lost his fight in the earlier competition and the defeated by them by a score of 9-1 had each won his fight in the earlier petition. Cadet Vaughn Croft (now Lieutenant, U.S.A.), although trained in Method A (Army Method) and defeated 4-1, was particularly enthusiastic for the new method of bayonet fighting.

**Conclusions**

The results of this bayonet competition, restricted as it was to a limited number of men, brings out several important conclusions. (1) When combatants are carefully made to conform the techniques of their particular methods of bayonet fighting, Method B was itself consistently superior to Method A. (2) Expert judging is absolutely essential and men with boxing or fencing experience seem to be best qualified to judge this type of combat. (3) Method B, which uses footwork and body positions of the boxer, is a fighting method in which combatant is rarely out of balance. (4) The aggressive fighter using Method A is frequently out of balance. (5) The training period is much too short. A bayonet fighter should receive a thorough and continuing program of instruction and practice in order to achieve and maintain superior bayonet fighting skills. (6) Since the movements of body, hands and feet of
and B are quite similar to those of boxing, one of the concomitants from
program of boxing should be an increase in bayonet fighting skill if
and B is used.
At the request of the committee of the bank, I proceed to make a short statement of the condition of the bank, and to outline the measures which have been taken to effect a better state of things.

I have at first thought, and still think, that the committee had better make a statement of the condition of the bank, and of the general state of the country, at this time, before they enter into any details of the measures which have been taken to improve the condition of the bank, and to effect a better state of things.
22 April 1952

Armand H. Seidler
Professor in Physical Education
University of Illinois
Champaign, Illinois

Dear Mr. Seidler:

It was a pleasure to participate as an official in the evaluation of the bayonet competition conducted at the U of I Armory on April 1, 1952. I am forwarding a copy of my observation as an enclosure herewith.

Your unofficial report on bayonet competition appears to be complete and unbiased.

I am of the opinion that upon completion of the next competition, we should have sufficient data to present you method for consideration as a standard Army bayonet technique.

Again I feel it was a privilege to have participated and wish you success in the completed project.

Respectfully yours,

Major L. B. Webster
ARMOR

enclosure: Observation of bayonet competition.
22 April 1925

Mr. E. Geller

Director of Physical Education

University of Illinois

Dear Mr. Geller:

I have a pleasure to participate as an All-American in the competition

Your manuscript report on your participation appears to be

I can see the importance of your cooperation for the next competition.

However, I feel it wise to participate to have participation any way you

Respectfully yours,

Walter J. Mofett

Chairman
Report of Comparison of Two Different Methods of Bayonet Fighting

The undersigned, accompanied by Major T. C. Grice, Artillery, University Illinois ROTC and Captain W. A. Tonnig, Infantry, University of Illinois, participated as an official judge to determine the effectiveness of different styles of bayonet fighting, on 1 April 1952 at the University Illinois, Urbana, Illinois.

On February 19, 1952, 60 advanced course ROTC cadets who had volunteered to participate in a bayonet experiment were sized according to height and divided into two apparently equal groups. One group was trained by Major James Graham, FM25 (Armored) in the Army techniques of bayonet fighting as prescribed in FM 23-25. The other group was trained in bayonet techniques conducted by Mr. Armond H. Seidler, instructor in physical education, University Illinois. Each of these groups received fifty (50) minutes of training on specific techniques of bayonet fighting using M-1 rifles with bayonets, twice a week for a period of six successive Tuesday evenings.

On 1 April 1952, in the University of Illinois Armory, these two groups competed competitively using pugil sticks (sticks the exact length of an M-1 rifle with bayonet attached and padded at each end) to determine which method of bayonet fighting was superior to the other (the Army's or Mr. Seidler's method).

Upon completion of the competition, the score was sixteen to eleven in favor of the Army technique. The comparison of the two methods of bayonet fighting could not be properly evaluated for the following reason:

The technique which had been taught to the Army group (FM 23-25) was not employed on two occasions during the competition. Other contestants employed a method generally along the lines taught by Mr. Seidler. After the competition had been completed, the contestants were questioned as to why they did not use the methods they had been taught. The reply was unanimous: it was not a natural way of defense.

This is further substantiated by the fact that these two groups, during the six training periods did not observe each other or did the Army know what bayonet techniques their opponent would employ during the competition.

On the two occasions that the Army method was employed, it proved very effective against the devised method.

It is the opinion of this observer that no evaluation could be made at time as to which method of bayonet fighting is superior.
It is recommended that another competition be held and that each group thoroughly oriented to follow the technique they have been taught. This would give the judges a fair basis for judging the superiority of the latter method.

LAWRENCE B. WEBSTER
Major, Armor
G3 National Guard Br
It is recommended that some cooperation be held and that some steps be taken to improve the conditions
of the laborers. It would be well to follow the example of some
of the larger cities in providing better facilities for
public health. In many cities this subject is given attention,
and the health of the community is thereby improved.
My purpose in writing you this letter is to give you my impressions of the Bayonet Experience recently conducted at the Armory.

First, I wish to state that in my estimation the experimental method much superior to the Army method for the following reasons, (a) it is more simple and direct, easy to teach and an ordinary group can master it in far less time than the other method, (b) it does not require the unlearning of any fundamental skills such as boxing or wrestling footwork and balance, and (c) drrin; the same amount of aggressiveness in equal groups would show up in the differences in the methods, if the methods were rigidly adhered to and modified during the course of physical combat.

Secondly, I would suggest some changes to consider in the conduct future like experiments, (a) train the groups so that the possibility of group scuffling the other is eliminated, (b) that segregation of the two ups be maintained until the two fighters oppose each other in the arena, they must not know in advance who their opponent will be, (c) change the set to a end a fight on the first solid blow, (d) use only competent and good judges who know and appreciate the bayonet, if at all possible use officers recently returned from Korea, (e) use no local judges, especially in the ROTC program, (f) use a better lighted arena because if the judges cannot see them they cannot call them, and finally (g) hold each group to skills and the system, barring the counting of all flukes, that they were fit.

It is my opinion that the experiment the other night taught only one thing, that the aggressive person wins regardless of his system. If this one system can be controlled nicely, then and only then will it be possible to categorically test the two systems.

(3) I noticed that those persons who used the system failed to use that system after the initial contact and used a system natural and instinctive to them and almost exactly like the system taught the experimental group. At no time during the matches did I see a person change from the standard army system complete his bout using entirely the approved army system. In all buts he reverted instinctively to a system like the experimental system.
I have recently returned from the college of Illinois, where I have been appointed as an assistant in the department of mathematics. I am pleased to inform you that the college has offered me a position as an instructor in the department of mathematics, effective September 1. I am confident that I will be able to contribute significantly to the educational program of the college.

I am looking forward to the opportunity to work with you in the future. Please feel free to contact me if you have any questions or concerns. Thank you for considering my application. I am confident that I will be a valuable addition to the faculty of the college.

Sincerely,
[Your Name]
Armand Seidler,  
Physical Education Department,  
University of Illinois,  
Urbana, Illinois.

To Mr. Seidler:

I recently participated in six weekly training periods of bayonet drill using an experimental system of bayonet fighting you advocate.

This experimental system seems to be based on natural stances, natural movements and with the participant in good bodily balance at all times. Movements of this experimental system are based on speed of movement and skill of movement, is simple to learn and teach and is based on the premise that a person in hand to hand bayonet combat will instinctively do those things which come naturally and those things which are easiest to do.

After six weekly periods of instruction I observed approximately sixty-five matched simulated bayonet fights using padded sticks instead of foils and bayonets. According to the instructions, these twenty-five matches were between persons using the experimental system and an opponent using exclusively the standard basic positions of the approved army system of bayonet fighting. Each match was composed of persons approximately equal in height, weight, body proportion and length of training.

During these personal matches I noticed several things that could affect the final scoring. These were:

(1) Judging was not efficient. The judges seemed to be trying hard to do the job properly but none seemed to be qualified as judges in bayonet hand-to-hand combat. One judge stated that he knew nothing of bayonet fighting and had never studied bayonet drill of any type in his personal training.

(2) I noticed many occasions in which telling and incapacitating bayonet blows were not judged and noticed that judges seemed to be primarily judging the soundness of the blow. Many blows of participants were disregarded unless it was of sufficient force to nearly upset the opponent. As a result, the matches devolved into slugging matches which could have been better accomplished with a war ax.

(3) I noticed that those persons taught the standard army system failed to use that system after the initial contact and used a system natural and instinctive to them and almost exactly like the system taught the experimental group. At no time during the matches did I see a person using the standard army system complete his bout using entirely the approved army system. In all bouts he reverted instinctively to a system like the experimental system.
με ελπίδα τα προσωπικά του. Αδυνάτισσε την επιθυμία της για να τον βοηθήσει. Η οικογένειά της ήταν μαμά και γιατί η μαμά της ήθελε να είναι ως να την εκπαιδεύσει. Της παραιτήθηκε και της είπε ότι θα την καταφέρει. Η διαδικασία ήταν πολύ δύσκολη. Μετά την εκπαίδευση, τραβήξτηκε υπεραγαθό και είπε ότι θα είναι θηλυκό. Ο δασκάλος της ήταν ένας άνδρας που είχε την εξελικτική ικανότητα να βοηθάει τους μαθητές του. Η μαμά της ήταν υποκλίτης στον δασκάλο και την εξελίχθηκε. Η μαμά της ήταν ένας επαγγελματίας που είχε την εξελικτική ικανότητα να βοηθάει τους μαθητές του. Η μαμά της ήταν υποκλίτης στον δασκάλο και την εξελίχθηκε.
(4) With few exceptions, personnel using the approved army system were far more aggressive than those using the experimental method. Since bayonet fighting is offensive rather than defensive in nature, this initiative and aggressiveness could easily be expected to affect scoring.

In view of the above sub-paragraphs (1) through (4), I believe that tests were nullified in that they were not properly judges, that each side at use entirely the techniques taught them and that one team was far more aggressive on the whole than the other team.

Since the team using the standard army techniques won many of the using a system of bayonet fighting they had never been taught but which been taught to their opponents, it would seem that aggressiveness had a do with winning in either system.

Since those persons taught the approved army methods abandoned those is in every case, and substituted a system similar to and almost exactly the experimental system, it would appear that the army system is not tive enough or natural enough for a participant to use it instinctively.

From my observations of the matches, I believe that the experimental d is obviously superior in that it is an instinctive way of fighting. If instinctive, then it is the way that should be taught. This instinctiveness imply demonstrated through the fact that both teams used the experimental n after initial contact.

I believe that the matches should be done again and insofar as ble, make both teams initially equal, using judges that know bayonet ing and as much as possible have each team keyed to the maximum amount of siveness. Only in this way can a true comparison test be taken and a lon made as to the superiority of one system of bayonet fighting over er.

Sincerely yours,

G. M. COLLEHER
Captain, U.S.M.C.
Marine Officer Instructor
University of Illinois
The text on the image is not legible and cannot be transcribed accurately.
Armand Seidler

Mr. Seidler:

I was very interested in your recent demonstration between the
Army-style bayonet fighting and the experimental-type bayonet fighting
you advocate.

I must admit that I was a little skeptical at first but as the
demonstration went on I became aware of several points which I believe are
significant.

1. The two groups of students were given the same amount of
training, one group seven hours of Army-style bayonet fighting and the other
seven hours of your system of bayonet fighting. Each group, I believe,
to use the style of fighting that they had been taught during the
training period. However, during the demonstration, in each individual contest,
students who had been taught the Army style instantly forgot the Army-style
fighting and resorted to a more natural method of fighting. I do not be-
esure there were more than two or three Army-style movements attempted during
demonstration.

2. I also believe that the officiating could have been more
sensibly called. In some instances disabling blows were struck that were not
ted and in most cases, unless the blow delivered did not stagger the man,
as not counted.

3. In my opinion, the contest was not a true indication of the
merits of your system. The contest, as it developed, proved to be a contest
among contestants using the same style of bayonet fighting. Your system,
your opinion, has definite superiority over the Army-style fighting and I
liked to see a re-match of the contestants and have the group using the
Army-style bayonet fighting as far as possible use nothing but the Army style.
this way a truer indication of the merits of your system could be realized.

Sincerely yours,

T. HARWARD
M/Sergeant, USMC
I saw very interesting in your notes on the interpretation of the new type of lighting. The general statement is that the new type of lighting is more effective than the old type. However, I have some doubts about this conclusion.

I believe that the effectiveness of lighting depends on several factors, such as the intensity, distribution, and color of the light. In some cases, the new type of lighting may be more effective, but in others, the old type may be better.

In my opinion, the conclusion was not a true statement. The new type of lighting is more effective than the old type only under certain conditions. In other situations, the old type may be more effective.

I have conducted some experiments and found that the effectiveness of lighting depends on the specific needs of the environment. In some cases, the new type of lighting is more effective, but in others, the old type may be better.

Sincerely yours,

[Signature]
University of Illinois
Reserve Officers' Training Corps

Office of the Professor of Military Science and Tactics
Armory
Champaign, Illinois

2 May 1952

A. E. Seidler
Professor of Physical Education
University of Illinois

Mr. Seidler:

I served as an observer for your research study on bayonet fighting and would like to make several comments regarding the bouts which were acted between the Army method and your style of bayonet fighting.

First of all, I do not believe that this contest was really a contest to methods. Although most of the Army group came into initial contact in the "on guard" position they changed quickly, and by necessity, to the husks of the other group. Throughout all the bouts I did not see an Army use the "long thrust" or the "butt stroke" as prescribed in the Army field manual.

Secondly, since both groups used practically the same method, I gave the Army group showed their superiority because of a morale factor. A finite program was instituted by the Army group instructor to provide a signal lift to that group, while there was no such similar program for the other group.

I think that your method of bayonet fighting has certain definite advantages over the Army method. The foot work especially, tends to keep the man more in balance and therefore in a better position to continue his attack.

Your study has served as a valuable pilot study for future mass studies of this type where more controls can be maintained. I hope that any recommendation for such a study will meet with success.

I was very pleased to have served on your bayonet committee. If any time I can be of further assistance please do not hesitate to call me.

Sincerely yours,

Edward R. Reuter
Captain, Infantry
Unnecessary or Impractical
Research or Training Corps

Office of the Secretary of Defense

May 1972

Commander, Instructor

I have been informed that you have been considering the possibility of conducting an experiment on the use of the "Ram" as a training exercise in the military. Although I have no personal experience with the "Ram," I have been told that it is a highly effective weapon and that it is being widely used in the military. I am concerned, however, about the use of this weapon in the training of personnel.

I believe that it is important to maintain a balance between the use of practical and theoretical training. While it is important to prepare personnel for real-life situations, it is equally important to provide them with a solid foundation in the theoretical aspects of their profession. The "Ram" is a complex weapon with a wide range of capabilities, and it is essential that personnel understand the principles behind its operation before they are trained to use it.

I urge you to consider the implications of this experiment carefully. It is crucial that we ensure that our training programs are effective and that they prepare personnel for the challenges they will face in the field. I am confident that you will make the best possible decision in this regard.

Sincerely,

[Signature]

Deputy USAF

OSA:
Professor Armond Seidler
Department of Physical Education for Men
Men's Old Gymnasium
University of Illinois
Urbana, Illinois

Professor Seidler:

As an observer of the bayonet exercises, involving the conventional Army style
bayonet technique (A method) and the so-called natural method of bayonet
firing (B method), held at the University of Illinois Armory on Tuesday,
11, 1952, I wish to make the following comments:

The contests between the men in these bouts was not a true test of the two
arms because very few of the specific methods and movements taught to the
oups were used by the A men in the actual fighting in these bouts. To
brate, I state these specific points:

a. Group A men used the long thrust movement relatively few times,
perhaps not more than three times throughout the evening. In addition,
a parry right followed by a long thrust was not attempted during the
entire evening.

b. The horizontal butt stroke, as taught in the A method was used very
little, if at all, especially in conjunction with the footwork that is
used in the A method.

c. The A method slash was rarely used, since the horizontal butt stroke,
a preceding movement, was rarely used.

d. The A method vertical butt stroke was used, but not with the A method
footwork, but with B method footwork. In other words, the right foot was
maintained as the driving foot but held in place, not placed obviously
forward.

e. As soon as a skirmish started, after an initial thrust was parried,
the A method men resorted to more natural movements, carried the piece
at high port, and thrust, slashed, and used the butt strokes that were
actually taught as principal techniques in the B method.

The most frequent and effective movement taught by the A method and actually
by the A group in the contests was the short thrust. However, many of
the movements were not made from the guard position, but from the high port
pom skirmish positions.
The most obvious advantage of the men fighting under the A method was their readiness, their instant movement toward the attack—never falling to late offense. Similarly, this was the most obvious weakness of the B group—of daring and the offensive—attack spirit. This may have been due to:

a. The obvious difference in the spirit and philosophy instilled in the contestants by the instructors of each group. It was obvious that the A group was keyed up like a team going into a championship boxing match; the B group did not exhibit such spirit. This may have been due to a misunderstanding between the instructors regarding the controls governing the instruction of the groups.

b. It appeared that the B group was over confident—by that I mean the B group expected the A personnel to use the conventional long thrust, right foot pivot on the horizontal butt stroke, and similar movements. These movements were not used, hence the counter work relied upon by B group personnel could not be put into play. This upset their pattern of attack, causing them to be defensive, waiting for an off-balance thrust which never came. Thus, the A group stayed with fundamental short thrusts, slashes, and short butt stroke techniques—actually the B method—and since they had an offensive attitude and spirit, they beat the B group at their own game.

Perhaps the most obvious thing that appeared to be definitely conclusive was once the fighting started, the Group A men began to use modifications of, and specific movements of, the A method of bayonet technique.

a. They resorted to thrusts and slashes leading with the left foot—just as a boxer uses a left jab—keeping the right foot in position and advancing with the left foot deep, but retaining good balance and recovery power.

b. In their butt strokes the A group men swung as a boxer does with an upper-cut or hook, with the right foot rear and using the power of the body swing to move the piece—retaining good balance and better position for a series of concerted offensive blows while maintaining a reasonable position to resort to defensive action when necessary.

c. It appeared that the A method men used footwork and balance more natural to games and sports practiced by American boys. These balances and fundamental movements are basic in the development of power, balance, and alertness in all sports skills. Since certain movements in the A method bayonet technique are in direct opposition to these fundamental movements, the men did not use them in the actual fight, but abandoned them to react in the more natural balances they habitually use in sports, and which are more natural and more fundamentally basic to the natural laws of human body mechanics.

It was apparent that the judging, scoring, and evaluation in these contests not standardized. The judges did an admirable job of considering their familiarity with the scope of the experiment. In this respect, it is recommended that:
The information of the frame.

The previous sentence is the spirit and philosophy that we have been committed to. In order to maintain the continuity of our previous commitments, we have continued to pursue the same principles and values that we have always held dear. We believe that this approach is essential to our success and longevity.

In this regard, we are committed to maintaining our tradition of excellence and dedication. We will continue to work tirelessly to ensure that our clients receive the highest level of service and satisfaction. Our commitment to excellence is the foundation of our business and we will not waver from this principle.

We are deeply grateful for the support and trust that our clients have placed in us. We promise to continue to deliver on our promises and to exceed your expectations. Thank you for choosing us.
a. Judges be thoroughly oriented and actually receive practice in judging such fights. Such fighting is in its experimental stages, and the pugel stick fighting is obviously a strange type of combat to judge.

b. Severity of blows with the butt, as well as jabs and thrusts with the bayonet blade should be clearly defined so that an adequate point system could be devised for scoring. Butt strokes should be judged like body blows in boxing—they should have to be really severe blows to count as a crippling blow. Blade thrusts on top of the helmet should not count—they would not hurt the soldier wearing a metal helmet. These and other rules merit further consideration.

c. If there is to be a test of the two systems, the judges must insist that the A group use A basic techniques. This will tend to show whether the A techniques are superior, or whether the A techniques are, in heat of combat, forgotten and more natural methods resorted to by the soldier.

My personal comment is that it was obvious that the most important thing in net fighting—or in any combat—is the spirit and the aggressiveness of the individual soldier. This aggressiveness makes up for many mistakes, but some make in the A method, which seemed to be by far the most aggressive group, d be eliminated. In these contests the group A boys unconsciously eliminated defects of the A method. They used many of the B method techniques of body size and footwork, using fundamental strokes characteristic of the B method rather than those practiced while learning the A method. It is obvious to me that there is a definite need for further study and the conduct of more of these events, developing better judging and more control of the experimentation, to take advantage of the obvious strong points of both A and B methods, and setting up a method anyone fighting that is most efficient and most natural for our fighting men to develop as a successful in battle. Certainly the present A method is far from perfect, I feel that this study is a scientific and conscientious effort to improve A method of instruction and perhaps develop new methods of fighting and simulate combat situations that will be of great value in training men to be most efficient and possess the highest morale in combat.

Allen V. Sapora
Assistant Professor of Physical Education
Lt. Col. Field Artillery, O.R.C.
Any alteration must be accompanied by a written explanation.
April 8, 1952

Armon H. Seidler

Ser's Old Gymnasium
University of Illinois

Seidler:

I was an observer of the experiment in bayonet work tried Tuesday, 1, in the University of Illinois Armory. I have since noticed a writeup in local papers indicating that this experiment proved that the standard bayonet techniques are superior to the experimental techniques tried in so-called contest.

In my opinion there are several reasons why the experiment on April 1 was not a valid one.

1st - The team that was supposedly using the standard Army techniques, the Army techniques only for the approach. As soon as contact was made and battle had begun they changed immediately to more natural techniques closely resembling the experimental techniques. I do not remember of more than possibly points being scored by any movement even remotely resembling the techniques mandated in the regulation Army bayonet manual.

This, of course, brings up a rather natural question which is, "How can the team using the regulation Army techniques score better than those who had been trained on the experimental technique." In other words, on the face of it, it would seem surprising that the Army team was able to defeat the experimental team using the technique practiced by the experimental team.

This question, I believe, is answered in the following discussion.

2nd - The experimental group, called Group B in this contest, were, it to me, oversold on the efficiency of the experimental method. In fact, seemed to be so certain that the men on the A team would overextend themselves with a long thrust or other out-of-balance movements that they waited for fatal mistakes. Consequently, their attitude was one of non-aggression and non-aggressive bayonet technique is absolutely without value. As stated, the men using the Army techniques, or the A Group, did not use the Army techniques as taught but they did retain the aggressiveness taught them by their instructor.

3rd - The third point that I wish to make is that the Army group, or A, were emotionally coached. I have talked to several of the men in the group and they were not only convinced that the A method was superior but they also sold on the fact that it was their duty to go out and prove the superiority of the Army method and also to uphold the honor of their instructor.
In the present case we may readily assume the experiment to await

The page seems to be incomplete or damaged, making it difficult to transcribe the text accurately.
It says the instruction of the A Group was better than the B Group but I say that it was coaching of an emotional type. Coaching of an emotional will usually defeat non-emotional coaching regardless of the techniques by either group.

This was my first experience in observing the experimental bayonet in action. If I were training a group of men for combat I would use the mental or natural method of fighting with a bayonet. This I would do for all reasons one of which is that when a melee starts the natural method will ed in spite of what has been taught. Practically every blow landed in this mental contest was a natural type blow closely approaching, in style, the frues taught to the B Group.

This study should be continued. From my observation of the experiment I'd draw opposite conclusions from those drawn by the newspaper reporters. I saw take place at the Armory on April 1st convinced me that the experimen method was far superior. The only reason the A Group defeated the B , in my opinion, was that they used B methods in a more aggressive and onal manner.

Sincerely,

H. E. Kenney
Lt. Comdr. U.S.N.R.
April 7, 1952

Armond H. Seidler
Men's Old Gymnasium
University of Illinois

Mr. Seidler:

As one of the spectators at your bayonet demonstration on Tuesday at, April 1, and because I have some interest in your work, I feel that some pertinent comments that should be made with reference to the instruction.

I observed that there was little similarity between the Army method and the method used by the subjects representing the same. The skills performed were not performed in the Army method. Instead of employing the correct skills, it seemed to me that the Army representatives were reverting to a form of combat I seemed most natural to them, such as in boxing and sparring, which I feel is definitely not United States Army technique. The executions of skills by the Army representatives usually were copied from your method. I recall in a few instances where a representative executed a vertical or horizontal butt stroke properly. In preference they seemed to adopt your technique of shortening both the leg step and arm stroke.

However, it didn’t appear to me that your representatives executed the technique as efficiently as they could have with more practice. In a few instances the jab was used and most of the remaining skills were that of horizontal butt stroke and parrying. The latter was not executed at all properly.

The Army method was more aggressively used than yours, which is one of the factors responsible for the lopsided outcome. From what I understand, the representatives had no live targets to practice on. I would think that would be a necessity for your type of procedure.

For just a suggestion, I would think that if the demonstration was repeated under better conditions such as more training, better lighting and being sure that both methods were strictly abided by, just the opposite result would be obtained. More training would also eliminate many of the excess movements, due to the weapon used and possibly have psychological effects on subjects.

As I am familiar with both methods, being in the infantry during the war and instructing to some extent, and learning your method recently, I am that you will accept this as a suggested measure and a critical evaluation one with experience.

Very sincerely,

William Geistweit
At the University of Illinois.

I hope your summer has been enjoyable and relaxing. I understand you are taking a course in computer science. Although I am not an expert in the field, I believe it is important to have a broad understanding of the topics covered in your course.

I recently read an article about the importance of creativity in problem-solving. The author argued that creativity is not just about coming up with new ideas, but also about seeing old ideas in new ways. This is particularly true in computer science, where problems often have multiple solutions.

I think it is important to have a balance between theoretical knowledge and practical skills. It is useful to have a solid understanding of the concepts, but it is also important to gain hands-on experience through projects and assignments.

As a final note, I would like to say that I am available to provide any advice or guidance you may need throughout your studies. Please feel free to reach out to me with any questions or concerns.

Very sincerely,

William Gelfand
Armand H. Seidler
Department of Naval Science
14 April 1952

Mr. Seidler:

I was an interested spectator during several of the bayonet bouts that were put on under your direction, I believe, on Tuesday evening, April 952.

I have never witnessed any type of bayonet drill or combat before, that the only idea I have of bayonet fighting was taken from a poster in our office, posted by the Marine Instructor, which illustrates the standard Army Marine positions, thrusts, strokes and parries. I, therefore, am certainly qualified to be a critic of the above-mentioned bouts. However, one fact apparent from my observation, and that was aside from the initial speech, both boys appeared to be using much the same method of bayonet fighting.

I understand that the two boys in each bout were supposed to be demonstrating different methods of fighting—one the standard Army method, and the other a new method developed by you. Such did not seem to be the case. In bouts which I witnessed, the boys illustrating the Army method, if I interpreted the poster correctly, used the Guard position only during the initial attack, seldom returning to that position after contact, they used the short and occasionally, the long thrust almost never. The great majority of the bouts, both boys in each bout appeared to be using the same method, a method not illustrated on the poster, which I presume to be your method.

Yours truly,

L. T. Ford
Lt., U. S. Navy
CHAPTER V

COINCIDENCE OF THE DATA

The comparison of the two methods of bayonet fighting (Method A and Method B) has been made by the use of three separate research techniques in three separated and unrelated experiments. That is to say, each of the experiments has been a completely separate and individual piece of research which has not been influenced in any way in its conduct by the results of the others.

However, there is an obvious and strong relationship which exists between these three separate and distinct methods of research. In each the same two methods of bayonet fighting are compared; admittedly in different ways, but if one method is superior to the other, it should compare favorably in any fair appraisal of the two. Specifically, the most efficient method should consume the least energy, it should be the most mechanically perfect, and it should prove superior in actual competition.

A study of the data contained in the three preceding chapters shows that in fact one method, (Method B), is clearly superior in each phase of the study. Chapter II, the cinematographical analysis, indicated that Method B contains skills which are superior to Method A skills in: Speed, recovery, balance, striking power, sound kinesiological foundations, and naturalness.

Chapter III, the energy cost experiment, indicated that Method B requires considerably less energy cost than Method A, as evidenced by lower O₂ requirement, lower cost in foot-pounds, and consistently lower exercise R.Q.'s.
Chapter IV, the group competition study, indicated that Method B is superior to Method A when the two methods are confronted with one another under simulated combat conditions. This superiority is evidenced by the data which indicates that 17 out of 21 fights were won by Method B fighters, and that a large majority of the men involved in the experiment considered Method B superior.

It is interesting to note that all of the data of any significance in each and all phases of this study indicate the same thing. There is no evidence which might in some way cast some doubt about the conclusions one must make from this study. All evidence points to the clear and decisive superiority of Method B over Method A.
CHAPTER VI
CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The preceding three chapters describe three different but related methods of research. It seems rather obvious that a complete analysis of one athletic skill or a group of athletic skills can be accomplished only by including a study of the external mechanical features of the skill, the internal metabolic costs of the skill, and some type of competitive performance test of the skill or group of skills. In the preceding chapters reports have been made on research carried out in an attempt to analyze successfully two methods of bayonet fighting comprising eleven athletic skills. Conclusions from these three separate investigations are as follows:

A. Cinematographical Analysis.

1. All Method B (Experimental Method) skills are faster than their corresponding Method A (United States Army Method) counterparts.

2. All Method B skills (Experimental Method) have faster recovery times than their counterparts in Method A (United States Army Method).

3. The time "Out of Guard" for all Method B (Experimental Method) skills are shorter than for their Method A (United States Army Method) counterparts.

4. The Method B (Experimental Method) Guard position is a much sounder position than is its counterpart in Method A (United States Army Method) in terms of balance, defensive strength, and possible offensive variety.
CHAPTER IV
CONCLUSIONS AND RECOMMENDATIONS

The preceding three chapters present general plane differentials and related methods of research. It seems rather obvious that a complete analysis of one specific skill of a group of athletic skills can be accomplished only by obtaining a group of the external measurements of the skill. The internal measurements of the skill may come from a chart of the event's performance data. In the present chapter a second method has been added and a table of research criteria, and an attempt to analyze some of the more complex elements of the event's performance criteria are presented.

A. CONCLUSIONS

The conclusion of the method of studying athletic skills are presented. The methods of study include:

1. The Method of Direct Observation
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7. The Method of Direct Observation
8. The Method of Direct Observation
9. The Method of Direct Observation

and possible alternative strategies.
5. All Method A (United States Army Method) skills have a greater range for each movement than their Method B (Experimental Method) counterparts.

6. The Method A (United States Army Method) Vertical Butt Stroke, Horizontal Butt Stroke, and Slash have greater FMOB's than their counterparts in Method B (Experimental Method) but the Long and Short Thrust of Method A (United States Army Method) is less than the FMOB of the Method B (Experimental Method) Jab.

7. All Method B (Experimental Method) skills with the exception of the Slash are greater in TFVA than their counterparts in Method A (United States Army Method).

8. Method A (United States Army Method) has the greatest LEOB for all offenses over their Method B (Experimental Method) counterparts, except the Short Thrust, which has a slightly smaller LEOB than the Method B Jab.

9. All Method B (Experimental Method) skills except the Slash have a greater EXCESS (FMOB-LEOB) than the skills of Method A (United States Army Method).

10. The rate of speed (ROS) of all Method B (Experimental Method) skills was greater than their Method A (United States Army Method) counterparts.

The analysis of the motion pictures showing the skills of two methods of bayonet fighting indicates rather clearly that Method B (Experimental Method) is in general much superior to Method A (United States Army Method) from a kinesiological and mechanical standpoint. The fact that Method B skills are faster, both in execution and recovery time, and in striking
force and balance, leads the investigator inevitably to this conclusion. Other advantages enjoyed by Method B over Method A include:

1. Method A skills require large, slow body movements, while the Method B skills are in the main, movements of the weapon which entail relatively small body movements.

2. The movements used in the Method A skills are movements not seen in good sports performances, while, on the other hand, each of the movements used in Method B skills is commonly used in the field of sports.

3. It is impossible to execute all of the offenses in Method A from the Guard position, while each and all of the Method B skills can be executed from the Guard position and can be executed from the striking position of other B skills. In addition, each of the B skills is paired with at least one other B skill.

4. The Method B skills consistently use a broad base which gives not only good balance at all times, but also a sense of confidence to the bayonet fighter. On the other hand, Method A persistently uses a narrow base which inevitably results in poor balances and a lack of confidence in this method of bayonet fighting.

B. Energy Cost Analysis.

The experiment to determine the energy cost of the two methods of bayonet fighting produced data which lead to the following conclusions:

1. The three experimental subjects used an average net O2 cost of 1.274 liters of oxygen per subject more using Method A than Method B in each experimental run.
The advantage of the Method A, when compared to the Method B, lies in the fact that Method A requires a smaller weapon weight and smaller weapon volume. Method B, on the other hand, requires a larger weapon weight and a larger weapon volume.

In terms of performance, Method A is superior to Method B in the sense that Method A is more efficient in terms of the weapon's weight and volume. Method B, on the other hand, requires a larger weapon weight and a larger weapon volume.

In terms of performance, Method A is superior to Method B in the sense that Method A is more efficient in terms of the weapon's weight and volume. Method B, on the other hand, requires a larger weapon weight and a larger weapon volume.

If the weapon weight and volume are not a concern, Method B may be the preferred choice. However, if the weapon weight and volume are significant factors, Method A may be the better choice.

The decision to choose Method A or Method B should be based on the specific requirements and constraints of the weapon design. In some cases, a combination of both methods may be necessary to achieve optimal performance.

In conclusion, the choice of weapon design should be based on a thorough analysis of the requirements and constraints of the specific application. Method A and Method B each have their own advantages and disadvantages, and the best choice will depend on the specific needs of the application.
2. The average net \( \text{O}_2 \) cost in liters per minute (or rate) for three subjects was .637 more for Method A than for Method B.

3. The measures derived from the \( \text{O}_2 \) requirements for Method A and Method B and converted into foot-pounds show Method B to be more economical than Method A by an average of 54,261 foot-pounds per experimental run or an average 27,130 foot-pounds per minute.

4. The exercise Respiratory Quotients, or R.Q.'s, were higher for Method A than for Method B in the case of all three subjects. The average difference in exercise R.Q. amounted to .123 higher for Method A than for Method B.

The conclusion which must be made as a result of the above data collected in this phase of the research problem is that Method B has a considerably lower energy cost than Method A and is more efficient calorically.

C. Group Competition.

The research involving group competition produced data which lead to the following conclusions:

1. When two groups of students were given exactly the same amount of training, one in Method A and the other in Method B, and were measured combatively under good testing conditions, Method B was highly successful in demonstrating a clear cut superiority over Method A. In this competition all combatants were required to use the skills of the method which they had been taught. In addition, the judges were men with a great deal of training and experience in the field of combatives. After this competition a majority of the boys participating declared a firm conviction that Method B was a superior method of bayonet fighting to Method A.
The variance net of cost in liters per minute (or rate) for Method A is not significantly different from that of Method B. The means are not from the same population for Method A and Method B. Method A may not be more economical than Method B as the result of the 25-foot-long spout being a more economical method. The percentage decrease in variances for Method B is not significant. The net result is that Method B is the superior method.

The conclusion which must be made as a result of the present research is that Method B is a more efficient method for the above plant.

In conclusion, from the present data, Method B is the superior method for the above plant.
2. A competition held under poor combative conditions produced a situation in which the Method A bayonet fighters won the competition but in doing so succeeded only by discarding the skills of Method A and adopting the skills of Method B. The reasons given for the success of this group were:

(a) The fact that the Method A group was undoubtedly emotionally coached and as a result they were much more aggressive. The conclusion is that regardless of method, aggressiveness is a tremendously important factor in any type of successful combative competition.

(b) The fact that all of the Method A fighters instinctively adopted Method B skills which they had never seen before indicates:

(1) that the skills of Method A are artificial or unnatural, and

(2) that the skills of Method B are natural skills.

3. A group of experts indicated that the result of the second group competition were invalid because the judging was inadequate in several ways.

(a) The judges did not see many scoring blows which were struck, and

(b) the judges did not require adherence to the particular skills of each method by the individual groups.

4. A group of experts indicated (see pages 95 to 109) that in their opinion Method B was a superior method of bayonet fighting to Method A.

In the light of the conclusions which were reached as a result of the three investigations mentioned above the evidence seems to be conclusive
The competition helps make poor competitive conditions because

attention to applying the Method A poverty picturesque. The

competition gets in going to success only by achieving the

Method B and adopting the skills of Method B.

reasons are for the success of this group were

The test that the Method A group was

emotionally connected and as a result they were much

more expressive. The conclusion to that research

factor in many types of microscopic competitive cooperation

The test that all of the Method A tested interestingly

chose Method B a little which they had never seen

performance interesting more than any group and

that the skills of Method B are still not acquired by

many, and

The conclusion that the skills of Method B are not acquired by

A group of experts I believe that the result of the second

competition were many because the simple

techniques in several ways. The group with more

As the group did not see many Jacobi from which we

National Standard, may not necessarily be connected with a group or

the group did not depending solely on the procedure

skills of each method by the impartially known.

A group of experts I believe to be to take Method B. The

in the light of the competition which were reduced as a result of

the three important national because the Jacobi seems to be conducive
that Method B is in most ways a much better method of bayonet fighting than is Method A. In terms of body balances, speed of execution, integration of the various skills of each offense into a total offensive pattern, defensive capabilities, striking power, naturalness, and the promotion of confidence in the system on the part of the bayonet fighter, Method B is clearly superior to Method A. Other situations which should be considered in a study of this type would include the possibility of two opposing bayonet fighters' being on ground which is not level, one man being above the other, or the bayonet fighter might be placed in a situation where he would be required to fight an unarmed man, or still a third possibility the bayonet fighter might have to defend himself against two opponents armed with rifles and bayonets. It is the definite conclusion of the writer as a consequence of the data brought to light by this study that Method B would be superior to Method A in any or all situations of these types.

Recommendations

1. It is recommended that the United States Army and/or the United States Marine Corps carefully consider this investigation and regard it as a pilot study to be used as a pattern for larger and more complete experiments to be conducted by these military organizations. If such experiments are carried out by the armed forces and the results bear out the findings of this study, it is strongly recommended that these organizations take active steps to supplant the present method of bayonet fighting, Method A, with the experimental method of bayonet fighting, Method B.

2. One important feature of the experimental method, Method B, is the fact that the movements upon which all Method B offenses are based are common sports movements, so there is a strong possibility that the movements of Method B would be more easily learned because of the carry-over factor present.
It is recommended that the program of boxing which is quite common in military camps be continued or possibly expanded in order to promote carry-over of the skills of boxing into bayonet training.

3. It is recommended that the bayonet training program be extended to include a great many more hours than are provided for at present. Bayonet skills are in the same category as all other physical skills. It takes a great deal of practice and repetition to develop and maintain a high level of skilled performance.

4. The psychological advantage of the Method A Guard position is recognized by the investigator. The possibility that the opponent, seeing the rifle and bayonet pointed at him, might surrender is always present. Consequently, it is recommended that the bayonet fighter be taught to advance toward the fray with the rifle in the position of Method A Guard or Short Guard and then to raise the rifle to the position of Method B Guard when at close range, on the theory that if any intimidation is going to take place it will have taken place by the time the two opponents have reached bayonet range.

5. It is recommended that the "Spirit of the Bayonet" (FM 23-25) be strongly inculcated into all bayonet trainees since this study makes it obvious that there is no substitute for aggressiveness in combative competition.

6. It is recommended that bayonet equipped rifles be used during all physical training periods to accustom the soldiers to handling this heavy weapon. It is further recommended that greater stress be placed upon development of the shoulder girdle of the foot soldier in the physical training program so that he may become more proficient at handling this heavy weapon.

7. It is recommended that as a part of the bayonet training program active combative practice using protective equipment and pugil sticks be made a regular part of this program. One of the great weaknesses of present bayonet training is the complete lack of practice the bayonet fighter has against a live opponent.
It is recommended that the program on boxing in the United States include a higher proportion of professional boxing to promote professional boxing matches. It is also recommended that the program include amateur boxing to promote amateur boxing matches.

It is recommended that the program include a higher proportion of women's boxing to promote women's boxing matches.

It is recommended that the program include a higher proportion of youth boxing to promote youth boxing matches.

It is recommended that the program include a higher proportion of boxing in schools to promote boxing in schools.

It is recommended that the program include a higher proportion of boxing in the military to promote boxing in the military.

The program should take a national approach to the promotion of boxing, considering the influence of boxing on the economy, culture, and national pride.
8. Because the Butt Strokes are so important in each method of bayonet fighting it is strongly recommended that some research be made to make the Butt a more deadly weapon. A suggestion of what the writer has in mind is the development of a sharp spike which could be hinged from the butt of the rifle so that it would protrude from the bottom of the stock and make the Butt Strokes a much more potent offense.
The development of a heavy weapon, a supersonic fighter, is of great importance to the defense of the country. Consideration should be given to the place of the development of such a weapon which can be hidden from the point of attack so that it may be brought into the battle and make the difference of a much more powerful offensive.
BIBLIOGRAPHY


War Department Basic Field Manual FM 23-25, "Bayonet."
November 21, 1950

War Department
Washington, D. C.

Gentlemen:

I am a doctoral candidate in Physical Education and have been considering as a doctoral dissertation doing a cinematographical analysis of the basic skills of Army bayonet fighting.

I would appreciate it if you could tell me of any studies which have been done on this particular subject or refer me to any movies on American or foreign bayonet techniques which I might use in preparing my study.

The purpose of my study will be to examine Army bayonet skills from the standpoint of their mechanical analysis with the idea of either proving that the fundamentals as used today are superior to any others or possibly may be improved from the standpoint of correct or scientific mechanics.

Sincerely yours,

Armond H. Seidler
Instructor in Physical Education
201 Men's Old Gymnasium
University of Illinois
Mr. Department

Attention, C.

Gentlemen:

I am a professional consultant in plant pathology and have seen con- 

tributes to the development of a comprehensive system of the 

practice of plant pathology. I have had the pleasure of 

the opportunity to visit several of the leading institutions in this 

field and have had the privilege of working with many of the 

prominent researchers in the field. My knowledge of the field 

is extensive and I am confident in my ability to provide 

competent advice.

Yours truly,

[Signature]

[Institution]
Mr. Amond H. Seidler  
Instructor in Physical Education  
201 Men's Old Gymnasium  
University of Illinois  
Urbana, Illinois

Dear Mr. Seidler:

I have your letter of November 21 before me and regret that I can refer to you nothing in the way of research studies which have been made on the skills of Army bayonet fighting.

I don't know how this point affects your consideration of the subject, but there has been some discussion in military circles of elimination of the bayonet as a weapon. I am not acquainted with the present thinking of the service in this regard and would not want to be quoted, but I have heard that the experience of the past war indicated some doubt as to the value of this weapon.

I am sorry I cannot help you in your study by reference to other works of this nature.

Very truly yours,

F. M. Greene  
Colonel, Infantry  
Director of Physical Education
UNTITLED

100 E. 53rd Street
New York, New York
December 1, 1940

Mr. Thomas E. Cotter
Instructor in Physical Education
School of Commerce
University of Illinois
Chicago, Illinois

Dear Mr. Cotter:

I have your letter of November 21, and I want to say that I am very pleased to hear from you. I have been working on a new project and I am very excited about it. I am sure that I can use your experience and advice to help me succeed. I am very grateful for your help and support.

Very truly yours,

[Signature]

Mr. Cotter,

Director of Physical Education
23 Dec 1950

Mr. Armond H. Seidler
Instructor in Physical Education
201 Men's Old Gymnasium
University of Illinois, Urbana, Illinois

Dear Sir:

This Office is unable to furnish you with the information requested in your letter of 21 November 1950 concerning bayonet techniques.

There is an Army training film on the bayonet, but due to its classification it could not be released for your purpose. There may be foreign films on the subject, but this Office does not have specific information on them, and further, it is considered unlikely that they could be made available for public release.

We suggest that you consult a copy of the Cumulative Book Index which covers all books published in the English language, by subject. This index is available at most libraries. It is also possible that the Library of Congress may be of assistance in this matter.

Sincerely,

Neil M. Matsger
Lt Col, AGC
Asst ADJ Gen
August 10, 1951

Veterans Administration
249 Armory
University of Illinois

Gentlemen:

I am writing a thesis entitled "A Comparison of Two Different Methods of Bayonet Fighting By the Use of Three Techniques: Cinematographical Analysis, Energy Output Analysis, and Group Competition." In the cinematographical analysis work each of the basic movements and positions of two styles of bayonet fighting will be photographed by use of motion picture film in negative form and then projected into positive photographic prints which will then be measured by the application of the laws of physics which apply to bodies in motion for the purpose of determining the relative mechanical efficiency of each of these types of movements. The positive photographic prints made from the negative motion picture film will be embodied in the actual thesis. The motion picture film will be of no use after the prints are made from it and will be returned to the Veterans Administration for disposal.

Sincerely,

Amund H. Seidler
3541084
September 17, 1951

Deputy Chief of Staff
5th Army Headquarters
Chicago, Illinois

Dear Sir:

I am doing some research under the auspices of the Research Department of the School of Physical Education of the University of Illinois in the field of body mechanics. At present I am very interested in a problem which concerns itself with a comparison of standard army bayonet techniques with another proposed method of bayonet fighting. I would like very much to make an appointment to talk to some officer in your command about this study so that we may receive guidance and suggestions from the people most concerned. I would like to do this study exactly the way the United States Army wants it done.

Can you possibly arrange a time for me to discuss this with you or one of your training officers?

Respectfully yours,

Armond H. Seidler
Instructor in Physical Education
University of Illinois

S:a
Department of Research

September 10, 1937

Deputy Chief of Staff

For Air Co-ordinating Committee

Dear Sir:

I am with some annoyance informed of the suspension of my position in the field of research at the Illinois Institute of Technology. I am very interested in the program of research at this institution with a realization of the capacity and potential of the personnel responsible for its administration.

I have been fortunate enough to see the wealth of opportunity for research in the United States, particularly at the Illinois Institute of Technology. I am very interested in your problems with the knowledge that I can contribute in some measure.

Can you indicate either a time or a place for conferences with you or one of your scientific assistants?

Yours sincerely,

[Signature]

A. M. Bechtle

Research in Physical Education

University of Illinois
September 27, 1951

Colonel Henry R. Westphalinger
Deputy Chief of Staff
Headquarters, 5th Army
1660 East Hyde Park Boulevard
Chicago 15, Illinois

Dear Colonel Westphalinger:

Thank you very much for your letter of 26 September. I will be in your headquarters at 10 o'clock October 1 to meet your training officer.

I appreciate very much your assistance in this matter and hope that my project may be of assistance to the Army.

Sincerely yours,

Armond H. Seidler
Instructor in Physical Education
University of Illinois
September 1, 1941

Clyde Ray McNair

Department of Art

School of Fine Arts

University of Illinois

Dear Clyde Ray McNair:

Thank you very much for your letter of 30 September. I appreciated your hospitality of 10 October. I hope to meet your artist in December.

I appreciate very much your assistance in this matter and hope that my request will be of assistance to the firm.

Sincerely yours,

[Signature]

Robert W. Gellett

Instructor in Practice, Mural

University of Illinois
September 27, 1951

Major General John W. O'Daniel
Inspector of Infantry
Office, Chief, Army Field Forces
Fort Monroe, Virginia

Dear Sir:

I am writing to you at the suggestion of Mr. Richard Miller, instructor in Physical Education at the University of Illinois. I am an instructor in Physical Education at the University of Illinois and I am undertaking a research study which will compare two methods of bayonet fighting in terms of mechanical, caloric and actual combative effectiveness, one of which will be the method now in use in the United States Army.

I have been an instructor in hand to hand fighting both in the United States Army and at the University of Illinois for about 12 years. Also I taught bayonet while in the Army. I am enclosing an outline of the study which I propose to make and would like your appraisal and suggestions as to how this study may be conducted or improved so that it will materially make a contribution to the United States Army. Any suggestions that you can give me will be greatly appreciated.

Respectfully yours,

Armond H. Seidler
Instructor in Physical Education
University of Illinois

S: a
Encl.
October 11, 1951

Commanding General
Headquarters 5th Army
1660 East Hyde Park Boulevard
Chicago 15, Illinois

Dear Sir:

At the present time I have begun a research project which concerns itself with a comparison of United States Army bayonet techniques and a proposed new method. You will find inclosed an outline of the way this research is to be undertaken.

On October 1, 1951, I visited your Headquarters and talked to a group of training officers of your Command. They all expressed the feeling that this study was extremely worthwhile and might prove of value to the United States Army. In connection with this study I wonder if it would be possible to have some United States Army expert under 5th Army Command demonstrate Army bayonet techniques before my motion picture camera so that I may have an opportunity to make an honest objective study of the correct execution of Army bayonet techniques as outlined in Method I in the inclosed proposed thesis outline.

Also it is my hope that your Command will find this study of sufficient interest and importance to the United States Army that you may wish to carry on the same type of testing of the two methods of bayonet fighting with military groups in your Command if my study, which may be considered a pilot study, discloses anything significant.

I wish to thank you for the kind courtesy and helpful advice which was extended to me by the training officers in your Command.

Respectfully yours,

Armond H. Seidler
Instructor in Physical Education
School of Physical Education
University of Illinois

S:a
Incl.
Dear Sir,

At the recent time I have been a necessary part of a group that has been reviewing several proposals that were submitted. You will find enclosed a outline of the work that was necessary to be undertaken.

On October 11, 1957, I attended your headquarters and talked to a group of officials. I was interested in hearing you express the feeling that the activities of the Personnel Division are not of the utmost importance. I have no doubt that any changes that you may see as an opportunity to enhance the personnel program will be outlined in a more comprehensive manner.

Also I hope that your command will give the matter of confidential information the attention that it deserves. Any changes that you see fit to make will be presented to the proper authorities for consideration. If any changes are made, I shall be pleased to have you communicate the same to your command.

Yours sincerely,

[Signature]
1 November 1951

Mr. Armond H. Seidler
Instructor in Physical Education
University of Illinois
Urbana, Illinois

My dear Mr. Seidler:

Your very interesting thesis concerning the comparison of two different methods of bayonet fighting received. My experience has been that the simpler the method, the more it should fit into Army use.

My impression in reading your paper is that your concept envisions the high port as the normal guard position and that most of your attack is based on slashing down from the high port. It seems to me that most of the blows would be taken on the head and shoulders, which are not particularly vulnerable. It is necessary to thrust at the torso mainly from the throat on down to include the groin. Therefore a thrust forward from a guard position seems more appropriate.

May I suggest that unless you have already done so that you send your paper and your ideas to Chief, Army Field Forces with a request that your ideas be given consideration. I think that in all probability Field Forces would forward the material to The Infantry School at Fort Benning, Georgia for their opinion.

Although I am no longer Inspector of Infantry it is nevertheless gratifying to know that there are people like you who are interested in improving the calibre of our training and I want to thank you for your contribution.

With best regards,

Sincerely

JOHN W. O'DANIEL
Major General, United States Army
Commanding
I, Secretary 1947

...
SUBJECT: Request for bayonets.

THRU: Chief, Illinois Military District
      Navy Pier
      Chicago 11, Illinois

TO: Commanding General
    Headquarters Fifth Army
    1660 E. Hyde Park Boulevard
    Chicago 15, Illinois

1. Recommend that this unit be furnished fifty (50) bayonets and scabbards for M1 rifles to be used for bayonet drill on the Armory floor at this station.

2. The purpose is to assist in an investigation and search for improved methods of bayonet fighting. Investigation is being conducted by Mr. Armond H. Seidler, of the University of Illinois Physical Education Department. Mr. Seidler visited your headquarters outlining this particular study to a group of training officers on 1 October of this year. Again on 2 October he submitted to your headquarters an outline of the study proposed.

3. Throughout the conduct of these exercises in bayonet drill, positive safety precautions will be observed. No hand-to-hand contact will be permitted with rifles and bayonets. When executing hand-to-hand contact, students will wear protective personal equipment and well-padded wooden sticks will be substituted for actual rifles and bayonets.

4. While this is a college rather than an ROTC project and the individual participation is on an extra-curricular basis, it is believed that findings may be of some military benefit. Assistance as indicated in paragraph 1 above is recommended.

M. A. HATCH
Colonel, Artillery
P.M.S.T.
SUBJECT: Report for September

CDR: Illinois Military District

TO: Commanding General

RE: September 1979
HEADQUARTERS FIFTH ARMY
OFFICE OF THE COMMANDING GENERAL
1660 East Hyde Park Boulevard
Chicago 15, Illinois

COPY

8 November 1951

Mr. Armond H. Seidler
University of Illinois
School of Physical Education
Urbana, Illinois

Dear Mr. Seidler:

In accordance with your request of October 11, 1951 to the Commanding General, Fifth Army, arrangements have been made to have a well-qualified Infantry soldier demonstrate United States Army bayonet technique at Fort Sheridan, Illinois at any time convenient to you. Permission to photograph the positions and movements of the manual of the bayonet is granted.

You may contact Major R. A. Wise of the Training Division, this headquarters, by mail or telephone (BUtterfield 8-5800, Extension 561) to arrange for the specific date and time you desire the demonstration.

In the event that the photos prove of significance, it is suggested that you refer your study to the

Chief
Army Field Forces
Fort Monroe, Virginia
Attn: G-3

as the most direct method of securing authorization for an appropriate test.

Very truly yours,

WESLEY W. YALE
Colonel, GSC
ACofS, G-3
Dear Mr. [Name]

The University of Illinois

From: [Name]

In accordance with your request of October 11, 1981, to the Commandant

General Fld. H. H. Buyard, Adjutant General, U.S. Army, Field Service

I have enclosed herewith a copy of the paper prepared by [Name] on the subject of the French Revolution.

The paper is a comprehensive survey of the events leading to the Revolution and the key figures involved.

I hope that this information will be of interest to you. Please let me know if you have any further questions.

Sincerely,

[Name]
DEPARTMENT #1, 5102 ASU  
ILLINOIS ROTC INSTRUCTOR GROUP  
UNIVERSITY OF ILLINOIS  
CHAMPAIGN, ILLINOIS

17 March 1952

SUBJECT: Bayonet Training.

THRU: Chief, Illinois Military District  
Navy Pier  
Chicago 11, Illinois

TO: Commanding General  
Headquarters Fifth Army  
1660 E. Hyde Park Blvd.  
Chicago 15, Illinois

1. References:
   a. Letter, 2 October 1951, addressed to Commanding General, Fifth Army, from Mr. Armond H. Seidler, Instructor in Physical Education.
   b. Letter, this headquarters, 1 November 1951, "Request for Bayonets", to Commanding General, Fifth Army.
   c. Letter, University of Illinois ROTC Brigade Headquarters, Corps of Cadets, 15 March 1952, "Bayonet Training and Testing", Incl. #1

2. In regard to par. 4 of reference la above, some or all judges can be furnished locally. However, it is believed the tests may be of interest to officers concerned with training and will be appreciated by the students who have been engaging in this extra-curricular activity. As explained in reference lb above, bayonets will not be used in any contact work.

3. As indicated in la above, Mr. Seidler plans to furnish Fifth Army with a copy of his study.

4. It is recommended that consideration be given to a visit by one or more representatives of Fifth Army Headquarters on 1 April 1952.

1 Incl.  
Ltr, 15Mar52

M. A. Hatch  
Colonel, Artillery  
P.M.S.T.
15 March 1952

SUBJECT: Bayonet Training and Testing.

TO: Professor of Military Science and Tactics
    University of Illinois
    Champaign, Illinois

1. The bayonet training currently being taken by 60 ROTC cadets will be completed on 1 April 1952.

2. One group of 30 cadets is receiving instruction in the basic army method of bayonet. The other 30 cadets are receiving instruction in a new method of bayonet devised by a physical education instructor of the University of Illinois.

3. These two groups will be pitted against each other on 1 April 1952 from 1900 - 2100 to try and determine which method is most effective.

4. It is requested that this information be sent to G-3, Fifth Army, with an invitation for interested officers of that command to observe, evaluate, and serve as competition judges of the bayonet training.

5. The cadet officer in charge of this training will, with the approval of the FMST, extend an invitation to the Reserve Unit in Champaign in order that any interested officer in that Unit may observe the competition.

THOMAS B. BRADEMAS
Cadet Officer in Charge
of Bayonet Training
NOTE: Return Training Examination

To: Professor of Military Science and Tactics
University of Illinois

I request permission to accompany a party taken by an MG company
will be

S. The party consists of 30 cadets to receive instruction in the parade

map. The party will consist of two companies for instruction in the

university. The party will consist of two companies for instruction in the

university.

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university.
March 19, 1952

Commanding General
Headquarters, Fifth Army
1660 East Hyde Park Boulevard
Chicago 15, Illinois

Dear Sir:

For the past six weeks, with the cooperation of the Illinois ROTC Instructor group at the University of Illinois, I have been conducting an experiment which compares Army bayonet techniques with another type of bayonet technique.

The training period will end on March 15, 1952, and the two competitive groups will be pitted against one another on April 1, 1952, from 7 to 9 p.m. It would be of great value to the study and to the writer if the Fifth Army were able to assign several competent observers to witness the final competition. Since this study is being conducted for the benefit of the United States Army it would be highly desirable to have qualified representatives of the United States Army as official observers.

It will not be necessary for these observers to spend much time away from their normal duties as this test will be completely conducted in approximately two hours on the evening of April 1.

Respectfully yours,

Armond H. Seidler
Instructor of Physical Education
University of Illinois
21 March 1952

Mr. Armond H. Seidler
Instructor of Physical Education
University of Illinois
Urbana, Illinois

Dear Mr. Seidler:

Reference is made to your letter of 19 March concerning the experiment which you have been conducting on Army Bayonet technique.

Major Lawrence B. Webster, Armor, of this headquarters, will be present to observe this bayonet training. Major Webster will see you while at the University of Illinois on the night of 1 April.

Your interest in the improvement of bayonet training of the United States Army is greatly appreciated.

Sincerely,

JAMES W. CLYBURN
Colonel, GS
Chief, Civilian Component Division
G-3 Section
Professor Armond H. Seidler,
School of Physical Education
University of Illinois
Urbana, Illinois

Dear Professor Seidler:

Your thesis on bayonet fighting has been referred to the bayonet instructors of The Infantry School for their study and experimentation. They have reported that your method is an excellent means of training and fighting with the bayonet and that it has merit for Army adoption in some particulars. However, before making a recommendation to Army Field Forces that your method be adopted, either in its entirety or in part, it is the opinion here that with modifications your method might be made even better than it is now.

Your method is believed to have the advantage of being easier to teach and is seemingly more natural to the average person. Because your movements are fewer in number and simpler to teach, your method can be taught in considerably less time. Realizing that training time is invaluable in the Army, your methods afford an advantage in this respect. In addition, a person using your method can ordinarily defeat a person using the Army method in a sparring contest.

Granting that your method has the above advantages, the present Army method has the advantage of stressing aggressive attack throughout all phases of training. This approach results in a psychological benefit which is difficult to evaluate, but usually conceded to be of major importance. This benefit is especially vital if we consider the fact that seldom, if ever, in the past two wars have two opponents met in battle where both were armed with only the bayonet and rifle without shells. In all the after-action reports in The Infantry School Library of World War I, World War II, and the Korean war, there is no instance of this type encountered. Rather, it is the use of the bayonet, or the threat of its use, by one or more men of one side that held the defensive position or carried the assault.

With the good points of both methods in mind, I have directed my bayonet personnel to continue to work on a combination of your method and the Army method and make recommendations for adoption of a method combining the advantages of each.

It is very refreshing to find a patriotic civilian like yourself who is willing to spend time, effort, and money working on means of improving strictly military techniques. On behalf of The Infantry School, I express my appreciation for your efforts.

Sincerely,

G. S. Meloy, Jr.
Major General USA
Commandant