COAST ARTILLERY JOURNAL

THE HONORABLE HARRY H. WOODRING
Assistant Secretary of War

July-August, 1933

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THE UNITED STATES COAST ARTILLERY ASSOCIATION

"The purpose of the Association shall be to promote the efficiency of the Coast Artillery Corps by maintaining its standards and traditions, by disseminating professional knowledge, by inspiring greater effort towards the improvement of materiel and methods of training, and by fostering mutual understanding, respect and cooperation among all arms, branches and components of the Regular Army, National Guard, Organized Reserve and Reserve Officers' Training Corps."

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Notes of the Coast Artillery Association

Editorially Speaking

PERHAPS this should not be written, but it seems that such a momentous event as the assumption of the editorial duties of the COAST ARTILLERY JOURNAL should not be permitted to pass unnoticed and without a brief announcement as to what the readers of the JOURNAL may expect. Too often it happens that the change of a directing head means a change of policy and a complete upset of nearly everything established by the preceding régime. Such is not to be the case so far as the policies affecting the COAST ARTILLERY JOURNAL are concerned. There are on file in this office a large number of letters from staunch and ardent supporters of the JOURNAL, all of them loud in their praise of the way in which it was conducted under the able editorship of "Gyp" Giffin. Due largely to his untiring efforts and ability to say the right thing in the right way the subscription list was almost doubled during his tenure of office. From the subject matter he removed much of the must and dust which is bound to result from a staid and formal presentation of a subject. Into it he injected a bit of humor which mentally brought the reader to attention with a snap and, figuratively speaking, made him sit up and take notice. These reforms proved so successful that no one would seriously contemplate a change. Combined with this was his sympathetic understanding of the problems that confront the officers of the other components of the service. To these he always gave a considerate hearing and frequently went to no end of trouble to supply the desired information. The proof of the pudding is in the eating; subscriptions from the National Guard and Organized Reserves mounted until at the present time they comprise more than one-third of the total number. The JOURNAL is now a magazine for the entire Coast Artilley Corps including the several components of the Army.

The duties of an Editor are many, varied and perhaps thankless. He alone cannot produce a periodical. It is his job to select and arrange the material. Often he is driven to desperation to find suitable and instructive reading matter to fill the pages. To produce a magazine two things are of primary importance. First and foremost is the necessity to procure the proper kind of material. Material of *a kind* there is a plenty, but in order to make its appearance within the pages of the JOURNAL it must be of *the kind* which the majority of the readers demand, i. e., it must be interesting and instructive. It should contain a lesson from which all may profit. Its literary style should be such that it will retain the reader's attention to the end. These requirements are not easy or simple to meet. The Editor could not possibly prepare each article nor would it be proper for him to do so. In this he is solely dependent upon his ability to induce others to contribute. Too often officers carry under their caps the subject matter of a most interesting article but through timidity, reluctance, procrastination or some one of many similar reasons, they fail to put their thoughts on paper and forward it to the place where it can be disseminated throughout the service. It may not be amiss to mention that the policy of paying a small stipend for accepted articles will be continued but we cannot hold out any hopes that the revenue derived from this source will be adequate recompense for the 15% cut.

The second of the editorial duties, and of equal importance with the first, is the necessity of inducing a sufficient number of officers to sign on the dotted line, and thereby agree to contribute $3.00 to a good cause. A small sum, yes! but sometimes difficult to collect; however, your credit is good and we will agree not to send more than one "dun" a month. We venture the opinion that if payment is made on the installment plan, the $3.00 will not be missed and in return you will get more than $3.00 worth of good literature. In referring to the installment plan one subscriber said "it is almost painless."

The JOURNAL is operated on a very close financial margin. It costs a certain fixed amount for each issue. A 50% decrease in the number of copies of each issue would not permit of a 10% decrease in the cost, while a 100% increase in the circulation would not cause a 10% increase in the cost. Therefore, common sense and elementary business acumen point unmistakably to the necessity for increasing the number of subscriptions. A check of the subscription list reveals that a number of the regular officers of the Coast Artillery Corps are non-subscribers. We believe that this is the result of carelessness or lack of appreciation of the importance of united support. We believe that the JOURNAL is actually worth, in interesting and instructive reading matter, many times the subscription rate. In addition there are certain obligations which members of the military establishment must assume for the benefit of the service. Officers cannot lead a life apart and play a lone hand. To make progress they must pull with the team. The JOURNAL is issued by the Coast Artillery Association for the sole benefit of Coast Artillerymen. It is the medium for the dissemination of professional information, the vehicle for the exchange of ideas, and the instrument for the transmission of thought; without these stagnation is certain to develop.

A word as to the contents of the JOURNAL. Unfortunately there have been times when much justified criticism was directed toward it because of the dryness and lack of human interest which permeated its pages. At times purely technical articles crowded out items of a less serious intent. We believe that the JOURNAL should contain a balanced diet, with the proper pro-

portion of the several kinds of vitamins to produce the right number of calories. No one would long continue to relish a diet consisting solely of meat. There must be a garnishing of parsley to make the dish palatable. We mean by this that technical articles must be interspersed with articles of human interest written in a lighter (perhaps humorous or flippant) vein. We believe that a sugar-coated pill can be just as effective in curing our bodily ailments as one which won't go down without a large portion of determination, followed by a distorted countenance. By analogy we believe that the medicine which we take to stimulate our minds can be equally as effective if it contains a little sugar coating, and, after taking, we wear a pleased expression.

We now come to the most important part of this dissertation. We cannot hope to know what is going on at places far removed from Washington unless our correspondents will keep us informed. We welcome contributions from any and all sources. News items, if of interest and sufficiently important, should be disseminated to the service. Perhaps some seemingly unimportant happening may contain the germ of an idea which can be expanded into an informative and useful article for separate publication. At most places there is some experiment being conducted or some "gadget" being built in which others will be interested. We urge you to send a description or a write-up to the JOURNAL. The pay may not be great but after all there is a certain amount of satisfaction which goes with seeing your name in print immediately below the title.

It is not reasonable to expect that among the officers of the Coast Artillery there would be a complete agreement on all subjects. From the very nature of things there is bound to be diversity of ideas and conflict of thought. We welcome articles on controversial questions so long as they are not in open disagreement with the announced policies of the War Department. A good argument, like a good fight, is bound to attract attention and it may be the means of focusing the attention of the proper authorities on a condition which should be corrected, thereby reacting to the benefit of the Corps. In closing we earnestly solicit your support and crave your indulgence. Undoubtedly there will be mistakes. We cannot hope to be perfect. If we can be right most of the time we will feel that our efforts have not been unavailing. Constructive criticisms will be most welcome. If you do not like (or approve of) the JOURNAL, tell us; if you do like it, tell others. Perhaps that may help boost the subscription list which in turn will help reduce the "please remit" notices from the printers and engravers.

Trophy Awarded for Credit Hours Earned

THE Executive Council of the Coast Artillery Association takes pleasure in announcing that a certain sum of money has been donated to the Association as an endowment; the proceeds from this will be available for the purchase of a suitable trophy to be awarded annually to a Coast Artillery Reserve officer in each of the nine Corps Areas. It is regretted that the donor has declined to permit his name to be used in connection with the award of this trophy but we will say that he is a former Reserve officer, thoroughly interested in the subject of National Defense, more especially as it applies to the Organized Reserves. To him the Reserves owes a debt which cannot be measured in dollars; it can be discharged only in gratitude. On numerous occasions he has generously supplied the wherewithal to keep the machinery turning. He has given unstintingly of his time and energy. He is the "Good Samaritan" who courts neither favor nor public acclaim. His self-appointed role is to work quietly for the development and promote the progress of the reserve component. May his kind multiply.

Upon receipt of the fund the President of the Coast Artillery Association appointed a committee to make recommendations as to the basis of the award. After much thought and consideration the following has been evolved as being the fairest to all concerned and the method which contains the least number of objectionable features. It is evident that the number of credit hours earned is the very best yardstick for measuring the energy, initiative, application, and general worth to the service of a Reserve officer. At least it is the unit of measure which can be the most easily reduced to exact figures. Any other plan would necessarily involve the evaluation of the personal equation and therefore not be reducible to the basis of facts. It then became necessary to remove from this factors which might react to the benefit of certain Reserve officers, and to the disadvantage of others, without any action on their part. For example it would manifestly be unfair to include credit hours earned by means of active duty training; for the reason that only a comparatively small percentage of Reserve officers can be given this training because of the limitation on funds and training facilities. Also, many Reserve officers have been called to active duty with the Civilian Conservation Corps. There is no competition in this—it is an accident of service. For similar reasons credit hours earned by means of attendance at conferences should not be considered. Officers residing in cities would have a large handicap over officers residing in rural districts where it is very difficult, if not impossible, to attend conferences. The only remaining basis of comparison which could be made to apply with equal justice to all is credit hours earned by means of the completion of extension school work. Credit earned by this means plays no favorites. The officer residing at "Square Corners" is on the same footing as the officer residing in a metropolitan area where several conferences are held each month. The officer who cannot go to camp because of press of business, or shortage of federal appropriations, has exactly the same chance as the officer who is ordered out for two weeks active training.

For the present fiscal year the trophy will consist

of a sabre with the name of the winner etched on the blade. Future awards may take a somewhat different form. It is unfortunate that the announcement of this award could not have been made at an earlier date. Undoubtedly many Reserve officers will feel that they should have been warned in advance that they were actually competing for a prize. This may have enabled some of them to put on a final burst of speed in the last few yards of the race. This criticism is admitted but it could not be avoided for the present fiscal year. However, this will be an annual award; therefore contestants will know at the beginning of the next year that they are entered in the race and can set the pace accordingly. Corps Area Commanders have been requested to designate the winner within their respective Corps Areas. Credit hours earned between July 1, 1932, and June 30, 1933, will count. In the event of a tie the winner will be determined on the basis of the greatest number of lessons completed in the next succeeding subcourse. It is regretted that the names of the winners will not be reported in sufficient time to enable their inclusion in this issue of the COAST ARTILLERY JOURNAL, but they will be announced in the next issue.

The Coast Artillery Association desires to take this opportunity to make grateful acknowledgment to the donor and regrets that in deference to his wishes his name has to be withheld. This unselfish action in the cause of National Defense and the promotion of efficiency in the Reserve Corps merits the highest possible praise. To him we extend the thanks and gratitude of the Association and the Coast Artillerymen of all components of the Army.

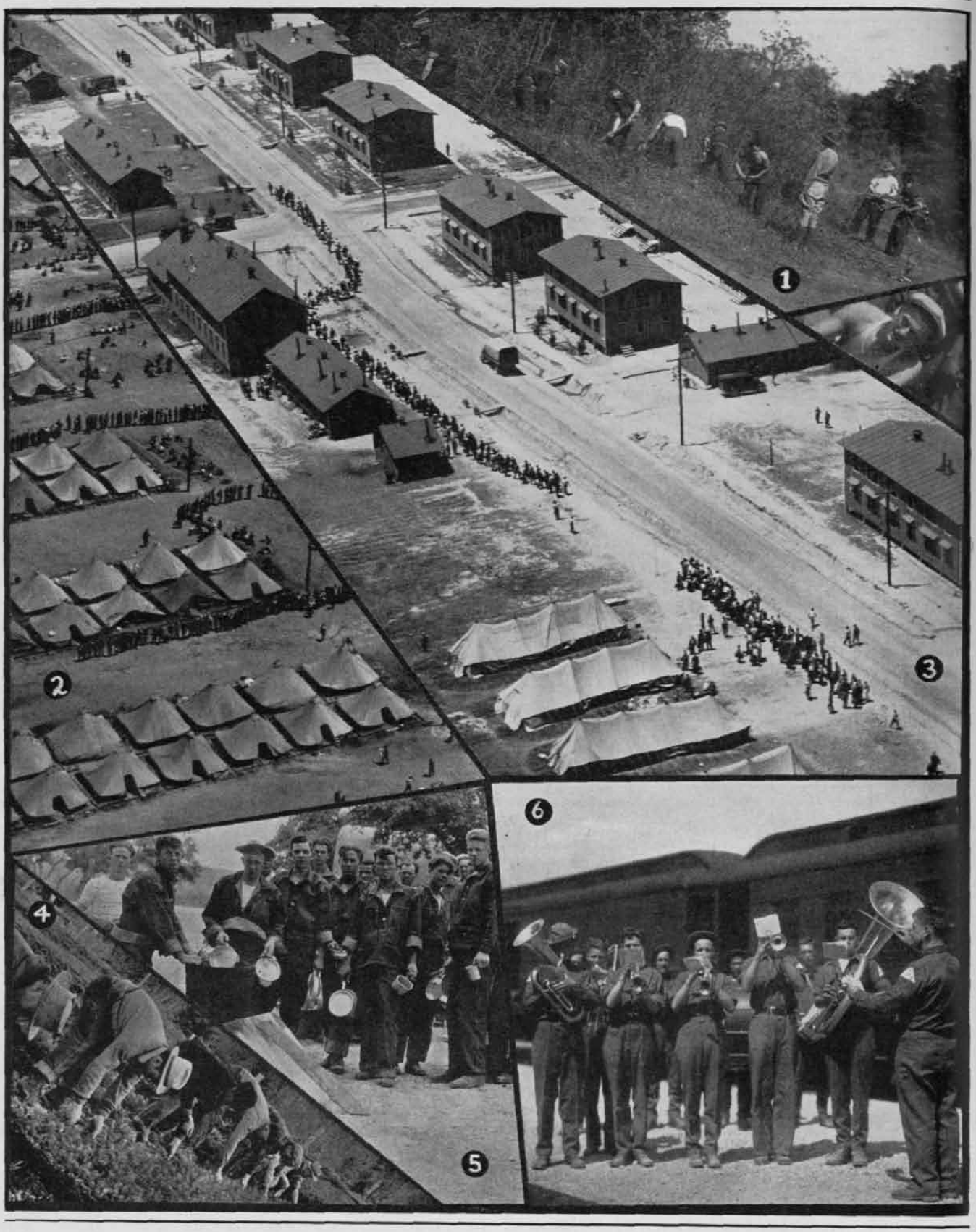
Paging Irving Berlin

PERHAPS the readers of the JOURNAL overlooked an article which appeared on page 154 of the March-April, 1933 issue, under the caption "Coast Artillery Wants a Song." We had expected, or more correctly speaking had hoped, that many of the lyric writers would immediately seize pen and paper and deluge us with the lyrics for a soul inspiring song. To date disappointment has been our only reward, not one contribution has been received. We had hoped that the bait of $50.00 (real money) would prove sufficiently enticing to bring forth a large number of contributions from which to make a selection. The general outline, setting forth the conditions of the contest, may be found in the article above mentioned. The deadline when manuscripts should be in the JOURNAL office is October 15, 1933. When this date was fixed we did not intend to convey the impression that manuscripts could not be forwarded at any time. The earlier the better. However, there is no objection if the author wishes to keep the manuscript until the date set. What we would like to know is that this subject is receiving some attention and that the Coast Artillery will not be compelled to continue its existence without the exhilaration which comes from hearing the ringing chorus of a rousing, rolicking song. For this reason we decided again to bring the subject to the attention of our readers. We do not want to hurry any one and we will allow ample time to try out the composition on the piano, friends and neighbors.

Well Done, Army

THE Chief of Staff sent the following radio to all Corps Area Commanders on June 30:

"On May 12, 1933, the President directed the War Department to complete the mobilization of the Civilian Conservation Corps and to insure its distribution into work camps by July 1st. This task comprised the reception, physical examination, the enrollment, the conditioning, the feeding, clothing, equipping, paying, disciplining, hospitalizing, and organizing into 200 men units of approximately 250,000 members of the Civilian Conservation Corps in 73 conditioning camps on military reservations throughout the United States. It included the establishment, construction and supply of over 1,400 work camps extending from the Atlantic to the Pacific and from the Canadian border to the Gulf of Mexico. It represented the greatest peace-time demand ever made upon the Army and constituted a task of character and proportions equivalent to emergencies of war. The President's plan has been efficiently accomplished in record time and without confusion. This achievement is indicative of the superior standard of professional fitness of the Army. Only a high morale, spirit of cooperation, pride of service, and devotion to duty could have accomplished such splendid results. I extend to you and all members of your command my sincere appreciation of this great accomplishment. It was well done, Army. MACARTHUR."



1. Clearing underbrush. Note the issue blue denim cap which has been turned inside-out and folded to look like an overseas cap. The white stripe is the white lining inside the cap. 2. Camp No. 2 at Fort Knox. 3. Looking west on the main road to the 1st Brigade Area at Camp Knox. Enrollees just off trains are seen first going to the reception tents and then being marched in groups of 100 or more to the Processing Building. 4. Enrollees at Wind River, Wash., pulling 2-year-old fir trees for transplanting. 5. The chow line. 6. The C. C. C. Band at Fort Knox.

The Fort Knox Distant Intelligence Net

By Lt. Col. Joseph A. Green, CAC

ONE of the purposes of the combined Air Corps-Antiaircraft exercises held at Fort Knox, Kentucky, during May 1933, was to continue the investigation of intelligence nets, and to ascertain their sufficiency as agencies for giving adequate warning of the approach of flights of enemy planes. Fort Knox was assumed to be a regulating station and important supply depot. It was defended by an antiaircraft regiment, and a squadron of pursuit planes (P-16's) with attached observation planes. This air force was stationed at Bowman Field near the outskirts of Louisville, Kentucky, 30 miles distant from Fort Knox. An outer intelligence net consisting of three bands of observation posts roughly centered at Fort Knox was established about the area to be defended. The enemy's air forces were at Patterson Field, a few miles from Dayton, Ohio. These included about twenty bombers: B-2, B-7, and B-9, with speeds varying from 120 to 165 miles per hour; and several observation planes. Patterson Field is 165 miles from Fort Knox. Prompt and accurate transmission of information from the intelligence net was essential due to the fact that Bowman Field is only 75 miles from the outer band of the net, and the further fact that it requires some 22 minutes for the pursuit planes to leave the ground and gain attacking altitude. Flying a straight course, enemy bombers could be over Bowman Field 28 minutes after crossing the outer band of the net.

The geographical location of the elements of the net was as shown in Figure No. 1. The net covered a sector of approximately 120 degrees; the enemy, by the terms of the problem, being required to fly over it in his approach to Fort Knox. For administrative control the net was divided into the West Indiana, East Indiana, and Kentucky sectors, with headquarters respectively at Columbus, Indiana; Batesville, Indiana; and Owenton, Kentucky. Intelligence Net Headquarters was at Fort Knox, Ky. It will be noted the net included sixty-nine observation posts, spaced from six to nine miles apart along the circular bands.

The intercommunication system of the net was as shown in Figure No. 2. It was designated to enable information to be rapidly transmitted from the OP's to the intelligence center. Three methods of transmission were used: army radio, commercial telephone, and commercial telegraph. Definite instructions were issued prescribing the method of transmission to be used when sending flash messages from each OP. In addition, an alternative method was prescribed so that in the event of failure of the primary method the messages could be sent thru without loss of time. All OP's were connected by field wire or a combination of field wire and leased wire to local telephone exchanges. The observers either telephoned their messages through these local exchanges to prescribed commercial telegraph offices or army radio stations, where they were relayed to the net intelligence center at Fort Knox, or else telephoned the messages all the way thru to the intelligence center. The system was so arranged that adjacent OP's would normally send in flash messages by different methods. This enabled such stations to make simultaneous reports of a formation flying between them.

Actual work on laying field telephone wire from commercial telephone lines to OP sites was started early in May. This was done in the West Indiana and Kentucky sectors by the communications platoons of the headquarters companies of the 10th and 11th Infantry, stationed respectively at Fort Thomas, Kentucky, and Fort Benjamin Harrison, Indiana. Before starting work, these platoons moved to and established camps at their sector headquarters. Similar work was done in the East Indiana sector by a detachment of the 1st Signal Company from Fort Monmouth, New Jersey. This detachment established a camp at sector headquarters at Batesville, Indiana. Another detachment of this company moved to Fort Knox and established the Intelligence Center at that station.

Figure No. 3 shows the arrangement of the Net Headquarters. It was organized into two parts, an intelligence center and an operation section. The intelligence center was equipped to receive flash messages from the net by long distance telephone, radio, and postal telegraph, and to transmit this information to the different sections of Defense Headquarters When a flash message came in, the receiving operator recorded it in triplicate on a flash message form (see Figure No. 4), using carbon sheets for the purpose. As soon as the message was recorded it was immediately transmitted by leased telephone wire to Bowman Field for the information of the defense pursuit forces thereat. The three copies of the flash message were then sent by couriers to S-2 and S-3 of Defense Headquarters, and to the net operations section. All of these agencies were in the same building as the intelligence center. The operations section analyzed and directed the functioning of the outer net. As soon as a flash message was received by this section it was posted on a situation map. By means of this map flights of planes were tracked as they passed thru the net and future positions predicted. After each exercise, the original flash messages made out by the observers were forwarded to the operations section where they were compared with the messages actually received thereat, thus permitting a check as to accuracy of transmission. At the conclusion of each exercise the courses as shown on the situation map were transferred to a permanent map and later were compared with the courses actually flown as reported by the Blue (enemy) forces.

By Saturday, May 13, field lines to all OP sites had

been laid. On this date a tent was set up at each of the OP sites, a field telephone hooked up, and two trained observers stationed thereat. All OP's were furnished with the necessary blank forms for recording flash messages. Observers stationed at OP's in the West Indiana sector were trained at Fort Benjamin Harrison, and were members of the Headquarters Company of the 11th Infantry. Those of the East Indiana sector were trained at Fort Totten, Fort McClellan, and Fort Sheridan, and were from the 62nd, 69th, and 61st Coast Artillery (AA). Observers manning OP's in the Kentucky sector were trained at Fort Thomas and came from the Headquarters Company of the 10th Infantry. Camps had been established at the three sector headquarters during the construction period. These were maintained during the period of the exercises (May 15 to 24 inclusive).

On Sunday, May 14, each OP sent its first flash message to the net headquarters. These messages had been prepared and distributed ahead of time. Observers were informed of the exact time they were to call their local exchange as a preliminary to transmitting their flash message. These times were compared with the times of receipt of the messages. The purpose of this test was to familiarize observers with the actual mechanics of transmitting a message and to determine the facility with which the intelligence center could operate. The messages reported simulated flights of

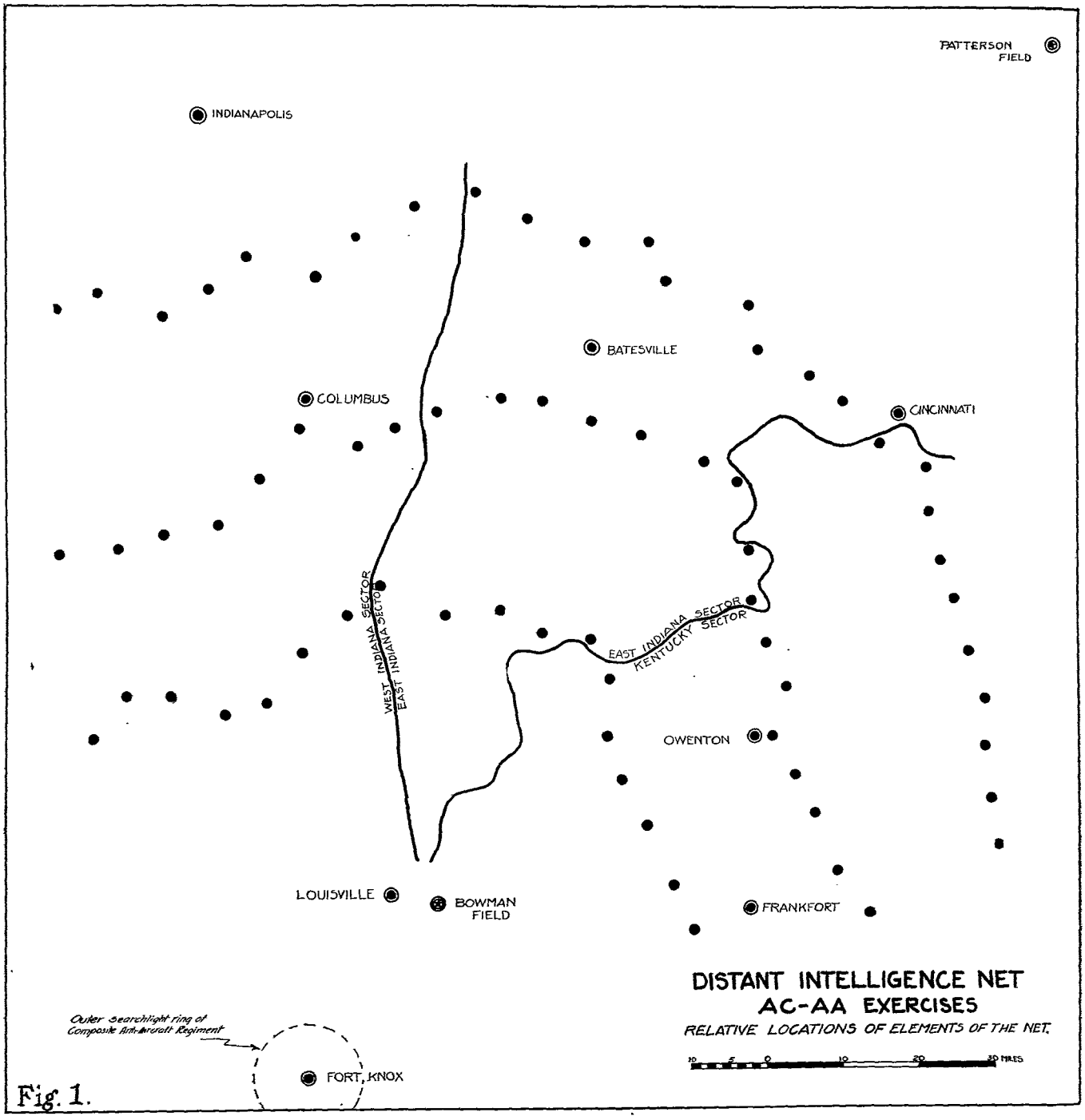


Fig. 1.

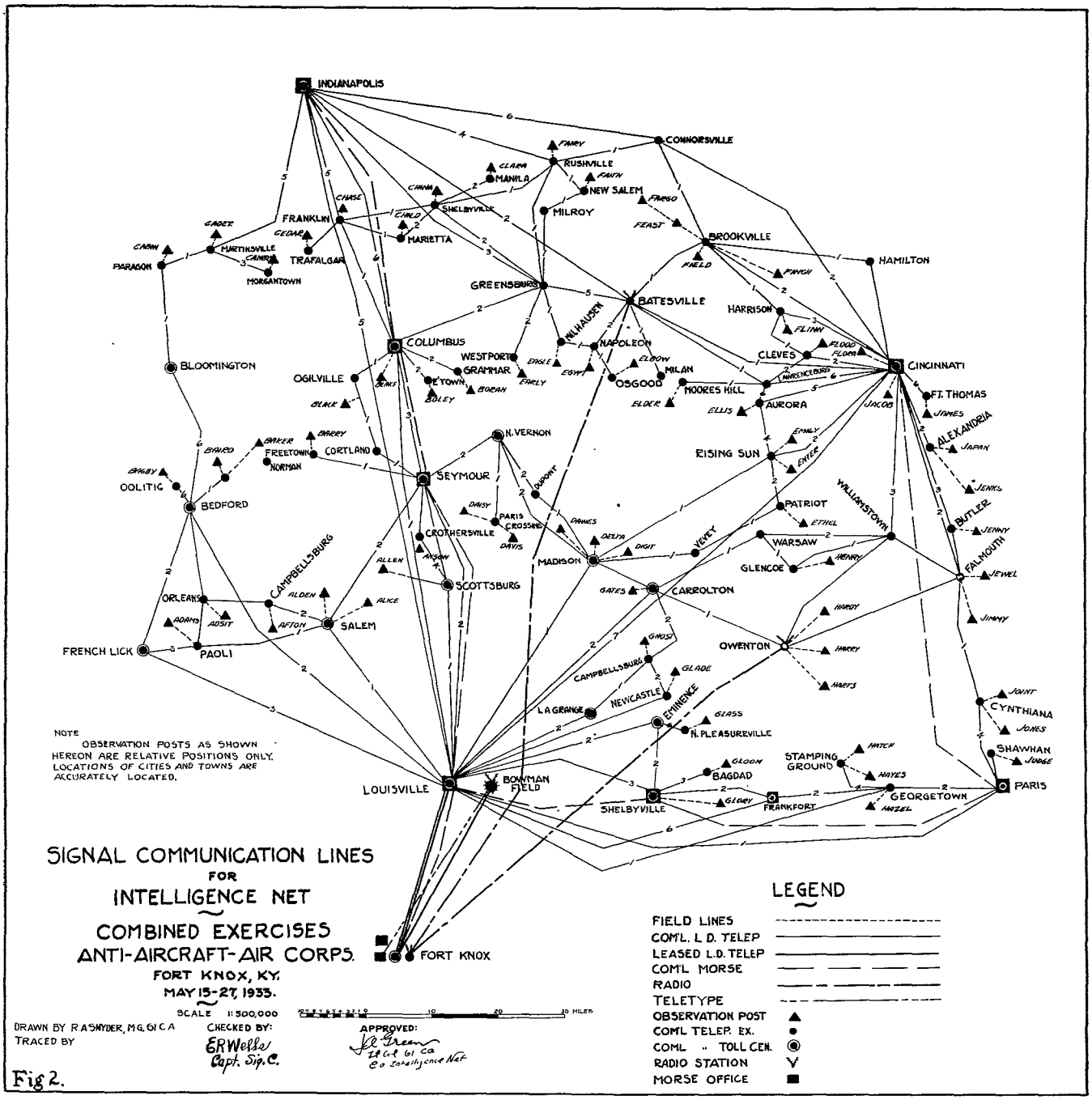


Fig 2.

enemy planes, these were recorded on the situation map. Average time for transmission of messages for this test was about 3.5 minutes, about 40 per cent of the messages being received in less than two minutes time.

In addition to the outer intelligence net with its 69 observation posts a net, closer in, was established by the 1st Cavalry (mechanized) stationed at Fort Knox, using radio as a means of transmission of its reports. Four armored cars, one a control car, all radio equipped, were used. The control car was placed just outside the Operations Office of the defending pursuit force at Bowman Field. The other three cars were sent to stations about 25 miles from Bowman Field and well inside the inner band of the net. Flash messages from the cars were transmitted by radio telegraph to the control car at Bowman Field, where they were immediately turned over to the defending pursuit operations officer. This officer was in constant radio communication with the pursuit force that usually took off as soon as enemy flights were reported by the OP's of the outer band. Flash messages from the radio cars very frequently were material factors in permitting the pursuit planes to contact the enemy bombing flights.

Several weeks before the troops were assembled for the exercises all prospective observers were given courses of instruction at their home stations on the identification of aircraft, the maintenance and operation of the field telephone, and the use of the flash

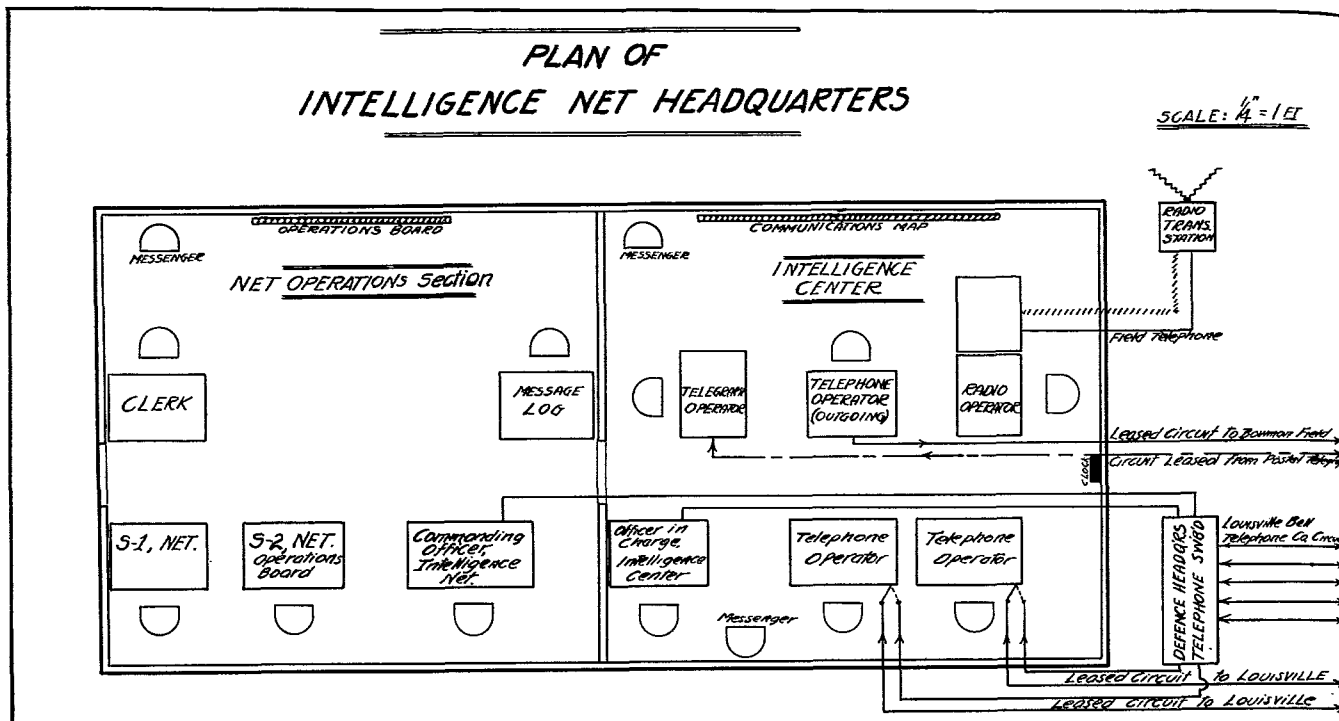


Fig. 3.

message form. A copy of this form, as filled out by one of the observers at the observation post named Early, is shown in Figure No. 4. In this case the observer rang up the local telephone operator at Westport, reported he had a flash message to send, and asked to be connected with the Postal Telegraph office at Columbus, Indiana. When the connection was completed he read the flash message to the operator at the telegraph office who recorded it on a flash message form and then telegraphed it direct to the intelligence center at Fort Knox. The form more or less explains itself but detailed instructions regarding its use were mimeographed and used for instructional purposes.

It will be noted by reference to Figure No. 2 that each observation post was given a five-letter name. The first letter of these names had a definite relation to the different sectors of the net and to the bands of each sector. For instance, the names of all OP's of the middle band of the West Indiana sector commenced with the letter B. By means of this system the operator of the situation map could readily locate the sources of flash messages. Each flash message was signed with the code name of the sending OP, rather than with the actual name of the observer who sent in the report. This saved time in transmitting the messages for many of the observers had names that would have had to be spelled out before being understood over the telephone. By adopting this system, the name of the observation post from which a report originated appeared twice in the flash message. Civilian telegraph and telephone operators, and receiving military personnel at the intelligence center learned these code names very quickly and readily recognized them over the telephone. It is believed the use of this system for identifying OP's is superior to a system using numbers, or a combination of letters and numbers.

The first exercise was held Monday morning, May 15, 1933. Eleven exercises were held, ten being for four hour periods, and one for a twenty-four hour period. The enemy's objective in each case was the assumed regulating station at Fort Knox. Usually during each exercise a number of observation planes first flew over the net, and these were followed somewhat later by flights of bombing and attack planes. These flights varied in strength from three to nine planes and came over at different altitudes, some being close to the ground and others at high altitudes. During the eleven exercises about forty flights passed over the net. In all but two cases the flights were reported by OP's on each of the three bands of the net. In each of these two cases the flights crossed over one band without being reported. In general, on day missions, the planes were seen as they crossed the bands of the net, whereas at night they ordinarily were merely heard. It was found that during the daytime flights could be accurately tracked as they crossed the net. No trouble was experienced in identifying bombing planes, but attack planes were sometimes mistaken for bombers. It was also found that at night flights could be accurately tracked but could not be identified as to type with any degree of accuracy. However, as pursuit squadrons do not attempt interception mission at night the failure to identify types at night was of minor importance. It was also learned as a result of the exercises that on a calm day of good visibility, flights of bombers, using mufflers, could be both seen and heard when flying at an altitude of approximately 15,000 feet, and under the same conditions of visibility planes could be both seen and

heard at a horizontal distance of approximately five miles. In a considerable number of cases they were seen and heard at somewhat greater distances. Frequently a number of flights were over the net at the same time. When these formations were flying sinuous courses that passed near or crossed one another difficulty was experienced in continuing the identity of a formation after once having been reported, the tendency being to greatly overestimate the strength of the attacking force and the direction of flight of the formations. Accurate identification is absolutely necessary if the defending pursuit aviation is to be furnished information that will enable it to estimate the enemy strength and predict the future positions of the bombing formations. It was discovered very early in the exercises that unless an observer's flash message accurately reported the number of planes in a formation, their type, altitude, and direction of flight, it was of limited value. Experiences had during the exercises clearly indicated that if a net is to be of real service to the defending pursuit forces it must be relied upon to furnish accurate information, and it can do this only provided it is manned by highly trained observers.

The average time for the transmission of flash messages was somewhat less than 3.0 minutes, as is indicated by the following table. This conclusion is based upon an analysis of 764 messages sent during the eleven exercises. This time differed slightly with the different means of communication used:

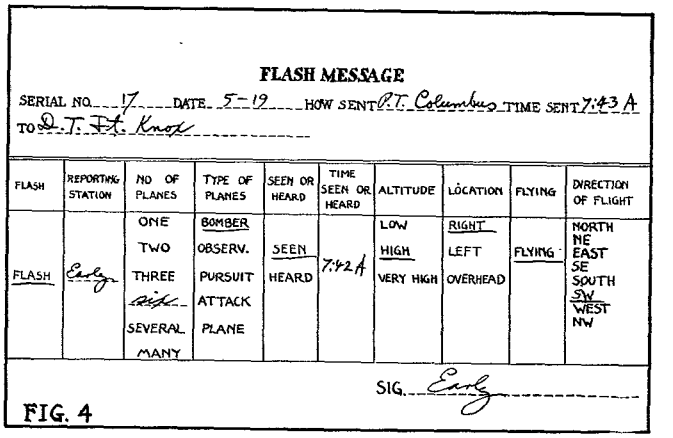
Time Required	How Sent			Total
	Telephone	Telegraph	Radio	
2′ or less	230	203	43	476
2′ to 3′	53	55	21	129
3′ to 4′	30	29	10	69
4′ to 5′	16	15	9	40
Over 5′	26	16	8	50
TOTAL	355	318	91	764
Average time per message	3.2	2.7	3.3	3.0

Note 1: 62% of all messages were transmitted in 2 minutes or less; 17% between 2 and 3 minutes; 9% between 3 and 4 minutes; 5% between 4 and 5 minutes; and 7% required more than 5 minutes.

Note 2: Time for transmittal of messages was measured from the moment the operator picked up the telephone to place the initial call to the moment when the message was completely recorded at the intelligence center.

The observation posts of the net were in general from six to eight miles apart. On a number of occasions when a flight was reported by an OP as passing overhead it also was reported by the observers on the right and left, as either seen or heard. When a flight flew between two adjacent OP's it was invariably reported by both. It is true that during thick weather visibility of observers will be adversely affected, and during periods of high surface winds the sounds of the motors of the planes probably will be more difficult to hear. However, under such conditions there is much less likelihood of enemy flights crossing the net than during periods of good weather. Based solely upon the experiences gained during the Fort Knox exercises it is believed that the OP's of the net might well be spaced from eight to ten miles apart, the shorter distance being used over the most likely routes of approach.

If the enemy air forces predominate a net must be operated for 24 hours each day, both winter and summer. The personnel for each OP must as a consequence include enough observers for 24-hour service. Eight hours of service per day is all that reasonably can be expected of observers. It would appear therefore that each OP should be manned by a squad of five men, including a noncommissioned officer. This



FLASH MESSAGE

SERIAL NO. 17 DATE 5-19 HOW SENT P.T. Columbus TIME SENT 7:43 A

TO D.T. Ft. Knox

FLASH	REPORTING STATION	NO OF PLANES	TYPE OF PLANES	SEEN OR HEARD	TIME SEEN OR HEARD	ALTITUDE	LOCATION	FLYING	DIRECTION OF FLIGHT
FLASH	Early	ONE TWO THREE ~~Eight~~ SEVERAL MANY	BOMBER OBSERV. PURSUIT ATTACK PLANE	SEEN HEARD	7:42 A	LOW HIGH VERY HIGH	RIGHT LEFT OVERHEAD	FLYING	NORTH NE EAST SE SOUTH SW WEST NW

SIG. Early

FIG. 4

would allow for three reliefs of one man each, a NCO in charge, and a supernumerary. Should the OP detachment be required to subsist itself this probably could be done without an increase of personnel.

The Fort Knox observers were equipped with field glasses. Reports received indicated that these were used to very good advantage. It is believed that each observation post, a part of a war unit, should be provided with at least two pair of field glasses, one for day and one for night service. These glasses should be of fairly low power so as not to be too tiring on the eyes of the observer. Their field of vision moreover should be as large as possible. The other equipment required at an OP includes a compass, a good watch or clock, telephone, tool kit for making minor repairs to the telephone and telephone lines and possibly a listening device of some kind. During one of the exercises a flight of bombers, equipped with sound mufflers, flew over the net at approximately 16,000 feet altitude. It was a still day and visibility was excellent. This flight was tracked completely across the net. Some observers reported the flight as seen, others as heard. Under difficult weather conditions, it is quite possible that flights might cross a net without being either seen or heard. For this reason it is believed that experiments should be conducted with the object in view of developing an inexpensive listener. This listener should be easily transportable by hand.

It is recognized that for defending pursuit aviation to have a reasonable chance of intercepting enemy bombing raids, a means must be provided not only for giving timely warning of the enemy's approach in order that the pursuit aviation may take off and gain altitude from which to attack, but also that this same aviation may know the direction of the enemy's approach. The net used at Fort Knox with its eight mile

interval between OP's and its twenty-five to thirty mile distance between bands, did furnish information that permitted the commanding officer of the defense aviation to accurately estimate the routes of approach of the enemy flights, and during daylight phases, the number and type of planes in the flights. Whether the arrangement of the OP's and bands as used at Fort Knox is the best one for a net for the defending pursuit aviation is not known. Officers whose opinions are deserving of consideration suggested modifications. One was that the net should be further advanced; and another that the inner band of the net should be done away with, substituting for it lines of OP's about fifty miles in length, these lines being perpendicular to the net and, for each pursuit group, about 40 miles apart, the idea being that after the enemy flight had passed thru the two bands of the net it would be boxed within two adjacent lines of OP's. A third suggestion was that the net should not be divided into bands, but that the OP's, about eight miles apart both laterally and in depth, should cover the entire area over which the defending pursuit aviation might have to operate. This method would require a very large number of observers.

Military establishments and communities that contain factories manufacturing war supplies, or that include within their limits strategical bridges or important railway establishments, may be subjected to enemy bombing. Presumably such places will be defended by antiaircraft artillery and possibly by pursuit aviation. The local observation posts of an antiaircraft regiment extend only a few thousand yards beyond its line of searchlights. An enemy flight reported by these OP's can be over its objective in a very few minutes after being reported. The regiment, with only enough personnel for completely manning its equipment and administering and supplying itself, can not be on the alert at all times. The men must rest and a warning period sufficiently long to permit the various gun, machine gun, searchlight, and fire control crews to reach their assigned positions, is absolutely necessary. A warning net of some kind well out beyond the local defenses is needed. If the local defenses include pursuit aviation, such a net must have considerable depth, but if its purpose is merely to alert the defending antiaircraft and give warning to the civilian population, it need include only a single band of observation posts.

Intelligence nets may be divided broadly into two groups: the first group including circular nets used as a part of the local defense of important military, commercial or industrial areas; and the second group, frontier and coastal nets, such as it may be necessary to establish along our land or sea frontiers. The net used during the Fort Knox exercises was of the circular type. To establish a net similar to this one about all areas requiring warning, would demand a tremendous outlay of personnel and equipment. In addition, if the pursuit aviation of this country in time of war was broken up into many small groups and assigned to local defenses, instead of being under a central control and so located as to meet enemy thrusts, it would be robbed of freedom of movement and coordination of effort, and the greater part of its potential value would be lost. The Fort Knox net itself, had it been extended thru 360°, would have included enough personnel and materiel to establish a net of the same density approximately 400 miles long. Had a net of this length been established parallel to the Western Front during the World War by either the Allies or the Central Powers it would have covered the entire distance from Switzerland to the sea. Likewise if an enemy should hold that part of the United States east of the Connecticut River a net of the same length established parallel to the river would extend from Northern Vermont to the southern shore of Long Island. It is probable that in most cases the need for nets would be answered were they established along frontiers across which the enemy must fly in order to reach his objective. However, it is realized in certain circumstances that there will be need for nets of the circular type about vitally important political and industrial centers; and that probably pursuit groups, in addition to ground troops, must be detached from the main air force to assist in their defense.

When a number of enemy flights were over the net at one time flash messages came in to the intelligence center about as rapidly as they could be handled. This indicated that had the net extended over a greater distance one or more additional intelligence centers would have been required, the logical location for all of the intelligence centers in that case being out in the net, thus necessitating a somewhat different plan for evaluating the information contained in the flash messages and for relaying it to the defending pursuit forces and defense headquarters. Moreover the Fort Knox net was divided into three sectors for establishment, maintenance and administrative control. Each sector included twenty-three OP's and was under the command of an officer. In administering his sector this officer, or his commissioned assistants, found it necessary to visit the OP's as often as possible, and at least every second day. The sectors had an average width of forty miles and a depth varying from fifty to sixty miles. The exercises showed that a sector of this size and with this number of OP's was about as large a one as could be supervised by a single officer. The personnel required to man one of these sectors under war conditions closely approximates that of a battery of artillery at war strength. From a consideration of the foregoing, it is suggested that a net intelligence battalion could properly be given consideration as a basic unit from which to prepare tables of organization for intelligence nets. A battalion of this kind, if furnished with the necessary personnel and equipment, could establish a net approximately 180 miles long, including an intelligence center for receiving and evaluating flash messages, provided the OP's were spread from eight to ten miles apart, and the net made up of three bands. Such a battalion would include three observation batteries and a net headquarters battery.

The leading nations of Europe are well aware of the great defensive value of intelligence nets and are at work developing plans for their use. While the geo-

graphical location of the United States is such that intelligence nets probably will not be required to any great extent in the early stages of any major war in which this country may become involved, yet the part of prudence indicates that the present is a very good time for preparing tables of organization for net personnel, and training regulations discussing the types and employment of nets, the training of observers, and the employment of communications personnel. These documents could be prepared in tentative form and held available in the War Department for test of their sufficiency should another exercise similar to the one held at Fort Knox be authorized, or for immediate publication and issue should the United States become involved in another war.

ON JULY 5th, as we close the forms for this issue, the Army has conditioned 274,000 young men for the Civilian Conservation Corps, practically all of whom are now at work in the reforestation camps, with the following officer personnel engaged exclusively with the C.C.C.:

Regular Army (other than Medical and Chaplains)	2,875
Medical, Regular Army	116
Chaplains, Regular Army	22
Navy and Marine Line Officers	297
Navy, Medical	207
Reserve Officers (other than Medical and Chaplains)	1,093
Medical Reserve Officers	507
Chaplains, Reserve Corps	32
Contract Surgeons	267
Dentists, Navy	6
Dentists, Reserve	20
	5,442

In addition to the officer personnel, there are 8,000 Regular Army enlisted men on duty at the camps.

All service schools except the Army War College, Industrial College, and Air Corps Tactical School were closed on May 22 in order to release students and 60 per cent of the faculties to C.C.C. work. While plans are being made for the fall opening of the service schools; it is too early to predict what effect the C.C.C. will have on them.

The Army Gets the Job

Extracts from a Speech Made by Representative James W. Wadsworth, New York, Before the House on May 3, 1933

NOT long ago there was given out from some source of authority—I cannot quite identify the source—a program for a drastic reduction in the Army of the United States, designed to save, it is alleged, $90,000,000 from the military activities appropriations for the War Department.

The program included proposals for the furloughing of between three and four thousand Regular Army officers at half pay, plus pay to enable them to reach their homes wherever those homes may be, and most of them have no homes; the discharge of 12,000 enlisted men from the Army; a substantial reduction in flying pay for the members of the Air Corps; the abandonment of the National Guard training camps, which are run each summer for two weeks; the abandonment of the Reserve Officers' Training Corps training camps, and various other reductions in the military activities of the Army of the United States.

I say that I have not been able to identify the source of this announcement which was made Nation-wide and in great detail. I sat as a spectator in the room of the Committee on Military Affairs the other day listening to an assistant to the Director of the Budget while the members of the committee, and especially the chairman, endeavored to find out just what were the plans of the administration with respect to the handling of the Army and the proposed economies. I think I am not far wrong in saying that the committee found out just exactly nothing, as the gentlemen before the committee at that time said, there were no plans and he did not know where these suggestions had come from, and that all he had in mind was that the President be given the power to do all these things, which, of course, leaves me, and would leave the average Member of the House of Representatives, completely in the dark as to what is to happen to national defense if these bills pass.

I do not need, I am sure, to enlarge upon the terrific effect upon the Military Establishment of the carrying out of the proposals which have been made. I suspect some of them will be abandoned, because already they are beginning to acquire an atmosphere of absurdity. For example, with respect to the proposal to furlough between 3,000 and 4,000 officers of the Regular Army at half pay, let us remember another thing which the Government is embarked upon, and that is the so-called "reforestation camps."

I happened to drop into the War Department the other day to inquire about the progress made in recruiting these unemployed young men and sending them to the camps and was shown a map of the United States upon which there were indicated by pins, inserted in the surface of the map, the camps which have thus far been approved.

It is interesting to know that while the bill which authorized the President of the United States to take these 250,000 young men was under discussion, it was generally understood and asserted by a large number that there would be nothing military about the camps. Perish the thought, said the pacifists, that 250,000 of these young men should be put under the brutal influence of officers of the Army. That would be a terrible thing. So it was announced at that time that the Labor Department was going to do the work of recruiting and sending the men to camps. But it turned out that the Labor Department had no offices distributed over the United States suitable for gathering in this army of 250,000 young men. Suddenly somebody remembered that the Army had recruiting stations scattered over the country, and so a hard-boiled sergeant out on the sidewalk herded them together, took them upstairs, and an Army medical officer gave them an examination.

Then it was remembered that the Labor Department did not have any places scattered over the country where these youngsters could be conditioned. So, come to think of it, the Army has posts, and we will send them to the Army posts; and so it was done. And the recruits were sent to the quartermaster stores, where they were fitted out and given blankets, etc.

Then it turned out that the Labor Department had no means of feeding 250,000 young men, but, come to think of it, the Army Quartermaster had these facilities, and so the old rolling field kitchen made its appearance. Then, later on, it was determined that some sanitary measures had to be enforced, and the Labor Department had no facilities for that. But, come to think of it, the Army had officers with medical training, and so medical officers were put in the camps.

Then, of course, there must be some kind of discipline, and so it has been determined that 4,000 officers of the Regular Army must go to the camps and remain on duty for the duration of the camps.

My suggestion is, why delegate to the President power to furlough officers out of the Regular Army, when the War Department is already under instructions to use 4,000 of its officers for this forest army, and the furloughing of Regular officers is utterly impossible unless, indeed, we want to take the absurd step of one group of officers being turned out at half pay and Reserve officers being brought back to active duty at full pay in their places. These things occur to us from time to time as we read of these proposals. Somebody got off on the wrong foot with respect to this particular one. It may have been a trial balloon or just an error, a poor calculation. To me—and I do not mean to use any harsh language—it has the aspect of being a half-baked proposal.

Yes, Sir, the Army Can!

The report of completion of the War Department's first objective to place 250,000 men on reforestation work by July 1, 1933

Made by Colonel Duncan K. Major, Jr., G.S.C., War Department Representative on the Advisory Council, Emergency Conservation Work

ON May 12, the President approved the War Department plan to place the full authorized quota for the Civilian Conservation Corps (274,375 men) in work camps by July 1. That mission fulfilling President Roosevelt's promise to the country to have 250,000 men employed in the nation's forest by early summer has been accomplished by the Army on time.

On April 7, 1918, the United States declared war on Germany and initiated the mobilization of the country's manpower. On Monday, April 3, 1933. Mr. Howe, Secretary to the President, speaking to the War Department's general staff representative, said "The President wants to start the enrollment of 25,000 men on Thursday (April 6). Can the Army do it?" The answer was, "Yes, sir, the Army can." Orders were issued on that basis. The "new deal" was on.

During the first three months of the World War, the War Department mobilized by July 1, 1917, 117,000 men in the Regular Army, 58,000 men in the National Guard and 6,000 men in the National Army, or a total of 181,000 men. By that date less than 16,000 men (mostly Regular Army units) had embarked for France. How then during a like period in 1933, without a long warning such as given by the European War, could the Regular Army alone process some 275,000 men, organize them into 1330 companies, establish that many forest camps on a front of 3,000 miles from the Atlantic to the Pacific, distributed in depth from Canada to Mexico, occupying every state of the Union excepting only Delaware, and move 55,000 of them a distance of 2200 miles from the east coast to the Rockies and the Sierras, all before July 1 of this year? The comparison is so vivid, the contrast in the two efforts so striking, that a short history of the War Department's part in the mobilization of the Civilian Conservation Corps may be worth recording.

The introduction of Senator Couzens' Bill, submitted on January 10, 1933, providing that the Army shelter and feed indigent transient youths, which later took more definite form in an amendment to the Army Appropriation Bill offered by him in early February to care for 88,000 boys under Army control, served as a warning to the War Department of the task since imposed. While the Couzens' bill was under consideration, a General Staff study was made to determine the Army's capacity to care for the men on its posts, and the unit costs per man to govern as a basis of estimates. This data was available in time to give real definition to the amendment proposed by Mr. Couzens in the Appropriation Bill.

It was early evident after Mr. Roosevelt's inauguration that the President would lose little time in launching his plan for reforestation. With definite conviction that there was but one path open to its rapid accomplishment, the Chief of Staff, on March 9, directed estimates and regulations for the reception, organization and care of units of unemployed men to be prepared. This was long before the undertaking was defined.

The original administration bill was introduced on March 13, 1933, and after much criticism, reintroduced in more general terms on March 21. By March 24, however, the General Staff had prepared in draft form complete regulations governing the administration and supply of the Civilian Conservation Corps ready for issue to the field, defining the Army's mission, its relations with the Department of Labor, the National Park Service, and the United States Forest Service; setting up probable quotas of men to be assigned the various Corps Areas and the probable unit costs covering the items of shelter, subsistence, clothing, equipment, medical attention, rail and motor transportation, welfare and supervision. On March 25, all nine Corps Area Commanders received secret radiograms warning them of the task that would probably fall to them, the tentative quotas of men that the War Department believed would be assigned to their Corps Areas and promising early allotment of funds on the basis of the unit estimates.

The bill as finally passed left most of the details to the discretion of the President. The relations that would govern between the various executive departments were not stated. The General Staff, therefore, on the 24th of March, drafted an Executive Order establishing these relationships and announcing basic decisions controlling the cooperative effort.

The essential thing to record is that by proper planning the General Staff stood ready on March 24 to go, awaiting only the starter's gun. It was expected, of course, that actual passage of the act would bring last minute modifications, that coordination with other departments and agencies would require further clarification but the elemental provisions to receive, to feed, to transport, to house, to examine physically, to clothe, to organize large numbers of men, (let the exact pattern of the organization or its future employment be what it might), were cared for. These were the features that plainly indicated to the War Department that the Army would get the job.

On April 5th the War Department sent radiograms to all Corps Area Commanders assigning their missions

and directing them to enroll the first increment on the following morning. The next day the complete regulations were forwarded to them. The Army was in gear to fulfill its part of the task.

While Corps Area Commanders contacted the local representatives of the Labor Department and indicated their readiness to accept men and their arrangements to do so, insufficient time for the selection delayed the local agents. The first men to be accepted for enrollment by the Army were received from the Labor Department on April 7.

Now at this time, when the first increment of 25,000 men came marching in, the Army's mission was definitely limited and was to terminate at the earliest practicable moment. After receiving the men, enrolling them, initiating their records, organizing them into units, clothing and equipping them, the Army was to transport the unit to the railheads near the forest project and there turn them over completely for future administration and care to the United States Forest Service or other federal agency employing them. In all prior interdepartmental conferences no more had been asked of the Army. The earliest possible termination of the Army's contact with the effort had been sought. While this was in complete accord with the Army's hopes and purposes, interfering to a minimum with its missions under the National Defense Act, no such expectation was contemplated as probable. A Staff officer with experience during the World War with the Spruce Production Division in the Northwest where a similar problem of Army control and work in the field under civilian supervision had been presented was at work on regulations to control the effort of the Army and to define the relationships between departments when and if the tasks of the Army were extended to the administration, supply and care of these men throughout their service.

True to that estimate, the War Department General Staff representative was called to the White House on the night of April 8th. Mr. Howe proposed that the Army continue to exercise control over all matters except technical supervision of the work itself. The General Staff officer presented every argument opposed to such an increase in the Army's functions. The answer was, "You have given all the reasons in the world why the Army should do this job. As a matter of fact, all the reasons you state show that nobody else can do it." Decision, however, was reserved until the Secretary of War could see the President. The Army got the job on April 10th.

Again General Staff planning and preparation met the situation. The ground work had been laid. Work without regard to hours that week-end produced a set of regulations ready for issue that Monday morning and estimates of costs on which to requisition the necessary funds. These regulations of April 5 and April 19 have, with but minor changes, governed the War Department's administration, supply and care of the Civilian Conservation Corps ever since.

In Washington the period from April 6 to May 10 was one of delay and confusion. On May 10, a total of but 52,000 men were enrolled, an average of 1530 men per day; 42 work camps had been established. Projects had been generously approved in the Rockies and Sierras, but few were available to employ the men in the East and Central West. On May 1, out of a total enrollment of 38,500 men, there were 18,700 men for whom there was no forest work within their own states, or those nearby. Unless work camps were developed in the great region east of the Rockies, it was evident that either a vast movement of men would be necessary across the continent or the Civilian Conservation Corps would find its ceiling at about 100,000 men. Authority was not decentralized. Money was allotted for short periods only. Restrictions were placed on purchases of new supplies and equipment. Thus, on May 3, a chart in the General Staff forecasting the effort under the conditions then prevailing bore curves showing a probable total of 115,000 men by July 1 and a probable occupation of 375 camps on that date. A result far short of the President's announced intention of having 250,000 men in the forests by early summer was clearly indicated. The truth of this became increasingly evident. On May 10th, the Director asked the War Department to present on May 12 its plan and requirements to meet the President's objective of enrolling the full quota of 274,375 men and placing all Civilian Conservation Corps organizations in camps by July 1, 1933.

To the War Department the difference between the hope and the normal expectation was very real. To accomplish such an objective meant having the full number of men in hand by June 7, allowing two weeks for their reception and organization and one week for their transportation and establishment in camp. The task assigned contemplated the reception of an additional 222,000 men by June 7, at an average daily rate, if initiated by immediate decisive action, of 8,540 men, the complete organization and equipment, including the necessary motor transport, of approximately 1200 additional company units by June 24 at the rate of 27 per day and the establishment of approximately 1300 work camps by July 1, at the rate of 26 per day.

The rate demanded per day was greater than the average for the United States during the World War for both Army and Navy combined. With all the vast organization of the Selective Draft, the many large divisional cantonments, a nation's purse wide open and the removal of many restrictions governing contracts, an average rate of 15,000 men per day obtained for only two months during the war period as the peak of the effort.

With men coming in at the rate of 8540 men per day, there would be approximately 60,000 men in reconditioning camps at the end of the first week, 120,000 at the end of the second week and, if none were moved, 180,000 men at the end of the third week. The capacity was 100,000. The men would have to be moved out to work camps promptly within ten to twelve days. The flow of men in and units out would have to be as uniform as possible. At that time it appeared that it would be necessary to transport 155,000 men outside of their own states an average distance of 2200 miles. They would have to be completely clothed and equipped

to be self-sustaining units with the necessary motor transport so that when set down at some distant railhead they could eat and move. Their supply, therefore, was the critical element entering into the problem. There could be no delays. Requisitions for supplies to be delivered at distant points,—efforts of the federal coordinator to procure surplus stocks,—and advertising for bids on materials,—could not equip a unit with the necessary dispatch and did not meet the situation. War-time authority for open market purchases was necessary. Wider authorization to subordinates to sign vouchers for services and supplies had to be given upon which payment would be made without question; necessity being the only governing consideration. Certain restrictive Executive Orders governing procurement would have to be rescinded. The wide authority granted the President by the Act of Congress, Public No. 5, 73d Congress, March 31, 1933, would have to be exercised with war-time vigor and freedom, waiving all the restrictions of peace-time procedure governing bids, contracts, deliveries and open market purchases. Repeated conferences relative to the purchase of trucks and the use of obsolete equipment would have to be translated into immediate authority to the Army to purchase 2700 light trucks, 300 light passenger cars and 250 ambulances.

Construction offered no problem other than that of increased expense. If men were to be jammed through our reconditioning camps filling them to a peak load of 100,000 men, more than twice the costs would result for shelter than if the rate of selection were cut one-half. Again peak loads at reconditioning camps would overload station hospitals requiring the use of civilian hospitals at greatly increased cost. A higher sick rate was definitely to be expected.

Up to May 10 approximately 1,060 projects had been approved. An additional 250-300 would be required. These would have to be approved and made available to the War Department by June 1, 1933.

At that time the distribution of approved projects indicated that a vast movement from east to west would be involved. Approximately 155,000 men for whom there would be no work provided within their own states would probably have to be moved. Jobs for 95,000 of them were in the Rockies and the Pacific Coast ranges. It then seemed probable that most of the additional projects would be in the same region. The center of mass of these 155,000 men would be in Ohio. The center of the work would be in Nevada. In the space of four weeks an army of 220,000 men was to be recruited, organized within six weeks and moved (150,000 of them) within seven weeks a distance of 2,200 miles. Few military campaigns have equalled such a performance. To the Army it offered a real opportunity.

Its fulfillment would require the immediate issue by the Director of a National Plan directing in detail all movements to be made or his decision authorizing the War Department to move units to all approved projects without further reference to him. It would require that no limitations be placed on the enrollment in any state or corps area of the quotas already set so that all corps area commanders might exert the maximum effort to process, organize and move their full quotas smoothly and on time.

In such an effort so closely approaching war-time conditions, confusion and hardship were bound to obtain. Men would not be completely equipped; food initially would often not be well prepared; an eight hour day could not be observed in the early efforts of moving from railhead to camp and establishing camp. Fatigue would be great; morale would be low. The basic faults of organization and discipline in the Civilian Conservation Corps were bound to create difficult situations for the various commanders to handle. The system did not sufficiently support them. A unit of 200 men all receiving the same pay, recognizing among themselves no seniors, is faulty in the extreme. A system that provides no proper basis of discipline, without delegated power to fine and to punish, could not cope with the situation. It was apparent that an Executive Order was necessary providing for increased pay and grade for a definite group of foremen among the men and authorizing the application of disciplinary methods and the conduct of hearings upon offenses with authority to company commanders to fine up to three days' pay per month. Similar conditions have made necessary such a solution in military commands. This effort closely paralleled an army in the field.

Many complaints would come in. Investigation, however, would normally have to be waived or delayed. The Corps Area Commander would need all the help that could be given him and should be harassed as little as possible.

On this estimate of the situation, the War Department concluded that it could fulfil the task proposed, provided:

a. Decision were made at once to order its execution;

b. The Director would issue at once a National Plan indicating all movements to be made or else delegate to the War Department authority to order units moved to all approved projects;

c. The Director would approve before June 1 an additional 290 projects;

d. The Director would rescind his instructions to the Secretary of War in letter dated May 1, 1933, secure the cancellation of the Executive Order of May 8, 1933, and obtain the signature of the President on an Executive Order before May 15 waiving all peace-time restrictions covering bids, contracts, deliveries and open market purchases and authorizing the exercise of the fullest possible freedom in purchase, similar to that obtaining in time of war;

e. The Department of Labor would initiate at once and maintain a flow of 8,540 men per day certified for acceptance to the War Department, completing its selection of the full number of June 7, 1933;

f. The Department of Labor would regulate that flow according to the approved quotas evenly by corps area and by state throughout the period

so that each corps area could meet its proportional part of the task on time;

The War Department felt that it would be greatly aided in its task by an Executive Order authorizing that not more than 5% of men be paid $45 and that not more than an additional 8% be paid $36, and definitely delegating the disciplinary powers outlined above to the company commander.

It was evident that to speed up the effort to almost six times its former rate would require action and decision, that the delays, the conferences, the repeated reference of details to the White House and to the Secretary of Labor, the bickerings over every requisition for funds, the petty interferences to placate the selfish and to quiet the solicitous could no longer govern the effort.

With less than 40 hours available from the notice of the Director of his desires until the time for submitting the War Department plan to meet this task, the three sections of the General Staff assembled data during the daylight hours of the 11th of May and that night a lone officer assembled it in a Memorandum to the Director of Emergency Conservation Work, giving the facts here presented, drawing the conclusions here stated and closing with the recommendation which a sleepy-eyed girl pounded out on her typewriter at 2:00 A. M., May 12:

"It is therefore recommended that if the decision is to place 274,375 men in work camps by July 1, 1933, the Director give the War Department its full mission at once, provide the means for its accomplishment and then protect it from all interference. The means to be provided are:

1. $46,000,000 to be transferred at once.
2. An Executive Order waiving restriction on purchases.
3. The necessary instructions to the Department of Labor covering selection."

At the Director's conference at 10:30 A. M., the War Department memorandum met immediate support from all members of the Advisory Council and strong recommendation was made to present it at once to the President. Shortly after noon it was in Mr. Howe's hands with the Director's Council crowding his room. Advisers were called. They were as one in stating that if the job were to be given to the War Department it would need the powers sought. The Director of the Budget arrived and after reading the memorandum announced to Mr. Howe that it was a matter of higher policy that only the President could decide, that the task unless modified would require the means the Army proposed. Mr. Howe and Mr. Douglas went in to see the President and a few minutes later, at 2:00 P. M., came out with his approval.

It was a momentous day. In a few hours more had been accomplished than in the previous month. A clearcut decision on a definite plan to fulfill a task, the complete definition of which was positively ordered, electrified the whole effort. The old order had changed. That afternoon all Assistant Chiefs of Staff, and Chiefs of Services met in the office of the Deputy Chief of Staff. The new mission was given, stirring everyone. Plans and action for the field were required by the next morning. That night instead of a stray light here and there the War Department's windows were ablaze. The big machine was rolling in a war effort. The Army was under test but what a grand opportunity the task offered.

From that day to this, when the successful completion of the assigned task is reported, all effort has been devoted to its execution. The conditions that the War Department set as necessary were all met; friction and delay ceased, accomplishment only fills the record.

On May 16 enrollment jumped 5,890 men to a total of 62,450, the next day added 8,100 men, the next, 10,500. On June 1 a peak daily enrollment of 13,843 men was reached. The average daily gain in actual strength for this period was 8,700 men. During part of May, 150,000 men were in reconditioning camps being organized and equipped for the field. More than the quota of 274,375 men were enrolled. Of these, after deducting losses from all causes, some 250,000 now occupy 1330 work camps in the forests of the country. 55,000 men in 335 companies were transported from the eastern corps areas to the mountains of the Ninth Corps Area.

Some conception of the undertaking can be gained from the following brief report of The Quartermaster General which pictures some of the high lights of his effort:

"The task of the Quartermaster Corps of the Army, in connection with the enrollment of the Civilian Conservation Corps, is to feed, clothe, equip, shelter and transport the young foresters. To do this, all Quartermaster Corps facilities have been taxed to the utmost, particularly during the peak of the enrollment in the last week of May and the first week in June.

"In performing this service, the Quartermaster Corps made the fullest possible use of existing Army stocks of clothing, bedding and tentage. Military uniforms, of course, were not suitable for issue to the civilian members of the Conservation Corps. However, it was possible to alter this clothing so that it was not of a distinctive military appearance and to issue the clothing so altered to the foresters.

"It was also discovered that the army possessed considerable stocks of underwear and outer clothing too large for the forestry recruits. This clothing was cut down to meet requirements in smaller sizes. Although the peak of the enrollment was in the early summer, it was found that at many work camps cold weather was encountered and that overcoats were necessary. Military overcoats were altered to make them suitable for civilian wear.

"Alteration of this clothing was done very largely at the factory of the Philadelphia Quartermaster Depot. Civilian contractors hesitated to bid on this class of work. It was fortunate that the army had a facility available to perform this work with sufficient rapidity to meet the needs of the Conservation Corps. The personnel at the factory was increased from 854 to a peak of 2,004 during the greatest rush. Alterations were made at the factory on nearly 200,000 wool coats, 225,000 overcoats, 200,000 trousers and 375,000

pairs of drawers. At the depot about 100,000 barrack bags were made, and the manufacture of tents is proceeding at the rate of 75 per day.

"The Quartermaster Corps also awarded contracts for the purchase of 2,500,000 yards of denim, 785,000 summer drawers, 185,000 denim hats, 1,000,000 jumpers, 28,000 overalls, 700,000 denim trousers, 525,000 wool trousers, 1,150,000 summer undershirts, 500,000 pairs of shoes, 250,000 canvas cots, 475,000 bath towels, 685,000 face towels, 300 motor ambulances, 300 passenger cars, 3,000 motor trucks and large quantities of other items.

"Each day the army expends nearly $85,000.00 to feed the hungry forest workers. The foresters are given the same food supplied the Regular Army soldiers. Much of this is purchased locally in the vicinity of the work camps. Each day these civilians consume the beef procured from about 330 steers. Each day they eat nearly 225,000 one-pound loaves of bread.

"The men are sheltered for the most part in tents, but in some points where cold weather is expected early in the fall, as, for example, in Maine, it is contemplated constructing temporary wooden barracks. Most of the tents in use are floored. Arrangements are being made to pipe water into the camps from springs or streams or to sink wells. Water heaters are being provided for the shower baths. It is planned to furnish electric lights either by connection with nearby power lines or by the installation of small generating sets.

"Movements of foresters from point of enrollment to conditioning camp were made largely by regular and special railway trains, though for local movements and very short trips busses were sometimes used to carry the men to the army stations where they were equipped and prepared for dispatch to work camps. Movements of work companies to forests were made almost entirely by rail. The greatest movement was from conditioning camps in the east and the middle west to forest camps in the far west, particularly in the states of California, Washington, Oregon, Idaho, Montana, Wyoming, Utah and Nevada.

"Transportation of foresters in cases where the point of departure and the destination were in the same army corps area was handled by the Corps Area Commander who made all necessary arrangements with the transportation companies. Movements from one corps area to another and movements within a corps area when sleeping car accommodations were involved, as, for example, in Texas and other points in the Eighth Corps Area, were handled by The Quartermaster General. During the enrollment period, 211 special trains were handled by The Quartermaster General. These trains carried a total of 64,196 men in 1,605 sleepers and coaches. Of the total number thus transported, 55,130 were sent to the far west. Approximately 200,000 conservationists were sent to work camps in the vicinity of the points of enrollment."

The mobilization of the Civilian Conservation Corps with time as the essential element in the execution of the task has been the most valuable experience the Army has had since the World War. It has tested the organization of the War Department and of the Corps Areas in responding to a mission very similar to mobilization for war. From results vastly superior to those obtained during the early period of the World War certain conclusions are inescapable. They are:

a. The General Staff has justified itself as a planning agency. It has foreseen every call made upon the War Department for participation in the Emergency Conservation Work program and has been ready to direct the immediate response to every such demand.

b. The organization of the United States into Corps Area Commands has proved sound. The ability of the Army to take so huge a task in its stride scarcely attracting the attention of the country or of the press has been due to the decentralization of effort to nine small war departments, each more efficient than that in Washington at the outbreak of the World War. Thus the General Staff has supervised and coordinated, announcing basic policies to govern, setting forth missions, providing needed assistance but delegating execution of all details to the nine Corps Area Commands, and refraining from all interference therein.

c. The war stocks of equipment of all kinds gave ample testimony of the need to maintain such reserves. The speed with which units were organized and dispatched could not have obtained without kitchen ranges and gear, mess kits, tentage, bedding, clothing and the like ready in stock for immediate issue. In many items the Civilian Conservation Corps practically exhausted that reserve and had the numbers been greater embarrassment would have resulted.

d. It is necessary if the Army is to exert its full power of accomplishment in any emergency that it be given a clearly defined mission, the means and the authority to execute it and be protected by the Executive from all interference.

WORDS, *unsupported by armed forces, are of little avail in international affairs.*
—MITCHELL.

The Army and Reforestation

Extracts from Statement Made by General Douglas MacArthur, Chief of Staff, U. S. Army, Before House Committee on Military Affairs, April 26, 1933

THE directive with reference to the reforestation work was given by the President to me personally. I expressed to the President my conclusion that the Regular officer corps was not sufficiently strong to carry out its military mission properly and still handle these reforestation camps; that it is almost essential to use others in addition to the Regular corps. He recognized this necessity. Upon my suggestion, he approved the use of Reserve officers, not only because of their qualifications for the work, but also because such a policy would give Reserve officers individual training in leadership, which they do not get in our training system. There are no Reserve troops, so Reserve officer training is largely academic and theoretical. They do not get actual practice in leadership, or experience in handling large groups. National Guard officers already receive this practical training.

In approving the suggestion, the President added the proviso that the number should be held down to the minimum and that junior officers should be used both for reasons of economy and in order that the benefit to the government would endure the longest.

The actual limitation that I suggested, and which he approved, was that in each camp there should be not more than three line officers—one captain and two lieutenants—and, in addition, that for every thousand men in the civilian conservation corps there should be not more than three medical officers.

The general plan for the set-up of the conservation corps is this: There are to be 250,000 men enrolled. They are to be assembled on Army reservations for general processing, conditioning and preparation to go into small camps. In each camp will be about 200 men. Camps are to be established, as far as possible, in National and State forests, and there will be 1,250 of them. Thus there will be 1,250 new villages, spotted throughout the United States. Systematic arrangements for the control of these groups—their supply, their hospitalization, their general welfare—amounts practically to a mobilization. It would be no more difficult to mobilize 2,000,000 in larger camps than to mobilize 250,000 broken up into small detachments.

The camps are off center. By that, I mean they are generally some distance from railway terminals, so that questions of supply, water, sanitation, and of everything appertaining to their well-being and upkeep become very difficult matters indeed. And it was practically impossible for the Regular Army corps to do that and to carry out at the same time its mission of preparedness in case of real military necessity.

There would not be more than three officers with each camp, aside from the medical officers that go with them. But that is not the limit, because supply systems must be set up to support the camps; purchase of commodities, movement of freight, and similar services must be provided for. It is no child's play to take 250,000 men and scatter them through the wilderness in this way. So that several thousand officers will be indirectly connected with this project, to form what might be called its S.O.S. organization.

At present, they are enrolling the men by increments. Recruitment is under the control of governmental authorities other than the War Department. The first increment was 25,000. We are prepared in the Army to take care of the full 250,000 at any time, or at any rate of recruitment, but there are other factors that apparently enter into the situation. Assembly points are not always in the same States with the work points. They have allocated to the States, on a proportionate basis, the number of men that will be assembled; but the work points cannot be distributed on the same basis. There has been some difficulty, I believe, in bringing into a State, where they already have unemployment, men from other States.

The command of the camp will be entirely a responsibility of the military; but the work to be accomplished is exclusively a responsibility of the department of the Government which carries on that activity. At eight o'clock in the morning, we will say, the men are assembled by the camp commander and turned over to the using service. The Forestry Service, for instance, will have their technical foreman ready to take charge. We turn the groups over to them, and they take them out and are entirely responsible until they check them back to us, say at five o'clock, and then the military again assumes responsibility. In case of emergency, such as a riot or anything like that, the military commander is supreme.

These men are not subject to courtmartial, nor to the same laws and regulations as are soldiers. But they have signed up an agreement that they will obey the normal rules and regulations, and if they do not we have authority to send them home. We have had very few discharges. When I say that I do not count a great many men that have walked out. There were 218 men in one assembly camp that got three or four good meals and a couple of nights' rest, and then, when the camp got ready to work, they said that was enough.

The men in general are of good type. I have inspected some of the camps. Age limits have been fixed between 18 and 25, and so far they run toward the lower bracket. The average age at Meade (about 2,500 men were there the day of my visit), ran below 20 years, and nearly 90 per cent of them had never had a job in their lives. They were men who had finished or quit school and never had had their chance for employment.

The Coast Artillery Board

By Colonel A. H. Sunderland, CAC

CONSISTENT readers of the COAST ARTILLERY JOURNAL will note that about every so often some member of the Coast Artillery Board allows the spirit to move him to write an article concerning this Board. In the issue of June, 1924, Brigadier General H. J. Hatch, then Colonel and President of the Coast Artillery Board, published a history that is very complete as to dates and development. In the issue of February, 1929, there appeared another article entitled "The Coast Artillery Board and Its Work," written by Brigadier General W. E. Cole, then Colonel and President of the Board. I will attempt to set forth what the Board does, how it does it and give a very elementary discussion of Coast Artillery problems as of today.

As General Hatch states, the Artillery Board was established in 1866, but there have been since that time, in addition to other vicissitudes, two lapses in its operation. One lapse extended from the very inception of the organization at least, until 1870. Of course, there was no Chief of Artillery in those days and General Hunt, President of the first Board organized, because he had been given no projects to report upon, felt the Board had been neglected and, among other things, said, in a letter dated November 5, 1870, "I have inferred that so novel an innovation on the customs of our service as having a recognized artillery authority, of allowing spontaneous action to artillery officers on questions relating to their own arm, had been speedily repented of and abandoned, with somewhat scant courtesy, perhaps, toward those who composed the Board." From my study of the files of the Coast Artillery Board, I think the entire letter, from which the above is quoted, is one of the finest examples of a certain use of the English language that has ever emanated from the Coast Artillery Board. In the sentence quoted appears the germ that thirty-one years later had so developed that there was produced a "Chief of Artillery," causing the Artillery to be the first of the combat arms to have a chief.

Another lapse in the activities of the Board was during the World War. Developments were too rapid during that period to await the mature deliberation supposed to be given to each subject acted upon by the Board.

During the World War the activities at Fort Monroe and Camp Eustis were combined into one organization called the Coast Artillery Training Center, which carried on until early in 1920. From soon after the Armistice until the disappearance of the Training Center, the Coast Artillery Board was a part of the cumbersome staff of that Center.

The Board now consists of officers detailed for no other duty than that connected with the Board and such has been the status for a number of years. However, from personal memory, I recall that, as late as 1911 the members of the Coast Artillery Board were on duty as directors, Coast Artillery School, and as fire and battery commanders in the Harbor Defenses of Chesapeake Bay, then called the Coast Defenses of Chesapeake Bay. The Secretary of the Coast Artillery School was the recorder of the Board and the Board room was the one in the present Coast Artillery School building now used as an office by the executive officer, 3rd Coast Artillery District. From that time, and even before, until about 1917, there was employed a civilian assistant to the Board who was designated a "Computer." His duties included ballistic computations for range tables, correction curves for the Pratt Range Board and similar work. This gives a rough idea of one line of work done at that time. Of course, then, as now, the most essential feature of the work of the Board was the testing, under service conditions, of various devices submitted.

Probably the shortest way to describe the Coast Artillery Board is to say that it is an adjunct of the Office of the Chief of Coast Artillery. All work is assigned by the Chief of Coast Artillery and no work taken up by the Board is carried to a conclusion or even very far without his approval. This latest statement should not be interpreted as preventing any person from corresponding direct with the Coast Artillery Board. Note the invitation appearing in each issue of the JOURNAL at the head of "Coast Artillery Board Notes."

Ever since 1868 the home station of the Coast Artillery Board has been Fort Monroe. From time to time it has been more or less blended with the Coast Artillery School and, according to the information appearing on the fly-leaves of certain issues of the COAST ARTILLERY JOURNAL, that periodical was published under direction of the Artillery Board from 1902 to 1906, inclusive. The Board is one of the few organizations in the Army that has not managed, since the War, to add feathers to its own nest by procuring housing facilities other than a war-time barracks building.

It would appear that there are three major reasons for having the Board at Fort Monroe.

a. The facilities afforded by a large garrison and a mass of artillery materiel at the post.

b. The presence of the Coast Artillery School, the submarine mine depot, and a large number of representative officers of the Coast Artillery.

c. The economy of providing for officers on the post rather than in the city.

Individual members of the Board are sent from time to time to the Aberdeen Proving Grounds and manufacturing establishments to observe tests or processes.

Occasionally, officers go out on Naval vessels to observe tests of armament. The personnel of the Board is carried, for administrative purposes, on the rolls of the Coast Artillery School and all communications between the Chief of Coast Artillery and the President of the Coast Artillery Board pass through the office of the Commandant of the School.

A minor point that may be of interest to some readers is the internal organization of the Board, in which, naturally, an attempt is made to fit the Board to its work. Almost every problem taken up can be classified rather definitely as Harbor Defense, Antiaircraft, or Electrical. These classes are self-explanatory, but the Electrical class includes problems under submarine mines, subaqueous sound ranging, and communications. This latter involves radio, telephones and continuous transmission devices. Of course, all these classes blend into one another, but it is found necessary, in order to solve proficiently all the problems submitted, to have one or more officers particularly proficient in each one of the three classes. The Coast Artillery School is organized along very similar lines and, in this connection, it might be stated that the Commandant and the individual members of the staff of that School render valuable assistance by cooperating with the Board.

Within the Board, a problem is generally assigned to a committee of three. It is the duty of the chairman of such a committee to look up all pertinent information on the problem assigned, to prepare outlines for and supervise tests, if such be necessary, and to prepare a draft of the report. The other two members then scrutinize the report and cause it to be made a report by a committee rather than a report by an individual. That draft is then circulated and before it is forwarded is concurred in by each member of the Board, except in the rare case in which a member may desire to submit a minority report. In addition to this arrangement, an executive officer or secretary attends to administrative work and assists in the preparation of reports.

The more important problems undertaken are called projects and are numbered serially. Project No. 1 was dated August 13, 1920. The last one undertaken was numbered 965.

Rather recently the Submarine Mine Depot, for years known as the Torpedo Depot and established at Fort Totten, was moved to Fort Monroe and the Commanding Officer of that organization is designated as an additional member of the Coast Artillery Board for all matters of submarine defense.

Another classification of the work of the Board and along another line of cleavage is shown in the following table. The percentage set after each item indicates the percentage of man-hours (more correctly, officer-hours) estimated as expended on each of the classes of work when compared with the total amount of work done.

Tests, (Generally projects)	20%
Review of target practice reports,	20%
Preparation of regulations,	20%
Indorsements and short reports not classified as projects,	40%

The work before the Board at any one time is probably as good an indication as can be found of a single feature that will show the progress of the Coast Artillery. Looking back over the records, it is interesting to see what a struggle some devices and methods went through in being born and adopted, whereas today the same devices are not only standard but fundamental and we proceed as if they had come in at the same time as gunpowder.

Just now appears to be a distinct period of transition. In nearly all fields of human endeavor, so-called technocracy is becoming an important factor. The Coast Artillery is far from an exception. It might be said that technocracy was forced upon our Branch. The now standard system of fire control for seacoast mortar batteries is somewhat complicated, but in an emergency a battery commander could deliver comparatively effective fire with such a battery minus many items of the present standard system of fire control, and a good battery commander should be prepared to thus carry on in an emergency. The commanding officer of an antiaircraft gun battery, without his fire control apparatus, is now almost helpless. He should not be and it is somebody's business, possibly mine, to develop emergency fire control for antiaircraft guns. Since this was written, I note that this problem is being taken up by Ordnance Department personnel. Furthermore, antiaircraft standard equipment is much more complicated than is the standard equipment of the mortar battery commander; the antiaircraft commander is forced to develop firing data and fire within periods of time limited to seconds. The extreme celerity required in the computation has forced the use of machines or mechanical directors. When it was found that such directors could solve the complicated three-dimension, high speed, problems of antiaircraft work, it appeared logical to suppose that a machine of much simpler construction could solve promptly and accurately the problem of seacoast fire. I am not prepared to say that this is the exact line of development as it actually unfolded, but there is an element of truth in it. Anyway, if I were required to state the greatest problem before the Coast Artillery Board today, I would indicate that it is the adoption of suitable directors for fire control, both antiaircraft and seacoast. Bear in mind that this is the general, broad direction of drift. The detailed list of the projects before the Board at any time is to be found in each issue of the JOURNAL.

It appears that the construction of a mechanical director is somewhat like the proverbial snowball rolling down hill—the more it goes the more it grows. The requirements appear quite simple, but when one proceeds to incorporate ideas into machines, device after device is introduced to take care of some refinement that develops. No fabricator wishes to turn out an incomplete piece of apparatus, consequently nearly all directors are so complicated and involve so many separate features that their operation under service conditions is jeopardized. The machines are so expensive and so susceptible to change and improvement that it is impracticable to make them up in large num-

bers and issue them to the service, for after all, the service test, (that is, the actual use by troops in the field in target practice) is the only test that will bring out whether or not it is a practicable instrument from all viewpoints. It is comparatively easy to have the Chief of Ordnance, or some interested inventor, make up some modification of the old system of fire control for test by the Board, but it is a very different proposition to require any agency to make up a machine that may cost thousands of dollars with the risk of it not being at all suited to the requirements of the service.

Just now there is installed at Fort Hancock a beautiful instrument that cost many thousands of dollars. It functions very well in many features but is not considered practicable for issue to the service in general. This instrument is applicable only to the seacoast problem. Several types of directors have been manufactured and issued for antiaircraft fire control. The use of each one of these indicates weaknesses in many points that should be improved. The Government cannot go ahead buying imperfect instruments and it is very difficult to secure money for their improvement. They are so complicated that any improvement generaly involves tearing down and rebuilding the whole structure. If anyone is inclined to scoff at this procedure, his attention might be invited to the development of the automobile which has been going on for about thirty years and in which the problem to be solved is most rudimentary compared to the fire control problem, and technocracy is just starting on our problem. The wearing out of the old one and family pride demand frequent replacement of automobiles. A good director should endure for years and the Chief of Coast Artillery must plead before Congressional Committees something more tangible than family pride in procuring money for new range finders.

Some of the new machines work very prettily and there is every expectation that within a few years the fire control problem can be solved by having each individual of the plotting room charged with no more responsibility than turning a knob to keep two pointers matched. There are two very obvious objections to such a procedure. The processes that simplify the work of the man complicate the work of the machine and the machine becomes a collection of mechanical and electrical features, every one of which is a potential source of trouble, and these machines are like the naughty little girl—when they are bad they are terrible—and (reverting to the machine) the amount of time necessary to make repairs is, of course, most indeterminate. Another disadvantage in extreme mechanization lies in the fact that directors may work so well that all hands will use the machines constantly and consistently at drill and will allow the emergency system to fall into disuse. Now neither of these reasons should stand in the way of the adoption of such devices. Common sense demands that we be equipped with the best available, but neither in seacoast nor antiaircraft can we afford to permit the failure of one link in a long chain to put out of action a powerful gun.

Just now the Coast Artillery Board is starting in on the test of an instrument conceived, designed and built by Captain J. T. Lewis, C.A.C., and Lieutenant G. W. Trichel, C.A.C. This director offers every promise of meeting the seacoast requirements. Compared with the present standard seacoast fire control installation, it looks complicated; compared with other instruments designed to solve the same problems, it is very simple. All concerned have great hopes for its standardization.

While we are calling upon the latest developments of science to help out the seacoast and antiaircraft gun commanders, we cut adrift the poor gun pointer of the antiaircraft machine gun with a bare, sightless gun and tell him to hit the target if he can. He does have the tracer bullet to help him out, but this, in my opinion, is a very slender reed upon which to lean. This is one way of stating what I consider to be the problem of Coast Artillery work farthest removed from solution, and I am not prepared to say that the problem cannot be solved.

In general, I believe it can be said that the work of making tests is gradually, very gradually, falling off in the Coast Artillery Board work. This is a trend I do not favor and I will take it up later in this paper. Normally, a device for the Coast Artillery is manufactured by the Ordnance Department. Actual fabrication is not undertaken until the specifications are very carefully gone over by the experts of that Department or until the requirements of the Coast Artillery are very carefully set forth by the Chief of Coast Artillery. Of course, he generally uses the Coast Artillery Board to prepare the details of requirements. The finished product is generally given a real test by being issued to several organizations, the commanders of which are required to report thereon.

Ideas and principles that are entirely new are tried out by the Coast Artillery Board. The machinery of the War Department is now so organized that a very few freakish projects are ever offered to brighten the life of the Coast Artillery Board. It would be a great relief from the monotony of preparing tables and indorsements to go out to see a demonstration by the man who, a few years ago, suggested that the harbor defense problem could be solved by having local garrisons train teams of porpoises so that two porpoises, swimming parallel courses and towing a torpedo between them, would straddle an incoming enemy vessel with certainty and precision.

A large percentage of our tests are checking the accuracy of range finders. Of course, there is no more accurate range finder than the combination of a horizontal base and a plotting board. Consequently, many of the tests are comparisons of results of a new range finder with those of a horizontal base system.

A few years ago the self-contained range finders generally were coincident instruments. The trend just now is to use the principle of the old parlor stereoptican. Our service has been slow in taking up this

method. Good results are being obtained using this principle in range finding, but it is found that only a small percentage of human beings have their eyesight developed along lines that will permit an individual to get the stereoptican effect so completely that he can use these instruments successfully.

In few other places are there as many monuments as in the Coast Artillery when such monuments mark the determination and insistence of some individual that his invention be standardized and used. This introduces a principle upon which the Coast Artillery Board is forced to proceed, and this might be stated as being that no inventor should be allowed to pass upon the merits of his own invention. In general, the present organization of the War Department prevents, on broad lines, the adoption of unsuitable equipment. In a recent hearing before a Congressional Committee, the Chief of Staff of the Army stated: "It (the General Staff) is a great coordinating agency; because of its existence we no longer have the old struggle between fighting arms and supply services. In former times, for instance, fighting arms used to complain bitterly that they could not have the weapons they needed because some technician in the supply service, who had no experience in fighting, decided some other weapon was to be manufactured." For example, there probably will be few disappearing guns mounted in the future.

The Coast Artillery Board should sit as jury and the Chief of Coast Artillery as judge in the case of every device submitted for test. Of course, before a device is actually standardized for issue, the General Staff make such recommendations to the Secretary of War as will coordinate the use of the device with the needs of the other arms and services of the Army.

This leads up to what has been set forth as a weakness in our organization, and such weakness is very minor when compared with some of the deficiencies that existed a few years ago in such organization. The War Department is so organized as to permit of the manufacture of any instrument, utilizing for this purpose the facilities of the Ordnance Department, or of some other supply department, or a commercial concern. The Coast Artillery Board can test the instrument when it is made up. Furthermore, the device having been issued for use, the troops in the field will continue to make suggestions as to improvements. But it is held that there is a deficiency of personnel whose duty it is to hunt around and see that effective but less complicated systems are developed or that the latest developments or kinks of science are applied to the Coast Artillery problem. This is a broad statement that does not permit of proof and, if taken seriously, might hurt someone's feelings. Without looking up the exact wording of the Army Regulation, it is safe to say that the Ordnance Department is charged with making nearly all the equipment the Coast Artilleryman uses. That department is most efficient, prompt and accommodating. As far as I know, the Chief of Ordnance, the Chief Signal Officer and the Chief of Engineers have always done everything the Chief of Coast Artillery has asked any of them to do and each has gone much further by making most useful suggestions, but the Coast Artillery is the using service and it might appear that we should block out our own destiny and that the Coast Artillery Board, or some other similar organization, should be working ahead with the view of grasping and applying to our immediate problems new principles as quickly as they are developed, or to be remodeling the old. As good as the manufacturing and development services are, the inspiration should come from the using service. The Chief of Coast Artillery alone is charged with finding out the needs of the Coast Artillery and, from one viewpoint, we do not seem to be organized to give him the maximum assistance in this particular because there is no one in our Corps trying out new ideas. An officer on duty with troops, who is the man that actually uses the equipment already made up or is the fellow that feels the deficiencies of equipment now supplied, rarely gets a chance to do more than make his wants known, and generally he is not able to provide a specific remedial recommendation. If he has a good idea, there are many things standing in the way of his developing it. In the first place, if he is with an antiaircraft unit, his next duty may be recruiting or that of student in a tactical school and it will be years before he can get around again to his idea. Furthermore, if his device is complicated and expensive, he cannot even get the drawings made up, let alone a model. Many a Coast Artilleryman has ideas to the effect that he could produce machines that would be most effective if he only had a chance.

As far as I know, there is no one giving very serious thought to the development of an antiaircraft machine gun fire control system or a high speed radio controlled seacoast target that might be used in simulating a naval run by. Have we arrived at the ultimate in fitting together gun, powder and projectile with a view to reducing the probable errors of heavy armament? Just now reports are coming in to the effect that the Fort Knox exercises developed deficiencies in certain materiel. Who is the Coast Artilleryman that is to grasp this situation and step in to see that the best and most suitable is brought forth?

To over-state the case by homely comparison, it has been said that the tailor not only makes our clothes, but selects the cloth, cuts to his own pattern and predominates at the fitting. We have made our own submarine mine materiel for years and I believe there is a higher percentage of armament advancement in that feature of defense within the last ten years than in any other line. New and pertinent schemes for mines are coming up with great frequency and the Chief of Coast Artillery knows just what is going on.

No one has gone so far as to recommend that the Coast Artillery take over any more or other fabricating services, but it is possible our development organization can be improved because we are not utilizing our talents to the full extent. Certainly, a few men, typified past and present by Whistler, G. N.; the Lewis family, I. N. and J. T.; and Jackson, A. M., might produce, if allowed to devote their entire time to such work, most effective results.

Let the Army Do It!

By Major Nelson Dingley, III, CAC.

THE standard American joke about the brave husband who brought home an unexpected guest for dinner best describes the predicament of the Regular Army with its unexpected quarter million CCC guests. Obviously the army is in the role of the harassed housewife whose thoughts fly to the empty ice box and depleted pantry shelves. To the public and the many Welfare Organizations who recruit these "guests" it is absurdly simple; merely have the man sign his application and give him a ticket to the nearest Army Post, and the Army will do the rest. Could anything be simpler?

But that ain't the half of it, to use the vulgar jargon. The "guests" arrive in groups, droves and legions, and the supply seems endless. All are ravenous, many are poorly clad, unwashed and suffering from a variety of ailments. Each one is a fellow human, a fellow citizen and from both the humane and legal standpoint entitled to all care and attention we can give him.

Reverting to the housewife parallel once more, the unexpected dinner guest has announced that he will stay for two weeks. This news is something of a bombshell to the mistress of the quiet and well ordered home, because she is instinctively hospitable and wants her guest to feel that he is welcome, but she has a large family of her own and their demands on her time require long hours of each day. How can she devote herself wholly to her house-guest as she desires without neglecting her children? What sort of mischief will "Bobby" and "Johnny" get into if they are left to themselves without her ever watchful eye? Will the older children learn their lessons and progress in their training if she neglects them? Where may this guest sleep with the greatest comfort to him and the least disturbance to her own family? These and many other problems flash through her mind as she graciously presides over her table with no outward indication of the inner turmoil for fear that she will fail as the perfect hostess and the guest become ill at ease.

Thus we see the Army today. The training of the

The new Forestry Army leaving Fort Monroe, Va., for their battle with the forests. The Second Coast Artillery Band, in the background, pausing between numbers of their farewell concert to the young men from Pittsburgh.

soldier must continue; training schedules must be maintained; troops must be dispatched to the foreign stations; target practices must be fired; Citizens Military Training Camps must continue; ditto for the Reserve Officers Training Camps, and the Organized Reserves, and so on far into the night to quote "Mr. and Mrs." of the comic sheet. These are our legitimate children, and we must not neglect them and we must not neglect our guests. It is our problem and we are doing our durndest to do both jobs gracefully.

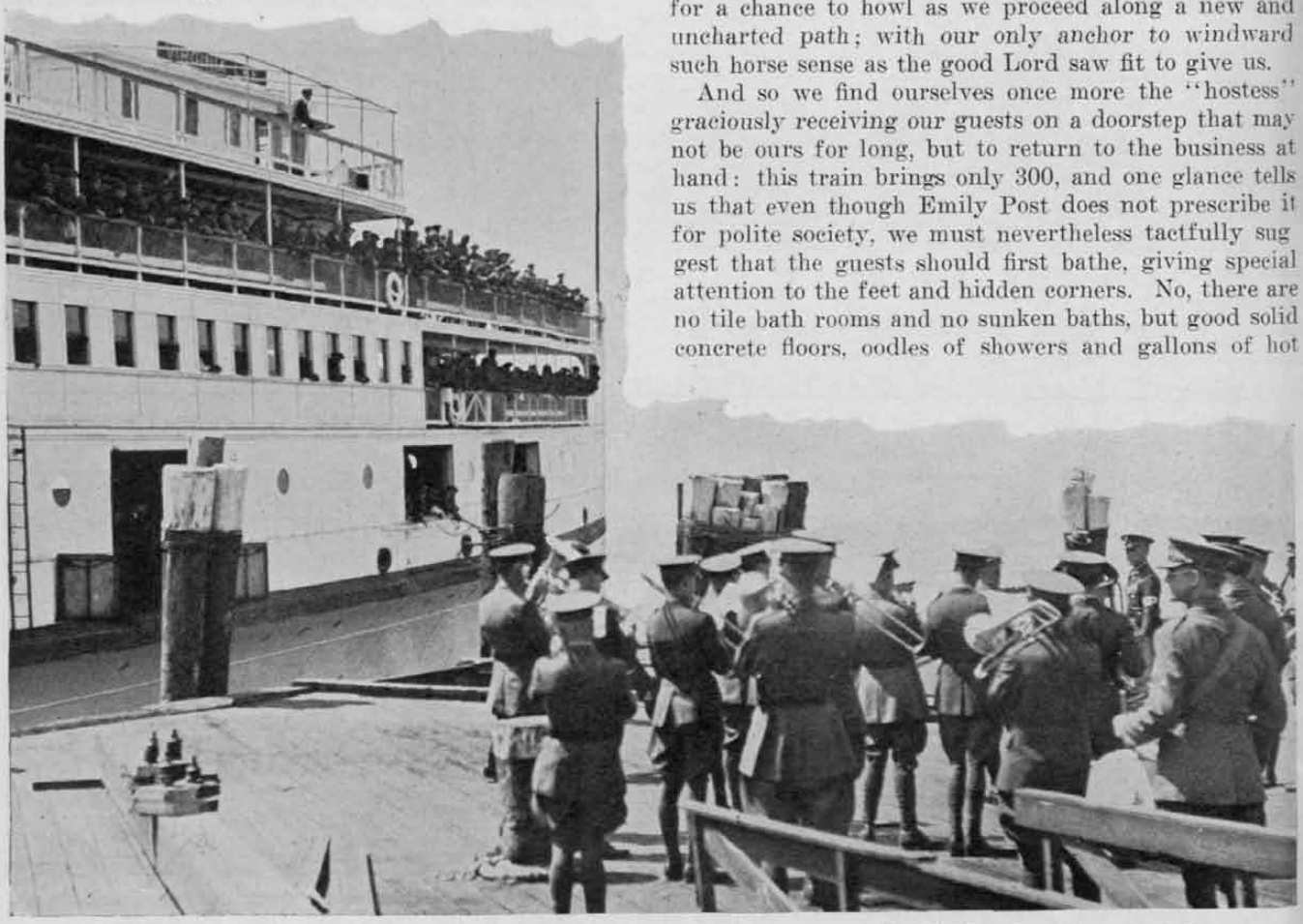
This problem so lightly dismissed by the uninformed is mountainous and at the same time deeply interesting to the army man whose business it is to know men and their whims. The only parallel to the present situation in the history of our country was the incoming draft army of 1917-18; only this is more of a problem because of the simple fact that these CCC men are still civilians and are not subject to the Articles of War, which is the "big stick" so easily wielded when necessary in the handling of soldiers.

In this situation we must seek our goal by devious routes rather than the direct one. We must sell ourselves as individuals to this rapidly changing mass of humans who in two short weeks must be sent to the reforestation camps as trained, organized and self-sustaining units. The only discipline we are able to inject into these youths is through appeal to their manhood and self-respect. The last resort is dismissal from the camp. Scoldings and denial of privileges are in exact proportion to the amount of this the individual concerned is willing to accept. If he doesn't like this and doesn't like that he is quite free to leave, but of course the knowledge that if he does leave without authority he is dropped as a deserter and may not return, is quite a deterrent.

Then too, in seeking to make well ordered organizations of 215 men each, out of these men, we must guard carefully against the charge of making soldiers out of them. It is astonishing and a little discouraging to learn how many of our people regard the Regular Army personnel as bloodthirsty warriors who consider their sons only as so much cannon fodder. Of course that is nonsense, but such assurance does not calm their fears. We who handle men in bulk every day of our lives know that orderly ranks and a common language are the only efficient means of handling them whether they be a civilian corps or a military corps.

With this policy honestly and sincerely foremost in our minds we are teaching them to form ranks; to "right face" and "left face"; to change direction, and to execute the simplest manoeuvers—such, for example, as will enable them to reduce the width of their column in passing a vehicle on a narrow country road. It is sort of a case of damned if you do and damned if you don't, with the efficiency experts on one side and the pacifists on the other, each looking for a chance to howl as we proceed along a new and uncharted path; with our only anchor to windward such horse sense as the good Lord saw fit to give us.

And so we find ourselves once more the "hostess" graciously receiving our guests on a doorstep that may not be ours for long, but to return to the business at hand: this train brings only 300, and one glance tells us that even though Emily Post does not prescribe it for polite society, we must nevertheless tactfully suggest that the guests should first bathe, giving special attention to the feet and hidden corners. No, there are no tile bath rooms and no sunken baths, but good solid concrete floors, oodles of showers and gallons of hot



The Second Coast Artillery Band playing a farewell concert as members of the Pittsburgh contingent of the new Civilian Conservation Corps leave Fort Monroe, Va., for their new work in the Allegheny National Forest.

One Company of the Pittsburgh contingent of the C. C. C.'s at Fort Monroe on their way to draw more clothes before leaving for their new forest camp. They have had just enough military drill to enable them to move from place to place in some such fashion as this.

water with plenty of soap and gorgeous great big Medical Department turkish towels. With some this experience is a bit of a shock, but they are willing to learn and agreeably surprised to find that there are no evil after effects. In some cases where the running gear or the under side of the fenders has been slighted, the operation is repeated and the original finish shines forth in all its pristine glory. From the baths we proceed to the clothing room, where each guest is outfitted from the skin out with clean clothes, some new, and some class "B" as we call it, but it is all serviceable, comfortable and CLEAN.

Don't think for a minute that all this is drudgery because it isn't at all; in fact there is something new and interesting every minute. Many times there is a good laugh, and believe me it is always a friendly laugh with all joining in and never anything that even approaches ridicule. Shoes provoke the greatest number of laughs merely because the youth to be fitted still clings to the city slicker viewpoint of what a shoe should be and the expressions on some faces as they receive the army hob-nail brogan is sometimes ludicrous. They cannot seem to realize that feet grow and broaden with outdoor work, to say nothing of getting meatier with plenty of nourishing food, and they are horrified at the sizes given them. They don't know that the army shoe fitting machine was developed from years of experience of fitting millions of shoes, and even the fact that they must stand on one foot with 50 lbs. on their shoulders while being measured would quite naturally depress the arch and thus lengthen the foot for the moment.

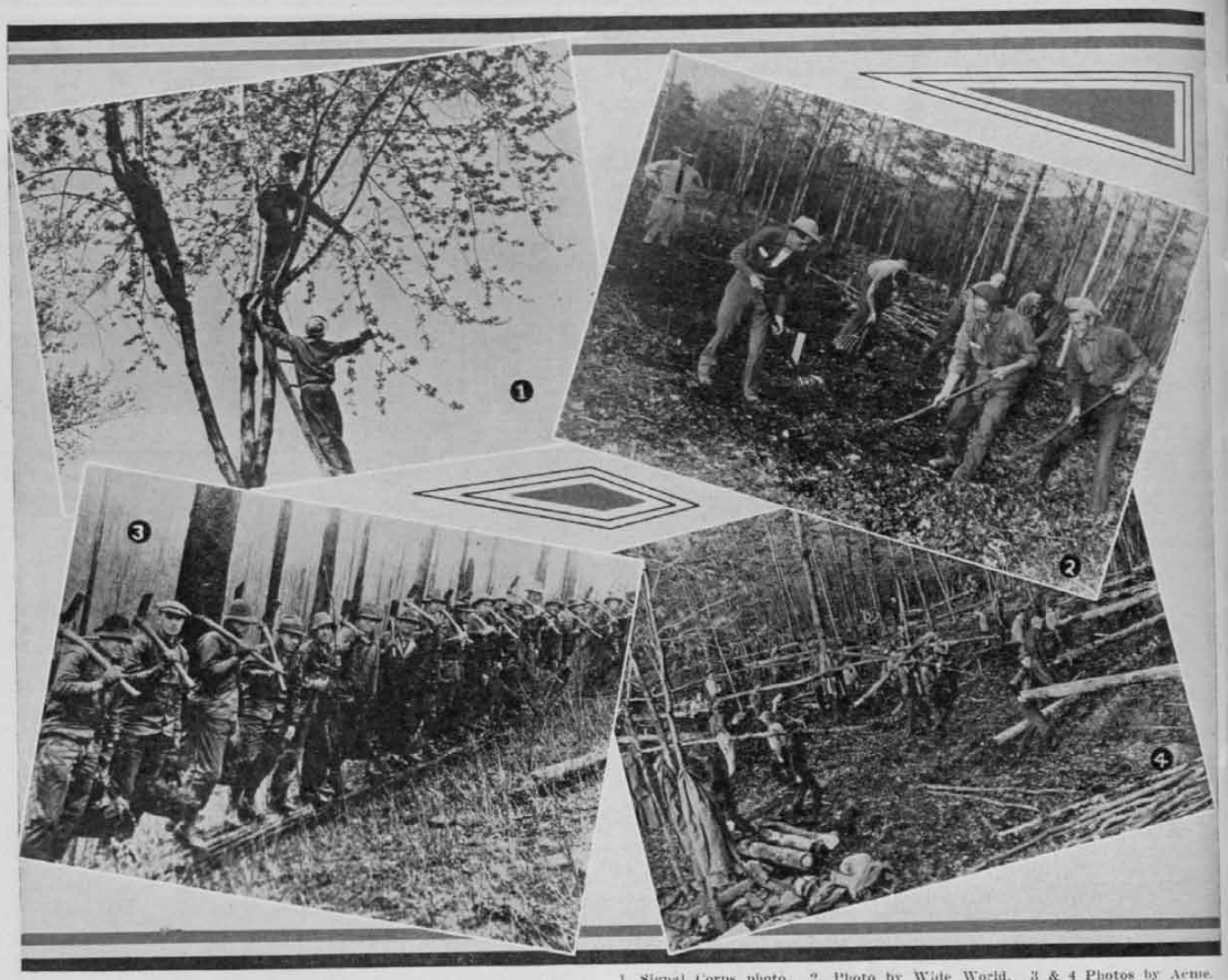
The colored boys are perhaps the funniest because I really believe that they are the most vain. Many of this group have deformed feet and hammertoes because of self-inflicted torture in the matter of foot gear. If you have never seen a size 14-EE in a hob-nail, you have a surprise in store for you, and so thought one of the Virginia darkies who came up to me with the most woebegone expression and said "Boss, I loves my new clothes, I do, jest look at dem shoes."

"Why what's the matter with the shoes?" said I.

"Why, Boss," replied the darky, who was rather diminutive in stature but had huge feet, "sposin a dawg was to chase me—how's I goin' to run?" And so it goes, punctuated with laughs and growls until each man has two of everything with a big dunnage bag to carry it in.

Food is the next event on the program, and how it fades away before the onslaught. Did you ever stop to consider the chore of peeling potatoes for a thousand men? Do you realize that this number of men will consume three quarters of a ton of bread a day, and with it goes 180 pounds of butter, 200 cans of milk and 300 gallons of coffee? What housewife wouldn't be stunned at a breakfast of 1000 oranges, 150 pounds of jelly, 150 dozen eggs, to say nothing of the cereal, bread, butter, coffee and 450 pounds of either bacon or ham? Roast beef for dinner is the simple announcement on the menu, but these thousand men of ours will consume 600 pounds at a sitting and that is a little more than four hind quarters or about a cow and a half in rough reckoning.

If it should be Friday the *piece-de-resistance* is fish, and as Axiom No. 1 is that no man leaves the mess hall hungry, there must be plenty, so we figure on about 1200 fish for the meal and if any Doubting



1. Signal Corps photo. 2. Photo by Wide World. 3 & 4 Photos by Acme.

1. Tree surgery as practiced by the C. C. C. Part of the crew from Baltimore learning practical phases of tree culture at Fort Howard, Md. 2. Luray, Va., after spending two weeks building up their muscles and getting used to outdoor life at Fort Washington, Washington youths are shown clearing up for their tents at Massanutten Mountains. The camp is at Powell's Fort, a spot so isolated that even residents of the highland villages know little about it. 3. A delegation of forest workers at the Columbia National Forest near Yacolt, Wash. 4. Reforestation workers at Camp Roosevelt, near Luray, Va.

Thomas thinks that is no job, let him come around and lend a hand.

To the casual observer it appears that the horn of plenty is flowing over with literally heaps of food dispensed every day, but behind this ample board is a system of rigid economy and accounting that would make a rebel out of the most docile housewife; for bear in mind that all of it must cost no more than 27 cents or 9 cents per man per meal. Every day the inventory of pantry shelves is made and the accounts balanced, and every tenth day is the day of reckoning with the commissary. If we have saved a few dollars of our allowance we draw additional food in lieu of dollars and if we are a few dollars overdrawn, we dig down into our personal pockets to make up the shortage, and in these days of pay cuts, none of us can afford such a luxury. Economy and frugality behind the scenes is our fetish, and woe to the man who wastes food. "Eat all you take" is our motto, and as a result there is less for the garbage contractor and more for the consumer.

If the young mother's patience is tried because little "Bobby" refuses to eat his spinach she would take heart in witnessing our trials when our big "Bobbies" refuse the green vegetables, the roughage and the anti-scorbutics. It would astonish editors of *Good Housekeeping* if they knew how few people have even a rudimentary knowledge of a well balanced diet. Meat, bread and potatoes meets the popular demand, and how outraged and abused they are when we stand over them with a club (figuratively) and make them eat tomato salads, chopped cabbage and mayonnaise, greens, whole bran and the like. Strangely enough the city boys are the most difficult in this respect because they are invariably more undernourished than the country boys. Their idea of a suitable meal three times a day is a "hot dog" and an ice cream cone. Oh yes! there are lots of good laughs, with kidding and joshing of the rebellious one by his own team mates, and thus do we accomplish our purpose.

The next number on the program is the thorough physical examination, followed by an innoculation for

typhoid and para-typhoid and a small-pox vaccination. Here the medical officers step into the picture and another rigid well-planned system starts to function, for each man must be critically examined and carded because the army doctor is responsible that each physical defect that a man may have, no matter how slight, shall be discovered and noted on the man's own card. This is for the sole purpose of protecting the government should this same man at some later date claim that he developed this defect while in the government's service. No man is rejected from the CCC for physical defects provided he is able to perform an honest day's labor. Contagious diseases are another matter entirely and are grounds for rejection for the very obvious reason that a diseased man would become a burden in the forest camp and could infect his comrades.

And so the boys are formed in ranks and marched (apologies to the pacifists who would doubtless prefer a column of mobs) to the hospital. Each man receives a physical examination report bearing his name and the inquisition begins. First the undressing room from which they emerge clad only in a broad grin or a shamefaced smile, depending upon the reaction of the individual, and proceed along the white-robed line of medicos. Some of the colored brethern have panicky recollections of the Ku Klux Klan, but their fears are soon dissipated and the system begins to function.

First comes the weighing machine and the height measurer, and strangely enough this little chore is performed by the Veterinary, but of course they are sublimely ignorant that the horse doctor has been drafted for this job. Why the veterinary you ask? No special reason except that the Medical Department is hard pressed for doctors, and the "Vet" belongs to that corps, and available when they need him. From the tops of their heads to the soles of their feet each man is critically and studiously surveyed and his condition noted on his card with a celerity that is quite astonishing. Here again the contrast between the country boy and the city boy is quite marked, the former almost invariably being the better physical specimen. And how the "darky" excels the white men in the matter of teeth! I don't know why and I should like to be told. It is during the innoculations and vaccinations where the only discomfort comes in, and that is of course trifling, and here again we see an interesting contrast between the States or localities where vaccination is compulsory and those where it is not. Those who had been successfully vaccinated before were almost wholly immune to the second innoculation.

From the hospital and the physical examinations we march back to the camp, eat another meal (as simple as that) and get ready for bed. Some men get the regulation Quartermaster iron bed, others the steel cots and still others the canvas cot with a further non-uniformity of bedding. Some draw mattresses and others straw-stuffed bed sacks, and if this offends some, please remember that our hypothetical housewife is improvising the very best she can to make her very limited supply of sleeping accomodations go as far as she can to care for these unexpected guests, and she cannot afford to buy more. Add to this four army blankets per bed and a mattress cover, a fresh sea breeze right off Chesapeake Bay, a clean tired body with a well filled tummy, and you have sleep prescription that the United Hotels System would pay a lot for. Our original plan was for taps at 11:00 o'clock p.m. but we had to move it up to 9:00 o'clock because they were all in bed and asleep by that time and taps only woke them up.

All hands are alert and eager at 5:45 the next morning when reveille calls "We can't get 'em up,—" (it always has). A good wash (tactfully insisted upon in some cases), tooth brush drill (a novel experience to some) followed by a hot breakfast, and the first day of training begins.

Each group of 215 men under the tutelage of a Regular Army captain or lieutenant assisted by two sergeants or corporals start from scratch, knowing that they will have ten days to two weeks to complete the job. Every subject that will benefit them, and help them to better survive the camp experience and return to their homes as better citizens is hammered into them. Citizenship, patriotism, loyalty, Boy Scout camp essentials, hygiene, oral hygiene, sex hygiene, care of the feet, knot tying, use of blocks and tackle and kindred subjects. Of course this all does not come in one full blast, but is well spread over the training period, and interspersed with "marching" instruction, calisthenics, organized games and educational walks, plus a little work just to give them the honest feeling that they have earned their daily bread.

Being something of a glutton for punishment I am enjoying myself hugely in this new and different kind of work. I have been permitted to surround myself with staff officers who are both mentally and temperamentally qualified for this kind of work, and last but not least I have been very lucky. We have had no disorders and no disturbances. We have, and have had, all types, classes and creeds. Tough guys and Mamma's boys and essentially they are all pretty much alike and can be reached if a little time is spent on each. It's pretty much the case of "The

Army personnel checking the members of the C. C. C. as they start for the forests. Many wanted to remain behind at the post where they seemed to enjoy it.

A group of Pittsburgh's young men at Fort Monroe, Va., with a part of the equipment and clothing that they have been issued while at the historic post.

Colonel's Lady and Judy O'Grady" but sometimes one has to go a little deeper than the skin.

These boys have no knowledge of the army, most of them were infants at the time of the World War. Rank and the insignia of rank means nothing to them. Until they observe and learn, the officers are usually greeted as "Sarge" or "Pal" or "Buddy," much to the enjoyment of the old time regular soldier who is our staunch and loyal ally and entitled to his laugh at our expense if he wants it, and believe it or not he champions our cause and position more than we do ourselves. I sometimes wonder if he is fully appreciated. And it does not take the boys long to get acquainted with the situation. They are young and being young are copyists. Absolutely no effort is made to have them render the military courtesies. It is surprising how many attempt to ape the soldiers and render us a shy salute after they have been with us a few days.

In our talks we do try to teach them the elemental courtesies that are expected in the ordinary walks of life. It is an unpleasant but nevertheless true statement that the average American youth is fresh and permitted too much license, and as we feel that it goes for better citizenship we do teach them that older people are entitled to some deference from youth; that it is good manners to remove one's hat on entering a man's office; that a man standing on his two feet without a slouch presents a much more engaging picture than a slovenly lout; that a direct look into a man's eyes and saying, "Yes, sir," is bound to impress a prospective employer favorably; that it isn't good manners to eat with one's knife or to pick one's teeth with the same implement; that it's nicer to wash ones ears and feet than not to, and many other hints along these lines. If this is militarism and if this is making cannon fodder out of the American youth, then I plead guilty on both counts.

And so the tired housewife's day is done and as she seeks out the one bed she has saved for herself, she wonders how her own children have fared during the day, how far she has succeeded in pleasing her guest and with a genuine heart pang she wonders just why she is not pleasing to her husband who at times does not seem to want her. With these mixed emotions in her mind she prays to the Gods of Chance and the Imp of Perversity to guide her through the days to come, and finally she sleeps.

THE COMMON NOTION *that peace and the virtues of civil life flourished together, I found to be wholly untenable. Peace and the vices of civil life only flourish together. We talk of peace and learning, and of peace and plenty, and of peace and civilization; but I found that those were not the words which the Muse of History coupled together; that, on her lips, the words were—peace, and sensuality—peace, and selfishness—peace, and death. I found, in brief, that all great nations learned the truth of word, and strength of thought, in war; that they were nourished in war, and wasted by peace; taught by war, and deceived by peace; trained by war, and betrayed by peace; in a word, that they were born in war, and expired in peace.*—RUSKIN.

Thoughts on Organization

By Lieutenant Colonel Charles H. White, Infantry

IT is 15 years since the war and we have the organization of that time. By this it is not meant to convey that it is not a satisfactory organization which is incapable of being adjusted to those modifications that changes in weapons and transportation in the past decade and a half may point to.

Events in the war (and since) point to two great influences having a bearing on organization. I refer to:

(1) The desire for more fire power as furnished by automatic fire weapons; and

(2) The desire to make military use of the great advance in motor vehicle possibilities.

The Weapon's Influence on Organization

The first mentioned great influence (automatic fire weapons) is strictly in the field of military development. The second (motors) is mainly in the field of civil industry. Progress is necessarily slower in the weapon field than in the motor transportation line. Considerable progress, however, has been made in weapons but has not reached the point where it is advisable to advocate an entire re-organization of the Infantry upon which the larger units in turn must be re-organized. For the basic increment to greater automatic fire power in Infantry re-organization, the emphasis must be on the light man-carried machine gun and the automatic shoulder-fired rifle. A solution in an engineering sense is in sight for these two. From the supply view it is probable that they will not be produced in quantity until war time, and it will be necessary probably to start the next war using the weapons we now have in quantity.

This fact indicates that our organization from the weapons angle must be based on our present weapons and yet be elastic enough so that with the introduction of similar but better weapons after war starts, it can be adjusted to take these weapons. One illustration will suffice. We now have the automatic rifle in quantity. It is the nearest approach to the light man-carried machine gun. By providing it with a bipod at the balance it approaches the light man-carried machine gun sufficiently so that the organization and tactics of the smallest Infantry fire unit can be developed now. In war with the better gun available we would substitute it for the automatic rifle.

Of course there are other Infantry weapons all having their bearing on organization. A very satisfactory mortar has been developed (81 mm). The Infantry 37 mm. gun is an accurate-shooting small cannon. No satisfactory anti-tank weapon for Infantry use is yet available although advances in ballistics through the Gerlich principle may yet make some of the present weapons fairly satisfactory. As to anti-aircraft weapons, it is believed that our Infantry should rely on its present weapons and that Infantry organization per se is not affected by this item.

To sum up on organization as affected by weapons *alone*: It is possible now to determine our basic fire unit. This is the first start on building up the Infantry Regimental organization. However, due to the uncertainty as yet of the future ballistic possibilities in small arms of the Gerlich principle (giving greater projectile velocity and penetration) it is not safe to predict the number and type of heavier weapons (Machine Gun, Mortar, 37 mm., anti-tank) within the regiment. Hence from the weapon viewpoint, it is not best to attempt re-organization schemes at present. *Our present organization is elastic enough to be used as a ready base on which to graft new weapons should a sudden war come.*

The Motor's Influence on Organization

Now to the second great influence mentioned above as affecting organization—that of desiring to make full military use of motor vehicle possibilities. The rapid advance in the motor industry has given the military world much to think about. All nations are fitting this powerful military adjunct into their armies. I believe motors should replace animals within the Infantry regiment except that it is still necessary and desirable to maintain a few regiments with animal-drawn vehicles and some with pack animals. There will be occasions where they will be desired and the art of handling them should not become lost through disuse.

It has been satisfactorily demonstrated at the Infantry School that the light commercial 1½-ton truck is in general superior to animals either in the peace or war tables of organization. Due, however, to the continuous and rapid advances in motors thereby opening new fields to the military mind and use, and due to lack of sufficient time and proper equipment from which to get a safe, proper perspective, the time has not yet arrived when it is advisable to set definitely the many details of distribution and use in the Regiment as would be required in Tables of Organization.

There is some danger of a misstep at this time. I view motors for Infantry merely as means of transportation and not as weapons—excepting Tanks of course. In other words motorization for Infantry and not mechanization. The Infantryman must eventually go forward on his feet in close battle contact and his armament must be what he can actually carry and keep going with him. In this close battle contact there is

no place for motors,—again excepting tanks. The Infantryman must hug Mother Earth. So it would seem that the Battalion, being the unit normally in this close battle contact area, must leave its motors behind when it reaches this area if it has weapons which are not "man-carried." If the Battalion is to have only "man-carried" weapons it does not require motors except for command, communication and reconnaissance purposes.

The Battalion is par excellence the *fighting* unit. I would be loathe to see it encumbered with a mass of motor transportation to maintain, to provide non-fighting personnel for, and inevitably burdened with the direction of mechanical training which would surely follow in peace time at least. The Chief of Staff has said: "We know that the airplane and the tank of the World War necessitated the establishment of large supply, maintenance and repair organizations in their rear, and the ratio of required personnel to operating machines was extremely large. Complicated weapons and machinery, when applied to the battlefield, have tended to require more highly trained personnel and the employment of more rather than fewer men." The Battalion Commander should be a fighting man with his full attention and faculties focused all the time on directing the fighting, on tactics and tactical training. In peace time certainly from the emphasis that economy and inspections place on such things, the tail would go wagging the dog—that is to say he would be compelled to give his major consideration to his valuable and tender motor equipment. Our peace time organization should be the same, only skeletonized, as our war organization. I am constrained to believe, therefore, that motors should be in the Regimental echelon, i.e. in the Regimental Service Company for use as needed anywhere within the Regiment. Our fighting men should be in separate units from our service and supply men, and not in the same unit with them. Mechanical training and fighting training should not appear in the same unit within the Regiment.

Now going one step further (from "motorization" to "mechanization") into the effect of motors on organization, it is well to quote what the Chief of Staff has recently stated:

> "If this development (Gerlich principle in weapons to secure greater velocities and penetration) should prove capable of general application in all types of small arms, tank design and possibly the whole theory of mechanization, will necessarily undergo revolutionary changes."

To sum up on organization as affected by motors *alone*: I believe more time and experience are needed before embarking on a re-organization of the Infantry regiment for reasons stated above and because any such re-organization carries with it the re-organization of the Division including all or most of its components. More long-sighted experience and more settling down of the motor industry is required before such a far-reaching project is attempted. *In the meantime our present organization is elastic enough to be used as a ready base on which to graft motors should a sudden war come.*

Effect on Training Literature, Mobilization Plans and Supply

In each war we have had to bring about a reorganization at some time during the war, and it must be so again no matter how we may reorganize now.

With reference to the two great influences on organization indicated by the World War (more fire power through automatic weapons and more mobility through motors), the basic underlying ideas and lessons from these can be learned by using our present infantry organization. When the time comes for re-organization, the step in that direction will not be too violent. Our Schools using the present organization can give the really essential instruction in the *basic* principles of tactics and strategy. *Basic* principles do not change with organization. Even instruction in the essential "technique" can also be given using the present organization and this should fit into any organization. It is true that the "data" used in connection with organization and technique will have to change for each new organization.

Changes in the Infantry Regiment, such as from animals to motors or from one type of weapon to another, do not necessarily carry with them a change in organization. They could be only changes in Tables of Basic Allowances. The War Department under date of March 4, 1931, directed:

> "Par. 6a, AR 310-60, will be changed by adding sub-paragraph (4) as follows:
>
> "(4). Recommendations for changes in Tables of Organization, Tables of Basic Allowances and Tables of Allowances will hereafter include recommendations for coordinating training literature, mobilization plans, and supply requirements with the proposed changes."

So far as schools and training literature are concerned, it is believed that a change in organization would be a much larger matter to handle than merely a change in Tables of Basic Allowances. Further it is believed, as stated above, that a change in organization is not required in order to instruct in the *basic* principles of tactics and strategy and in *essential* technique. Changes in Tables of Basic Allowances will carry with them changes in "data" and changes in some training literature, but not so much so as a change in organization would. Likewise a change in organization has a much larger meaning to the National Guard than does a mere change in Tables of Basic Allowances.

Divisional Re-organization

There has been a prevalent opinion that our infantry division is too large and cumbersome. The General Board of the A.E.F. and General Pershing held this view. When re-organization is to be attempted, I believe the best method of approach will be for the War Department to determine arbitrarily the approximate strength of the division and in a directive announce to the Infantry its closely approximate divisional proportion. Then from this let the Infantry work out its regimental organization.

Electrical Azimuth Data Transmitter

By Technical Sergeant H. W. Esty, 240th CA (H D)

HAVING found that the transmission of azimuth data from the plotting room to the guns by telephone was unsatisfactory, for the reason that even a telephone equipped with a helmet headset picks up noise in both the line and headset, making it very difficult to receive data, Sergeant Dyer and myself have designed an electrical azimuth data transmitter for use with the 12-inch barbette gun at Fort Levett, Portland, Maine.

It is a crude apparatus, and we know it, but it works and improves firing conditions, which is what we were after. It is the best we could do with what we had, as there was a limited amount of money available for the purchase of material.

The Receiver

The receiver (Fig. 1) is a sheet iron box with a false bottom. Cylindrical lamp shields, painted white inside for better reflection, are clamped to the false bottom, which is drilled to admit the light plugs and wiring. The space beneath the false bottom becomes a raceway for wiring, and space at the lower end is used for the cable entrance and allows room for work on the terminal strip.

The cover is drilled to correspond with the false bottom, and is lined with blotting paper in which numerals are stencil-cut. The paper also acts as a gasket, preventing leakage of light between the shields, which would cause confusion of numbers. A piece of red paper is pasted over the lower opening to denote signal light (S), and a cord with a pear-shaped push button comes from the end of the cabinet for the reader's use. The cover is fastened on with angle irons and machine screws. The small cover at the bottom can be removed separately for terminal strip work.

The Transmitter

The transmitter (Fig. 2) is a metal box with a maple wood cover. The metal end of the box is drilled and bushed for entrance of the cable and a section of the wood cover removes for strip terminal work. The maple wood cover is dialed as shown in the drawing, with contacts at each numbered point. The numbered contacts are countersunk to eliminate flickering of lights in the receiver during setting of the transmitter. The signal light is the same as on the receiver except that it has a piece of red glass in the board instead of red paper. A push button under the signal light (S) is for use of the operator. Signal lights are wired in multiple to each signal switch, thus verifying to sender that his signal is being received. The signal light hook-up is as shown in the sketch.

In case the board is cleared with a lull in activities, it is only natural that both sender and reader should relax and withdraw attention from the board. Upon resuming drill the sender flashes the signal light a few times and when he receives answering flashes he knows the reader is ready to receive data. During service practice last year the sender signalled after each setting and upon getting a return flash, knew the data had been received. A twin cord and attachment plug through the cable entrance supplies power to the whole apparatus.

A 20-pair, No. 16 cable is used between the instruments. A separate circuit provides a means of signalling between sender and receiver or vice versa. Each

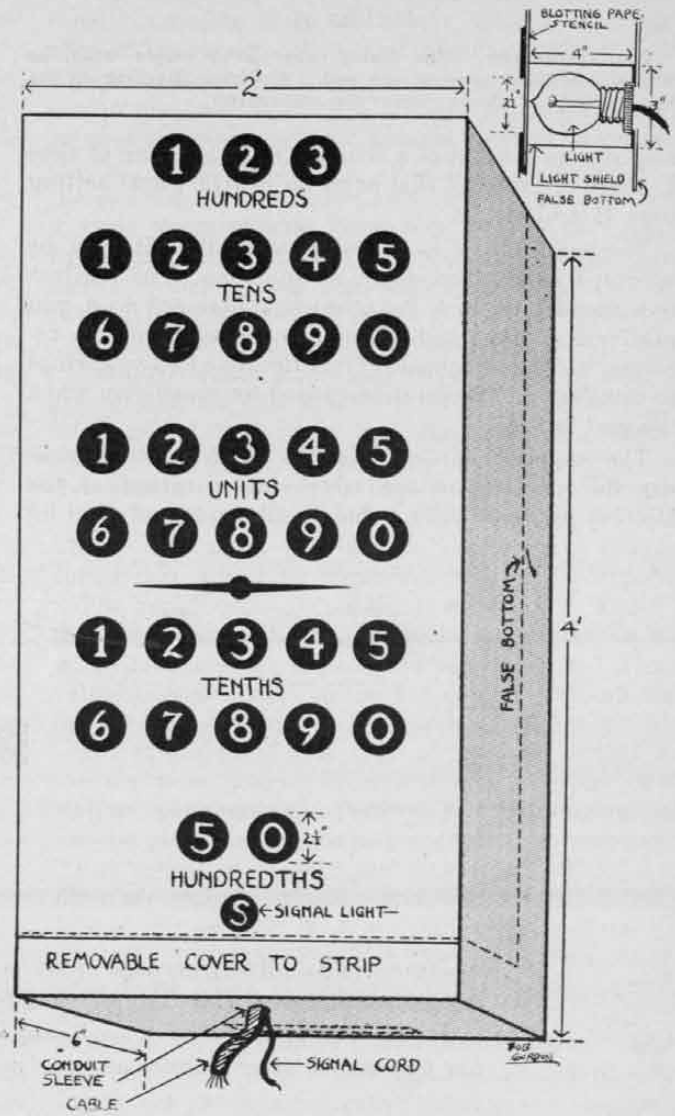


FIGURE I

The receiver, showing the arrangement of lights. The detail drawing shows the dimensions and construction of the light shields.

contact on the transmitter board is connected as a single pole switch between power and the corresponding number in the receiving board, with a common wire from the other side of the line to the center of each dial, and a dead point (N) on each dial for clearing board.

The points "N" have no contacts. By agreement between receiver and sender, the clearing of the board

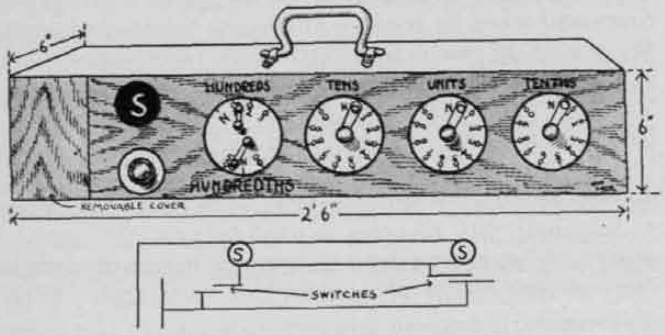


FIGURE II

The Transmitter. The dialed cover is of maple wood, as is the removable cover at the end. A wiring diagram of the signal lights is shown below the transmitter.

may denote the end of a course, i.e., last setting of time I, board cleared, all dial arms on neutral; next setting time II and etc.

The transmitter is so constructed that it may be operated from a box, table, or one's lap. The receiver is suspended from a yoke which is clamped to a gun platform support and spreads to the width of the receiver, which is suspended from the yoke by two springs to counteract any vibration caused by concussion when the gun is fired.

The improvements we hope to make are to stencil-cut the numbers in the metal cover instead of the blotting paper. Paper is too fragile and is affected by moisture. Bakelite will be used in place of wood for the transmitter cover for reasons of serviceablility and to overcome the swelling and warping inherent to wood.

It is feasible and practicable to produce an instrument about half the size of the present one, eliminate the danger of delays due to breakage of lamps, have only the latest reading show on the board at any time, and eliminate two recorders, thus lessening the chance of personnel errors at each end.

We use a sender and a recorder at the transmitting end, and a reader and recorder at the receiving end—a total of four men. It is considered to be practicable to produce an instrument which will record at both ends as well as publish the reading on the receiving board.

The place for setting azimuth on this type of carriage is located beneath the gun platform, probably the noisest place in the gun emplacement. It is the duty of the azimuth setter to receive the data over the phone, repeat it for the benefit of the recorder and lay the gun in azimuth. This having been done he signals to the gun commander by a blast on the whistle, that the azimuth is set. Under the old system this operation was much delayed by frequent "repeats" at both ends. With the electrical transmission installed last year we many times heard the azimuth setter's whistle before the range setter had completed his set. There were no "repeats" and the system functioned perfectly.

Editor's Note.—The inception and construction of the gadget described above affords an excellent illustration of the resourcefulness and initiative displayed by many of the officers and enlisted men of National Guard organizations. One of the most interesting things about this construction is the fact that the material alone cost $160.00. No public funds being available this sum was raised by voluntary contribution from Captains T. B. Eveleth and F. H. Spencer, 240th C.A.N.G., Commanding Batteries A and B, respectively. This represents a very considerable sacrifice at this time when every cent counts. These officers cannot be commended too highly for their interest and professional zeal. The labor was furnished by two technical sergeants of Headquarters Battery, 240th C. A., largely on their own time. The device furnishes one answer to the delays incident to transmission by telephone and provides a positive means for the transmission of data.

A SEARCH THROUGH THE RECORDS *of the war showed only too clearly that throughout the conflict from start to finish, thousands and hundreds of thousands of the world's bravest and best were needlessly sacrificed, not for sound military reasons, but by blunder after blunder and one piece of stupidity after another.*—WOODS.

The Army and Publicity

By Captain Paul C. Greene, Infantry Reserve

SOLDIER, what does the civilian know of you and your work? The answer is, precious little. The average civilian doesn't know a brigadier general from a G. I. can, and looks for admirals in the Army and colonels in the Navy, with but a vague idea as to the duties of either.

The war brought both the Army and Navy into the consciousness of our people on an unprecedented scale, but the memory of that is growing dim. There are more than a hundred million of us who had no direct contact with either of the services. Every year new thousands of youngsters become voters, and each successive year the increment knows less of the agencies of national defense.

There are reasons for the almost total lack of the civilian's knowledge concerning his army. He is thoroughly engrossed in the business of paying old debts and contracting new ones. His family and his social connections account for much of his energies. A healthy human is not likely to be curious concerning those things which do not naturally swing within his orbit.

The Regular Army officer seldom has been noted as a publicist. Even our penitentiaries contain more authors in a chronic state of eruption. Several such institutions publish journals that are worth reading even by those who have no intentions of matriculating in that school.

There is no other country in which the army is so rigorously barred from politics. This one fact might well account for the ignorance of the civilian concerning the Army. The public forum is not for the officer who feels that he is being unduly hampered in his vital work. There are, however, many military subjects of a non-controversial nature with which the Army officer alone is prepared to deal adequately.

The nature of the profession of arms is such that one who would succeed is seldom either an orator or a writer on topics of general interest. But there are officers so talented, and they should realize that informing the public of their work is a legitimate part of national defense.

There is a real need for publicity which will reach all classes of people to the end that they may know both the spirit and the work of the Army. The public which supports the Army can scarcely be expected to foot the bill cheerfully if it doesn't know what it is all about. Knowing little of the Army or its needs the average citizen views with complacency almost any action that will cut his tax bill. We have always been taught that the United States has ever been victorious in combat with the foe. So why worry about the future.

Present indications are that any major emergency would again mean a nation in arms. Some writers foresee the return of the strictly professional soldier, now equipped with mechanical aids which will obviate the necessity for millions of civilian recruits in our military forces. Most such writers, however are writing features for the Sunday thrillers, and are far more interested in sensations than in facts.

If we expect to recruit the bulk of our armies from the civilian population in the event of an emergency, we have much to gain and nothing to lose by disseminating accurate and interesting information long beforehand. We could scarcely expect to shorten training periods by this device, but there would be indirect results of real consequence. The National Guard and Reserve components cannot assume their proper functions unless there is a more widespread knowledge of the Army. A lack of popular interest in the Army in any community means that both of these groups must suffer. Particularly for the Reserve Corps we should develop a more general interest in national defense. Men who have received a commission in the Reserve will be more likely to continue such work if their acquaintances know something of the Army. Pride of position is a strong factor in maintaining morale in the civilian components of the Army. This justifiable pride will be given a healthy boost if the Army is more widely understood.

National Guard units that have reached a high degree of efficiency invariably are found to have a publicity policy that gives the community a chance to know something of their work. Units which reach the summer camps with a high percentage of members are those that have actually contacted the employers. These same units also possess comfortable company funds that would be impossible without civilian aid.

The usual type of publicity which is obtained by the Army comes through the officers assigned to duty with the National Guard and the Reserve. This is valuable and should be the subject of constant study on the part of those in a position to secure it.

An extension of this type of publicity might well include more active participation by members of the civilian components. Pointed and interesting talks can be given before various organizations concerning Army activities, customs, and functions. Official Army films are readily available and would prove intensely interesting even to those who know little of military matters. National Guard or Reserve officers can present these films if Regular Army officers are not available.

Where such activities have been attempted, only to end in failure, it is a safe assumption that the fault lies in the presentation rather than in the subject. It is not impossible that precision, that great military virtue, may be overdone in presenting material for popular consumption. Tables of figures are to be avoided

as one would shun the plague. It is next to impossible to follow them as given in any kind of a lecture, and they are even more difficult to remember.

Where figures are to be used they should be presented by means of graphic comparisons. The great majority of us are visual minded. For this reason it is well to use simple charts if it seems necessary to deal with figures. These charts should be amply large so that they will be easily discernible to all present. Lacking proper size and simplicity the chart becomes the agent of confusion. Every effort must be made to assure that the listener's attention will be drawn rather than repelled.

When one is faced with the task of delivering such a talk a bit of reflective thinking is in order. What devices bore one; what devices attract attention? Avoid the former, cling to the latter.

Invaluable as these contacts are they still leave a tremendous gap in the publicity front. The majority of our citizens are not members of organizations that are available to the exponents of national defense. we must secure contact not only with the leaders of the community, but also with the rank and file. Not only should the leaders know the objectives in an attack, but this information should also be given to the private in the ranks.

The agencies of publicity which spread most widely through our people are almost unused by the Army. These are the radio and the periodicals. Veterans' organizations frequently have access to the radio, but their presentations are generally devoted to the past rather than the future. Short stories dealing with military matters almost universally are devoted to the happenings of 1918. Our problem is in the present and the future.

There is an almost total lack of short stories dealing with the Army of today. There is a real need for such stories. Thousands of people will read such yarns who will attempt nothing heavier in the way of reading. Properly written these stories will express at least the spirit of the Army. That which seems but monotonous routine to the Army becomes intensely interesting to the layman when presented in short story form.

The work of the New York Police Department is the subject of a series of short stories in one of our most popular weeklies, and this must be of real value, both in building police morale and in securing a sympathetic attitude on the part of citizens. Army life is fully as interesting and can be properly presented.

An equally neglected field is that of the factual article written for popular reading. Any periodical one picks up contains articles on a variety of subjects, but seldom does one see such an article devoted to the Army. Occasionally the Navy breaks into print, but the Army remains cloistered within its own splendid isolation. It is inconceivable that the work of the Army is not equally interesting.

Actually the number of military topics suited to such treatment is great. There come to mind several, and on few of them is the general public even faintly informed. The Philippine Scouts, the Engineers and our rivers, Military Aviation, the Doughboy, the Infantry School, the Reserve Corps, the Cannoneers, and our Troops in China are but a few of the many topics in which the average citizen would be interested. Photographs to accompany such articles either are available or could easily be secured.

Most people vaguely suppose that in times of peace the Army hibernates, awakening only when the alarm of war stirs it into action. Fully 80% of our people have not the faintest idea what an army does when it is not fighting. Further, most civilians do not realize that there are any military functions aside from actual combat. Articles such as have been suggested would do much to enlighten our citizens concerning the Army in peace and war.

There must be many officers who are capable of translating their work into terms intelligible to people in general. These officers should be encouraged to write for our periodicals. As previously suggested there is no need to enter into the field of controversial subject matter. It is not necessary to argue the advisability of the Army building dams in the Ohio river, it is sufficient to tell how it has been done.

If the Army lacks potential authors it has still another way of meeting the need. Through social contacts Army officers can meet successful writers of many kinds. It should not be impossible to interest some of these professional literary folk in the problem of presenting the Army to the public. Most writers are anxious to find interesting material, but they seem to have overlooked the Army as a source. Has the Army made an attempt to introduce them to itself? It would seem to the casual observer that the Army has made an all too trivial use of its social opportunities. Polo, formal dinner dances, and contract bridge do not of themselves make contact with the vast majority of our citizens.

Securing publicity need not be approached as a matter of which one need be ashamed. It is vital that the public in general know more of the work of the Army. Unless officers who are in a position to know what is being done make it their business to see that publicity is secured it is certain that no one else will take the trouble to inform our citizens on the needs of national defense.

THE MORE MECHANICAL *become the weapons with which we fight, the less mechanical must be the spirit which controls them.*—FULLER.

Discipline

By An Infantry Corporal—Now Reserve Captain

To the Editor:

I am taking you at your word although this may sound a trifle rabid to you.

I served in a National Guard division during the war. I never rose above the exalted rank of a corporal, but I had a splendid opportunity to see how the enlisted man looks at discipline. Every officer who failed in my company did so because he violated one or more of the principles of action I have laid down in this article. Every officer who succeeded did so because he obeyed these principles. I saw my platoon go to pieces in the first wave of the Argonne offensive on the 26th of September, and it was due to a lack of discipline of the right type. In a five day period our company lost 75 per cent killed and wounded.

A most peculiar system of promotions in our company broke non-coms for picayunish misdemeanors and left pinheads in position as long as they were humble in the sight of their superiors. No, I was never reduced. In fact the Regular Army sergeant who made out my discharge papers said to me: "My God, a corporal for 17 months. Never promoted and never busted. What kind of a guy are you?"

Since the war I have taught in high school for eleven years, and there I've daily met the problem of discipline where my authority has had no such backing as Army Regulations. So if I seem to stress horse sense rather than rules and regulations my experience may be the cause. I know that there are many officers, Regular, National Guard, and Reserve, who think that a dictorial demeanor and the Army Regulations will carry them through any disciplinary emergency. They are dead wrong.

I meet that type of officer occasionally in Army Correspondence School work. If my solution disagrees with the approved solution by so much as a hair's breadth I'm wrong. Frankly, they weary me not a little. As a Reserve officer I'm interested in the Army, of course, but I have neither the time nor the energy to devote to my military studies that such men demand. In war and in peace that type of officer costs the army more than he is worth.

NO item in the training of soldiers is more important than discipline. Much has been said and written on this subject, but it is always of interest. On the successful inculcation of discipline depends the accomplishment of the primary mission of any army, namely, the imposition of the will of the nation upon an enemy nation. Without disciplined personnel the finest matériel is wasted money. Without disciplined personnel the highest order of strategy goes for naught.

Peoples that are accustomed to an autocratic government in times of peace find nothing peculiar in the discipline of an army. Taught from the cradle to bow submissively before the will of duly constituted authority there is little in army disciplne to cause rebellion. Armies found in nations with long established governments are uniformly obedient. To many officers this undoubtedly seems the ideal situation, but the fact is that our problem is quite different in character.

In peace times our own Regular Army can at least approach the height of discipline to be found in the armies of countries less democratic than our own. If a peace time soldier finds the army not to his liking he gets out. Those who thrive on the life remain.

Our people have a supreme confidence in the Regular Army, because they know that in it they have a force accustomed to obeying orders, and thereby accustomed to securing results. To assume, however, that our people as a whole enjoy the restrictions of army discipline when applied to them personally, is unjustifiable optimism. Our entire history is the story of a people boiling over with a desire for self-expression and self-determination. Only under the stress of urgent need have we been able to suppress our God-given prerogative of telling the other fellow where to get off. Fines paid each year for having bawled out traffic cops would go a long way toward balancing our national budget. It is not without significance that one of our chief holidays is Independence Day.

The very quality in the American which makes the problem of discipline a difficult one, also makes him the finest soldier in the world when intelligently handled. In the first phase of a war the dumb obedience of autocratically trained peoples seems to put to shame the soldiers of a democracy. But in the long pull which must ensue before the final decision is reached the willing cooperation of the soldiers of a democracy will win out, provided that these men have been intelligently handled.

The purpose of this article is to review briefly the problem of discipline which faces the army when a major emergency has brought so many civilians into the service that the Regular Army is but a very small lump of leaven. Written by a civilian, it may not agree with the concepts of discipline held by those who are not civilians. Certainly it will not agree with the civilian officer who finds the weight of his bars bearing him down. This is not written with the idea of decrying Army Regulations, but rather with the thought that our newly mobilized soldiers may be led into a sincere appreciation of the necessity for these regulations.

Courts martial, in war as in peace, must remain the final arbiter in cases of the infraction of regulations when all other methods have failed. But the officer who carries this threat in the forefront of his mind when issuing orders to those not accustomed to unquestioning obedience will soon find himself in very deep water. The officer who must rely on dire threats to secure obedience simply is trying to cover his own weakness of character. The American civilian soldier goes at his task with enthusiasm when directed by an intelligent and understanding officer. To the officer who would threaten he may yield apparent obed-

ience, but smoldering within is the fire of resentment which bodes ill for that same officer in a tight pinch.

During the war one platoon of such soldiers found itself under the leadership of a sergeant whose chief claim to stripes lay in his ability to secure the friendship of his men. From the angle of military knowledge his sergeancy was a mistake. In reviews and parades he invariably gave "Squads right" when the command should have been "Squads left." His platoon never let him down, but cheerfully corrected his error for him. In due time the platoon came under the command of a self-confessed hard-boiled lieutenant. On his first regimental review he made the same error in command, and without an instant's hesitation the platoon performed the wrong command as given.

It is easy to remark that the officer was himself a poor soldier in that he issued the wrong command. How many officers are there in any army who have not at some time done much the same thing? The real error made by this lieutenant was that of relying on fear as a means of securing discipline. Our soldiers simply do not possess that type of fear and it is fatal to act on the assumption that they do. Army regulations being what they are the American doughboy will not miss his opportunity to embarrass the officer who has tried to instill the fear of them into his men. It is a respect for regulations, not a fear of them, which must be instilled into the average soldier.

The senseless martinet sets for himself many a pitfall, and as surely as he commits an error it will be seized upon by some keen-eyed private. The captain who made it a habit to scour the battalion for salutes was caught in the act of rolling a cigaret while carrying an armful of bundles. The man who spied him made haste to cross in front of him with a salute that was perfection itself. Bundles, tobacco, and dignity were lost as the captain vainly attempted to return the salute. Such things do not build morale.

This is in no sense a plea for namby-pamby tactics in dealing with the problems of discipline. If our soldiers hate a martinet, they despise a weakling. A large majority of our people possess a keen sense of justice in addition to their other traits. Probably no other people could view as many sports events in the course of a year with so few officials being mobbed. Sportsmanship means fair play, and in our personal contacts we live up to a relatively high standard in that line.

As men are gathered into newly-formed units the officers in command have one very decided advantage. There can be no feeling of hostility toward any officer because of a liking for a previous one. If there is no unity of purpose in the group it can at least start from scratch in its attitude toward the officers who will lead it. Whether these officers intelligently try to accustom these ex-civilians to the demands of discipline will largely determine their success as soldiers. The captain who worked personally with Alvin York when he was drafted into the army should share with him the glory of his famous exploit.

If the commander of the newly-formed unit has no cadre of trained enlisted men at his disposal he needs must find quickly those in the group who can be trusted to assume some authority. Among those first to offer their services as non-coms will be the blatant, self-assured type. While the unit is green even such men as these may be able to perform fairly well. Ceaselessly, however, the hunt must continue for those who are really fitted for leadership. Sooner or later the braggart will fail, not only in the eyes of his captain, but also in the eyes of his men.

If it becomes apparent that a mistake has been made in the selection of non-com material there is no time to be lost if the morale of the unit is not to suffer. Some officers make the error of feeling that they cannot afford to appear as having made the wrong selection, and they hang onto the misfit through thick and thin. As a result ill-will and discontent thrive. Recourse to threats from above will never preserve the authority of a poor non-com, nor will they add to the prestige of the officer using them. It should never be presumed that one has really gotten by with such a show of authority simply because the men don't openly give the Bronx cheer.

An officer may be possessed of a number of traits of character that are not favorable and still retain the respect of his men. He may be gruff and he may lack the football coach's ability to give inspiring pep talks, but if he does have the following traits his men will follow him with unfaltering obedience.

He must have a real sense of justice. Soldiers will cheerfully accept strict regulations which know no favorites. They will back fully the officer who metes out punishment accordingly. The officer who withholds justifiable punishment will be lowering himself in the eyes of his men. But this punishment must conform to the nature of the crime. In the ordinary case of extra-duty the culprit will be the target for all the jokers in the company. In case of a serious charge requiring higher authority than that of the company commander the men will be as quick as the officers to sense the necessity. A case in point is that of the sergeant who misused his authority to secure personal ends. He was haled before a Summary Court, and on the testimony of two privates was reduced to the ranks and given a brief term in the guard house. His conviction brought a sense of security to those who had been suffering under his abuse of authority. Strangely enough, his first act on being released from durance vile was to hunt up the accusing privates and offer his apologies. Soldiers do not resent punishment based upon justice.

An officer must be interested in the welfare of his men. It is worth considering that the battle cry of the American soldier is: "When do we eat?" Men will put up with bad conditions without a whimper if they are convinced that the "Old Man" is doing everything possible for them. If the officers look after their own comfort first and that of their men secondarily, if at all, morale will slip in spite of all the discipline of the drill ground.

One company in France found itself under the leadership of a captain reputed to be due for a General

Court for certain irregularities with company funds in a previous command. During the two weeks he was with this company he made it his business to know every day that every man had had the best possible food and the best possible place to sleep. His previous crimes, if any, were forgiven *in toto,* and the company always remembered him as the best "Old Man" it had ever had. Men will absorb a lot of punishing work with a grin if they know that their officers are really interested in their welfare.

Third, I would rate the ability to go to bat for one's men as an important quality in securing and maintaining discipline. This does not mean that the captain must hunt up the major and give him a tongue lashing, although even this has been done successfully. He may never have realized the effect on his men, but a peppery little colonel once endeared himself to his regiment by telling the brigade commander what the men had long wanted to tell him, and in much the same manner that they had wanted to do it. But it is chiefly a case of the men being anxious to be proud of their officers if the compliment is returned. It isn't necessary to tell them that they are the finest outfit in the army, but if other officers are told it will get back to them by the grape-vine. A skillful officer may even cast slurs on his outfit to the secret delight of his men. They don't think the "Old Man" meant it in the first place, and they are determined to prove him wrong if he did mean it.

Purposely the last quality mentioned is the one that technically minded folk would rate first. That quality is knowing one's job. It is important, but not so vitally important as the others. Ignorance of one's duties is in no sense condoned, but soldiers will by themselves right many an error if the leader has shown the first three traits. Men going into battle must possess confidence in the judgment of their officers if the mission is to be accomplished.

The American civilian soldier does present a baffling problem to the officer who thinks that orders are to be obeyed without question simply because they were issued by properly constituted authority. Such an officer may secure drill ground lip-service, but he has not built on a solid foundation. With all of his independence of thought and action the American soldier does recognize the need for discipline, but his adaptation to it will be far more quickly and effectively secured if he is led into it rather than driven against his will.

THE ATTAINMENT OF VICTORY *imposes upon an army the necessity for undertaking a variety of activities which may be grouped into several rather well-defined categories. It must conduct efficient reconnaissance and counter-reconnaissance from the outset of the campaign; move swiftly in the directions indicated as desirable; concentrate its personnel and matériel at the critical point or points; hold firmly all areas vital to its success; strike with the maximum power of fire and shock; and exploit rapidly and fearlessly every advantage gained.*

—GENERAL DOUGLAS MACARTHUR.

The Graphical Mess Chart

By Lieutenant John R. Lovell, CAC.

HOW many officers of the United States Army have noticed the physical condition of many of our enlisted men when they retire at the expiration of thirty years service? Most of them are in very bad shape with little hope of really enjoying the retirement they so well deserve in the autumn of their lives.

Compare these old soldiers with officers who have served the same length of time. This comparison will show a marked difference. Most of our colonels and lieutenant colonels have all passed the thirty year mark, and for the most part, they are in splendid physical condition. The majority of our officers that reach the retirement age of 64 years settle down with their families in their favorite part of the country and quietly enjoy many years of retired life. Some of them take an active interest in their respective communities, many of them accepting important political and executive positions.

What is the reason for this marked difference between our older officers and enlisted men? It cannot be that the enlisted men are overworked to such an extent that they are broken down. While their duties are rigorous at times, there is always plenty of rest and recreation to balance the heavy fatigue schedule. It is also quite true that the average officer does not perform the physical labor that the average enlisted man performs, but as a general rule, his duties are arduous, mentally, and they do require longer hours. It has been said frequently that an officer's time is not his own and this is very often true.

Probably the greatest difference between the lives of enlisted and commissioned personnel is their diet. The enlisted men ration at their respective battery or company messes while the officers eat in the officer's mess or at their homes.

Until a few years ago, as long as the enlisted men themselves did not complain about the quality of the food or the cooking, as long as they had all they wanted to eat, and the mess was being conducted within the ration allowance, it was considered to be satisfactory. The diet was a heavy one consisting mainly of meat, potatoes, coffee, and an acid dessert such as bread pudding, cobbler, pie, or a cake. There is no question

MONTHLY MENU.....ORGANIZA

	MEAT										DAIRY PRODUCTS							WHEAT PRODUCTS												DESSERTS							COOKED FRUITS											
VITAMIN	I	I	I	B	I	I					A	AB	AB	AB	AB	AB	AB	I	I	I	I	I	I	I	I	I	I	I	I	I	I	A	I	AB	AB	I	I	A	B	AB	AB	I	B	B	I	B	B	I
REACTION ACID OR ALKALINE	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	—	ALK	ACID	—	ACID	ALK	ALK	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ACID	ALK	ALK	ALK	ALK	ALK	ALK	ALK	ALK	ALK	ALK	ALK	ALK
CONTENT	PF	PF	PF	FP	FP	PF					F	CP	FP	F	PF	PF	CFP	C	CP	CF	C	CF	CF	C	C	C	CP	C	CF	CF	CF	CF	CF	CF	CF	CF	C	C	CP	C	C	C	C	C	C	C	C	C
DATE	BEEF	FISH	FOWL	LAMB	PORK	VEAL	DRIED	SALTED	SMOKED		BUTTER	BUTTERMILK	CHEESE	CREAM	EGGS	MILK, CANNED	MILK, FRESH	BISCUIT	BREAD	COOKIES	DUMPLINGS	FRENCH TOAST	FRITTERS	GRIDDLE CAKES	MACARONI	NOODLES	ROLLS	SPAGHETTI	CAKE	COBBLERS	CUSTARDS	DOUGHNUTS	ICE CREAM	PIES	PUDDINGS	APPLES	APRICOTS	BEANS, DRY	BEANS, STRING	BEETS	BERRIES	CABBAGE	CARROTS	CAULIFLOWER	CHERRIES	CORN		
1 B																																															
1 D																																																
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* FOODS RICH IN CELLULOSE AND WATER

INSTRUCTIONS

1. Using a blue pencil, place a large dot under the item served opposite the proper date and meal.
2. In planning menus, and as far as practicable, (a) include foods so that vitamins A, B and C will be generously represented. (b) Arrange daily menu so that elements are represented by weight approximately as follows:

but that the men ate more than they should, especially in warmer climates.

On the other hand, over ninety per cent of the officers are married and have children. Their wives naturally served foods that were especially good for the young ones. These included milk, vegetables, better qualities of lean meat, and generally fruit for dessert. Many of the officers, as they grow older, are inclined to become too heavy. To counteract this they eat at least one light meal a day consisting mainly of fresh vegetable salad.

This summary indicates that officers have eaten less food of much better quality than the enlisted men. Their menus are more nearly balanced and the result is shown by their physical condition in their older years. The enlisted men, on the other hand, have aged more rapidly and not so well.

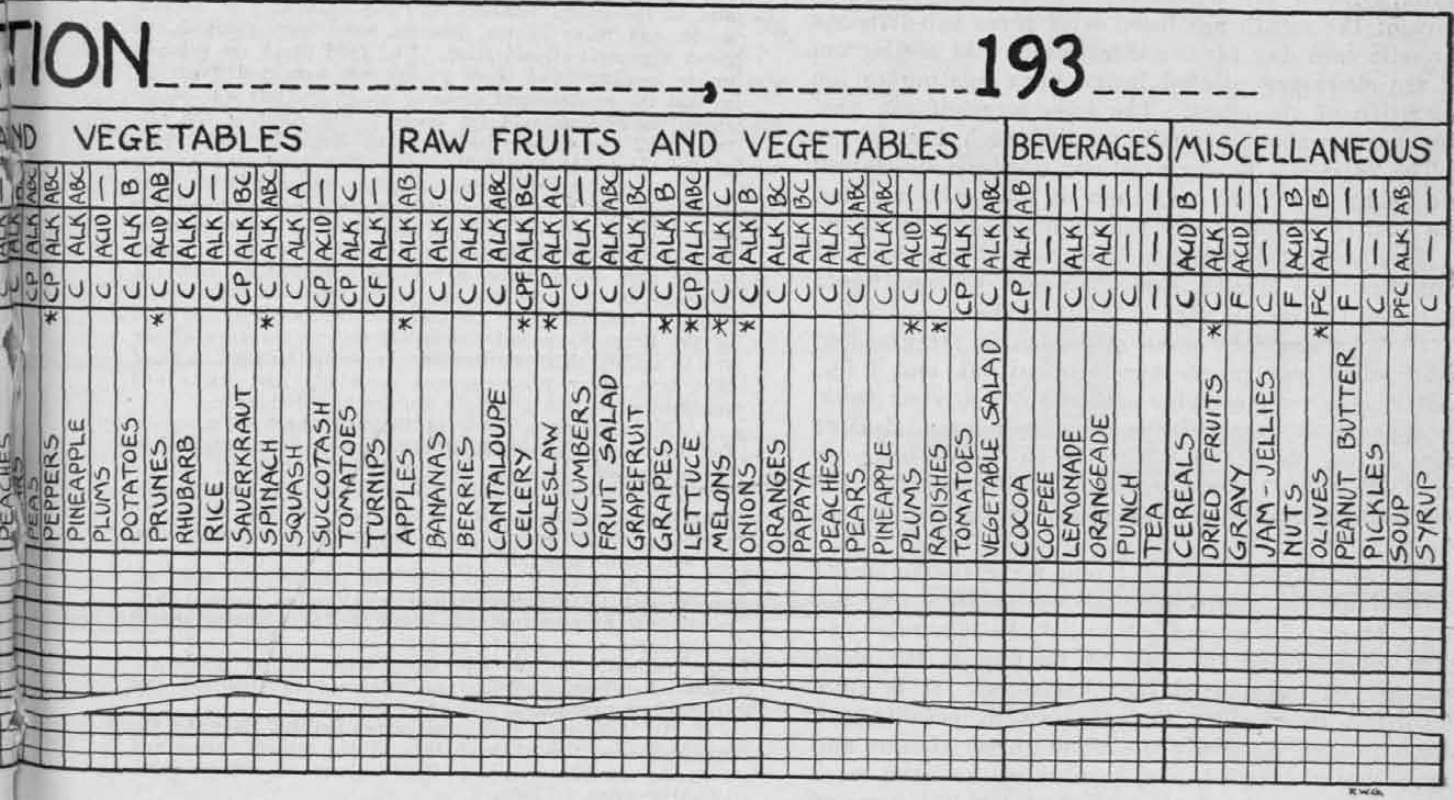
Considering the fact that post maintenance duties have multiplied and will continue to become greater due to present economy policies; and that additional duties and responsibilities have been placed on the Army with no increase in personnel, the time that officers have to devote to their duties of administration become less and less. Naturally some method whereby organization commanders can inspect their messes and determine whether or not the men are properly and adequately fed is of very great value to everyone concerned. A graphical mess chart has been developed in the Hawaiian Separate Coast Artillery Brigade during the past five years that seems to meet the requirements. The history of the chart is interesting.

About July 1, 1928, the ration of the Army was increased to fifty cents. About all the mess sergeants knew was to serve so much food that a large amount was wasted. The components of the new ration were based on what was considered an adequate diet at that time. Many officers studied home economics on their own initiative and numerous theories were advanced.

Major General Robert E. Callan, who commanded the Hawaiian Coast Artillery Brigade in 1928, ordered a study of the mess situation. The board was an informal one and consisted of several officers and an officer's wife who was a graduate dietician with several years of practical experience. A very simple rule was devised whereby food was classified into three classes; building, fuel, and regulating, and at least one food of each classification was ordered served at each meal.

A little later a graphical mess chart was devised whereby a dot was placed opposite the date and meal and under the food served at that meal. This showed at a glance by the distribution and grouping of the dots whether too much food of one kind, or too little of another, was being served.

The chart was of special assistance to the mess sergeant because he could study it himself and improve his menus. Battalion and higher commanders were able to judge the quality of the mess by an inspection of the chart. As a matter of fact, after the officers became familiar with the operation, a quick glance



P—Protein 20-25 per cent by wt., F—Fat 25-30 per cent by weight, C—Carbohydrate 45-55 per cent by wt. (c) There must be a preponderance of alkaline foods in the menu. (d) One cellulose food marked * should be served at noon and evening meals.

would enable them to judge whether the menus were balanced and adequate. At first thought officers considered that it was just another form added to their already over-burdened paper-work system, but since the chart is posted by the mess sergeant and kept in the kitchen, this criticism had no weight.

Changes were made in the chart from time to time, classifications of food were revised, items of food were eliminated or added as became necessary, until now this graphical mess chart is believed to be in the best possible form. It is complete, simple to operate, easy to understand, and contains much information. A brief description of the chart follows:

Across the top of the chart from left to right, foods are divided into eight classes as follows:

a. Meat
b. Dairy products
c. Wheat products
d. Desserts
e. Cooked fruits and vegetables
f. Raw fruits and vegetables
g. Beverages
h. Miscellaneous

The individual items of food are listed alphabetically under these general headings. In small squares across the top of the page, the vitamin content of food (A, B. or C), the reaction of the food in the stomach (Alkaline or Acid), and the principle content of the food (Protein, Fat, or Carbohydrate), are indicated by symbols. Asterisks indicate which foods are considered good roughage, that is, rich in cellulose and water. Down the left hand side of the chart, the days of the month are listed with three sub-divisions opposite each day for the three meals. At the bottom of the chart are printed instructions relating to the operation of the chart. The mess sergeant can post the chart in about five minutes time each day.

The 28 messes of organizations stationed in Hawaii are using this chart, and there is no doubt but that the quality of the messes has improved tremendously.

Here is what Mrs. Alice V. Bradley, Supervisor of Nutrition and Health, State Teachers College, Santa Barbara, California, says about the chart:

"* * * I am very much interested in the excellent chart which you people have worked out, and I feel that it is a very valuable contribution to your work. It appears as though it would save a great deal of time on the part of the dietician and make his work more efficient. I like the idea of giving the most important constituents of each food at the top of the chart. * * *

"* * * At your request I will make the following suggestions:

"1. It may be convenient to list the minerals—calcium, phosphorus, and iron at the top of the chart just as you have listed the 'Vitamins.' It is quite important to consider the minerals in planning an adequate diet, especially the above three. Iodine and copper are of interest, also, in view of the latest work in nutrition, but need not be included in this type of a chart.

"2. It is quite impossible to have this type of chart accurate, in detail, in regard to the food value of all foods. Many of the starchy-egg puddings are acid forming. Tapioca is neutral in reaction, etc. However I'd consider the puddings as acid forming as a group although many of them are alkaline.

"4. Why are cereals listed under miscellaneous rather than under 'grain product or wheat products?' They are acid forming and rich in carbohydrate and protein and vitamin B.

"I think it is an excellent plan to list the fruits and vegetables under two headings—raw and cooked. You will be more sure of having vitamin C in the diet. * * *"

Minerals, while they are very important, were judged to be the least important when vitamins, reactions, and food content were considered, and it is very desirable not to overburden the chart with symbols that would look too forbidding to our mess sergeants, who, after all, are not mathematicians or accountants. The size of the chart must be kept as small as possible in conformity with the principle of simplicity. It is recognized that the chart is inaccurate in small details. Cereals should be listed under grain products and the chart will be so changed when it is reprinted.

The following is a letter of instruction to accompany the chart:

1. A new mess chart, hereby prescribed for use in the messes in this Brigade commencing January 1, 1933, is being distributed this date.

2. The new chart is constructed as simply as possible so that it will be easy to operate and understand. The instructions pertaining to the maintenance of the chart are few in number and brief in form. In order to reduce the size of the chart, numbers of items such as pies, cereals, soups, and many of the desserts, have been grouped and given a general classification. The food items are grouped under headings and these groups are arranged generally so that the predominant proteins are on the left side of the chart, the predominant fat foods to the right of the proteins, and the carbohydrates, which form the larger part of the chart, on the right.

3. To conform with the principle of simplicity, three plain symbols to represent the content of the food are used. These symbols are not shown unless the element is present in sufficient quantity to be of appreciable value in the diet. The same is true with regard to vitamins. Vitamin D, the principle source of which is sunshine, is omitted from the chart because practically all of the men of the Brigade are sufficiently exposed to the rays of the sun to satisfy this requirement. It should be kept in mind that fats, dairy products, and especially raw fruits and vegetables, are the principle sources of vitamins.

4. No mention is made in the new chart of minerals, for the reason that if the alkaline reserve is maintained in the body, this requirement will take care of itself. If the diet is predominently acid, the minerals are consumed in neutralizing excess acids. The livers of animals, dairy products, meats generally, salads, soups, and vegetables, are sources of minerals.

5. It is probable that there are numbers of men not accustomed to a balanced diet who prefer a great preponderence of proteins and carbohydrates. Messes should be operated so as not to arouse complaint from such men, but gradually to develop their taste for a wholesome balanced ration, including a suitable proportion of raw fruits, raw vegetables, and dairy products.

6. It is desired that close attention be given to the application of this chart, both with the present ration and with the new ration, which, it is understood, will be made effective April 1, 1933.

Sample copies of the graphical mess chart with a letter of instruction may be procured upon request by writing to the Commanding General, Hawaiian Separate Coast Artillery Brigade, Fort DeRussy, T. H.

The Mechanical Fuze, M2

By Captain Bryan L. Milburn, CAC.

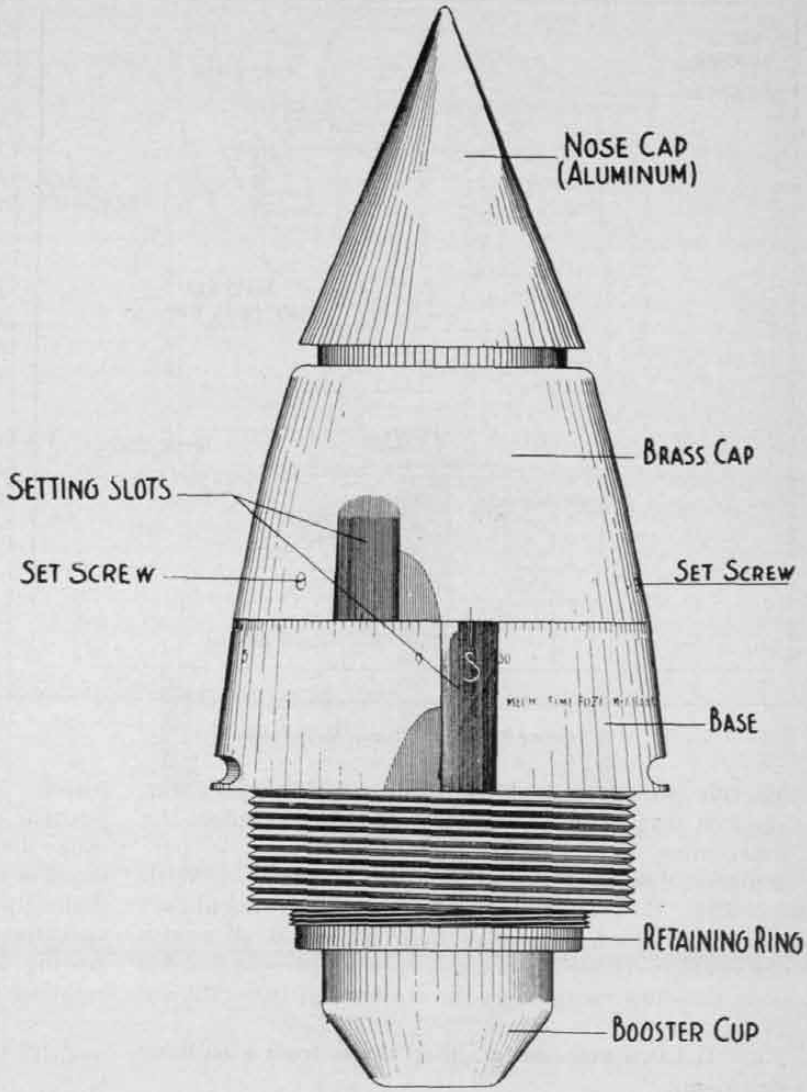
1. General.—During and since the World War, powder train time fuzes have been used almost exclusively with antiaircraft ammunition. The fuze now in use is the Mark III (Scovil) fuze. While important improvements have been made in this fuze, certain basic defects, inherent in all powder train fuzes, still obtain. It is known that at least three factors affect the burning of a powder train fuze, viz:

a. The atmospheric pressure under which it burns.
b. The temperature of the fuze.
c. The speed at which it rotates while burning.

Probably the most important of these factors from the standpoint of antiaircraft artillery is the effect of atmospheric pressure. A powder train fuze, with the same setting, will burn longer at a high altitude than a low altitude, since the atmospheric pressure decreases as altitude increases. It may be noted from a trajectory chart (3 AA J 2 a) for the modern 3″ AA gun that the time of flight, for a setting of fuze 18 and quadrant elevation 1400 mils, is 25 seconds, whereas for the same fuze setting but with a quadrant elevation of 300 mils, the time of flight is only about 16.5 seconds. While it is known that the temperature of a powder train fuze effects its rate of burning, the magnitude of this effect has not been satisfactorily determined. The speed of rotation, or spin of the projectile, has a material effect on the rate of burning of the fuze. Recent tests indicate that for antiaircraft guns in which the twist or rifling is as great as 1 turn in 25 calibers, considerable accuracy in time of flight is lost, particularly at long ranges. The slower twist of 1 turn in 40 calibers, which is now provided in modern antiaircraft guns, does not produce the same degree of inaccuracy.

In view of the inherent defects of a powder train fuze, the Ordnance Department has been engaged for several years on the development of a mechanical time fuze which would not be affected by the factors indicated above. The mechanical fuze M2 represents the result of this development. It has been given extensive tests, including its use by antiaircraft troops at Aberdeen Proving Grounds, and found to be reasonably satisfactory. By improvements in manufacturing methods, it is believed that it can be produced in quantities and at a cost comparable to the powder train fuze, and it is expected that it will ultimately replace the latter fuze for antiaircraft purposes.

The M2 fuze eliminates all of the defects inherent in the present powder train fuze with the exception of effect of rotation of the projectile. For mechanical reasons, it does not function satisfactorily in guns rifled with a twist as high as 1 turn in 25 calibers. As all antiaircraft guns will ultimately be rifled with a twist of 1 turn in 40 calibers, under which the fuze will



M2 FUZE
EXTERNAL PARTS

Fig. 1

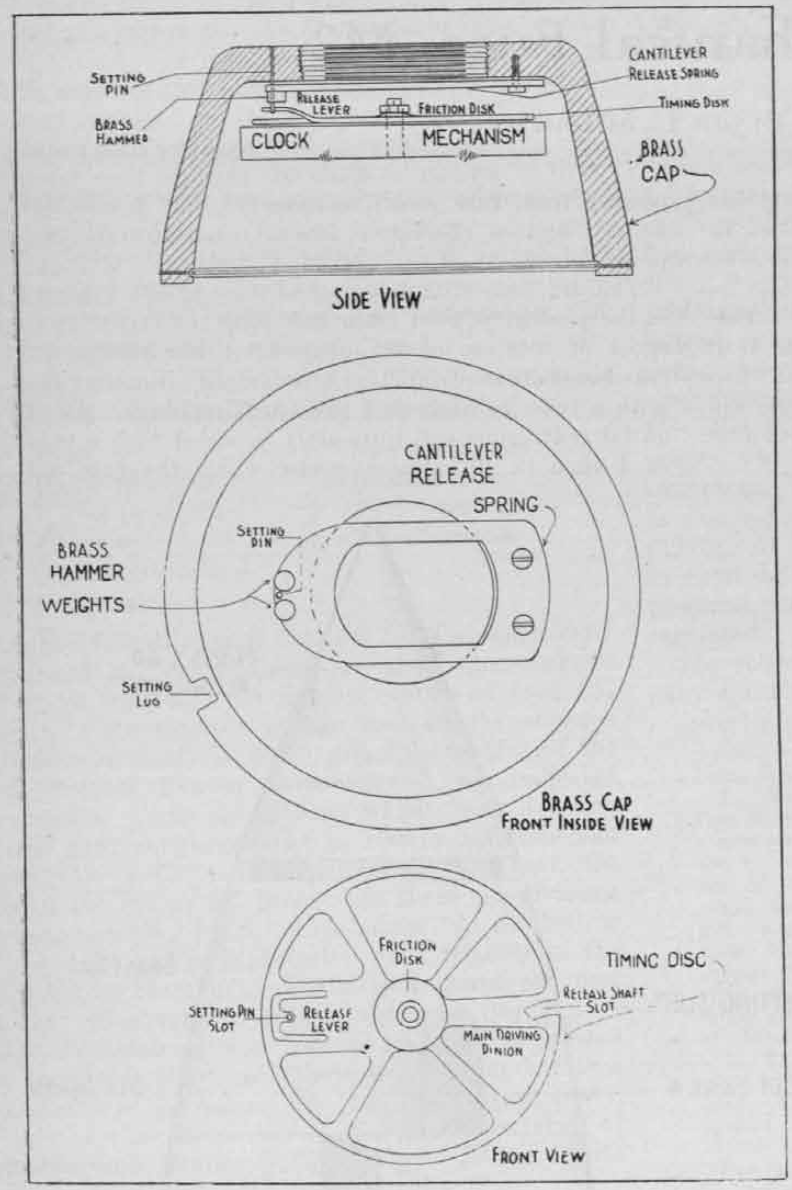


Fig. 2
Timing Disk & Release Mechanism

function satisfactorily, this is not a serious objection. The fact that variations in air density do not affect the functioning of the mechanical fuze makes it particularly desirable for antiaircraft purposes. With this fuze, the values of fuze setting bear an almost constant relation to time of flight values at all angles of elevation. Other advantages over the present powder train fuze incorporated in the mechanical fuze, M2 are as follows:

a. It has a more satisfactory shape from a ballistic standpoint.[1]

b. The fuze contains a bore safe device.[2]

c. It contains *slots* for engaging pawls in the fuze setter. The powder train fuze contains *lugs* which are often stripped.[1] The slots are also so constructed that greater accuracy is obtained in setting the fuze (see paragraph 2).

2. General Description—*The external parts* of the fuze are shown in Fig. 1. The shape of the fuze is designed for the best ballistics. The aluminum *nose cap* contains no parts of the mechanism. It is simply a ballistic cap and is screwed into the *brass cap*. The latter is held to the *base* by three set screws which bear against a circular spring resting in concentric grooves of the cap and base. This arrangement prevents the cap from being pulled away from the base but permits the base and cap to be rotated with respect to each other. The fuze *base*, also of brass, contains a scale graduated in seconds. Settings from 0 to 30 seconds may be made. The index for the scale is on the brass cap. The brass cap and the base contain slots which fit lugs in the fuze setter. These slots have a beveled edge on one side (Figure 2) which permits a reasonable variation in the size of the fuze setter pawls due to wear or other causes, without affecting the accuracy of the setting. The brass cap and base also contain the firing and clock mechanisms of the fuze which are housed together but shown separately in Figures 3 and 4 respectively. The *retaining ring* screws into the base of the fuze and supports the *booster*[3] cup.

3. Setting and Release Mechanism. *a.* Placing the projectile in the fuze setter and turning the setting hand wheel engages the fuze setter pawls in the *slots* in the *brass cap* and in the *base* of the fuze. The brass cap is rotated by the movement of the handwheel. The pawl which engages the slot in the brass cap will also rotate the entire projectile until the other pawl becomes engaged in the slot in the base of the fuze. After this action, the rotation of the entire projectile ceases, but that of the brass cup continues until the movement of the setting handwheel ceases. The fuze setting is obtained by the relative position of the two pawls. The operator of the fuze range dial, by matching pointers, moves the pawl which engages the base of the fuze and thus places it in the desired position. It is to be noted that when the above operations are completed, data may be changed by moving the pointer on the fuze range dial, which, by rotating the pawl engages in the base of the fuze, ro-

[1] A new powder train fuze, which will have a shape somewhat similar to that of the present mechanical fuze, is being developed. It is expected that both the mechanical and powder train fuzes will ultimately have this new shape. One of the purposes of this standardization of fuze shape is to utilize a uniform fuze setter design. The new powder train fuze will have slots instead of lugs to conform to the present mechanical fuze.

[2] A bore safe fuze is one in which the detonating train is interrupted between the detonator and the bursting charge of the projectile, until the projectile has cleared the muzzle of the gun. This prevents premature action of the bursting charge due to malfunctioning of the more sensitive elements of the fuze. The bore safe device of the mechanical fuze is now contained in the rotor, discussed in paragraph 5. A separate booster device has been developed, however, which is designed for use with both powder train and mechanical fuzes and which also contains a bore safe feature. This will probably result in removal of the rotor and booster cup from the present mechanical fuze.

[3] A booster is a charge of high explosive contained in a casing whose function is to amplify or "boost" the explosion of the base charge of the fuze to a detonation of the high explosive filler of the shell, since the explosion of the base charge of the fuze itself will not detonate the high explosive in the shell. See also footnote 1.

tates the entire projectile (except the brass cap) and thereby changes the relation between the two pawls.

b. Secured to the front side of the *brass cap* are a *setting pin* and a *cantilever spring* (Fig. 2) free to move over the pin. The spring contains two brass *hammer weight*. The setting pin passes through the free end of the spring between the hammers and fits in the raised slot in the release lever of the *timing disk*, at the top (front) of the clock mechanism, (Figs. 2 and 3). Accordingly, when the brass cap is rotated by the pawl of the fuze setter engaging the lug of the cap, the motion is transmitted to the timing disk. The timing disk is also connected to the clock mechanism by means of the *main driving pinion*. (Fig. 4.) Therefore, if the setting pin should remain in the release lever slot, any rotation of the timing disk by the clock mechanism would cause the whole brass cap to rotate. To prevent this, the timing disk is released from the setting pin by the brass hammers. When the gun is fired the set-back[4] action causes these hammers to strike the timing disk release lever and flatten it. The timing disk is now free to rotate by action of the clock mechanism. When the fuse is being set the timing disk rotates with the cap by means of the setting pin but the main driving pinion cannot move because it is locked by centrifugal safety devices in the clock mechanism. The *friction disk* permits slippage to take place during the setting operation and is sufficiently strong to rotate the timing disk with the main driving pinion after the disk has been released from the setting pin in the cap.

4. The Firing Mechanism—a. When the gun is fired the timing disk is released as indicated above.

b. The firing mechanism contains a *firing pin*, a *firing pin release shaft*, a *centrifugal firing pin weight*, and a *set-back weight*. (Fig. 3) The release shaft contains a centrifugal weight but is prevented from rotating by the release shaft arm which rides on the periphery of the timing disk (Fig. 2), and releases the shaft pin, which presses back of the set-back weight. This weight is held in place by a small spring which rests in a bevel in the weight. The firing pin also has a beveled surface which bears against the centrifugal firing pin weight. As this pin is actuated by a powerful spring there is considerable pressure on the weight. The other end of the weight is caught by the release shaft. The release shaft contains a *slot* through which the centrifugal weight may pass when the shaft is rotated slightly.

c. The action is as follows: When the gun is fired the set-back weight drops down (back). This partially frees the firing pin shaft. The timing disk, having been released as indicated in paragraph 3, begins to rotate by means of the clock mechanism. When the slot in the periphery of the disk reaches the firing pin release shaft *arm*, the shaft is free to rotate and does so under the action of centrifugal[5] force. The arm drops into the release slot of the timing disk and the slot in the shaft is now in a position which will permit passage of the centrifugal firing pin weight. Due to pressure from the firing pin and to centrifugal action, the centrifugal firing pin weight flies out and releases the firing pin. The firing pin passes through a hole and strikes the primer, connected to a flash hole to a

[4] The expansion of gases from the propelling charge creates pressure in the chamber and bore of the gun, which results in acceleration of the projectile. Any part not rigidly supported in the projectile will be given a relative motion toward the base of the projectile due to its own inertia and the acceleration of the projectile in the bore. This action is known as "setback." Several of our fuzes employ setback features in various ways.

[5] *Centrifugal action* is the term applied to the force resulting from the rapid rotation of the projectile about its longer axis. Most of our fuzes employ centrifugal action in some way.

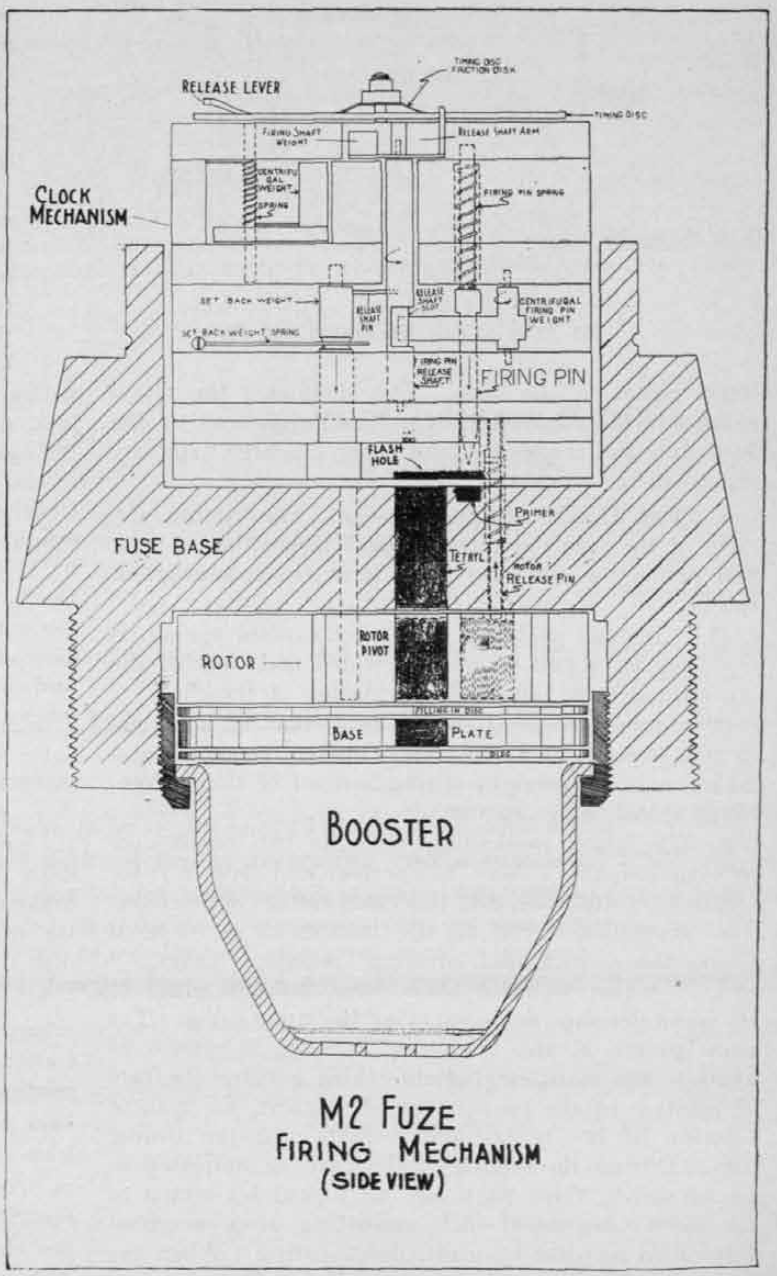


Fig. 3

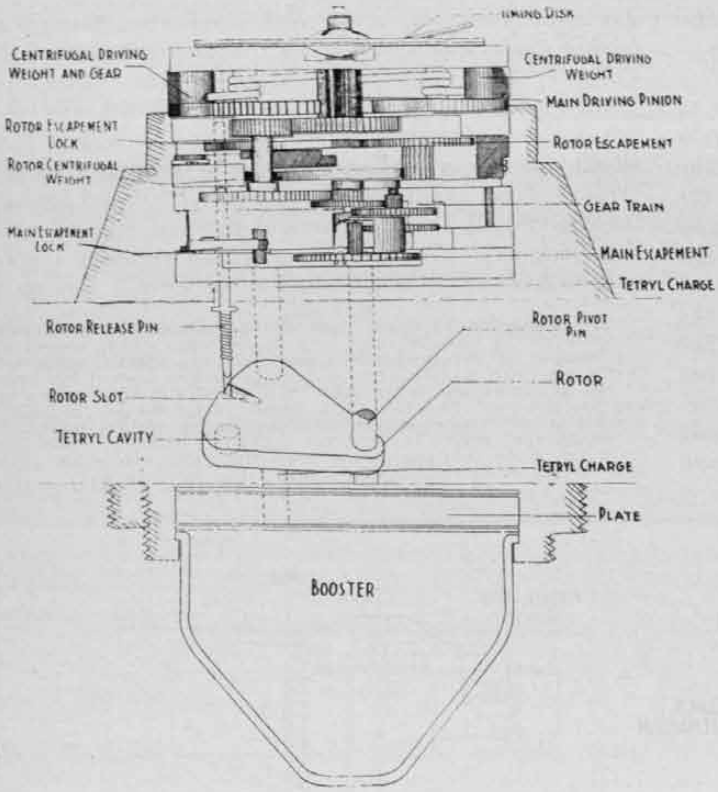


Fig. 4
M2 Fuze. Clock Mechanism and Rotor

tetryl pellet in the base. This detonates the tetryl charges in the rotor (to be discussed subsequently), the base plate and the booster and finally the high explosive charge in the projectile.

5. The Clock Mechanism.—a. The timing element of the fuze resembles a watch mechanism in general principles, differing from it in the following respects:

(1) Instead of being driven by a main spring, it is driven by a pair of weights which make use of the centrifugal force obtained by rotation of the shell.

(2) Its escapement differs from that of a watch, in that it beats at a very much higher frequency and makes use of a straight spring instead of the conventional spiral (hair) spring.

b. The clock mechanism contains two *centrifugal driving weights*, a *main escapement* and *lock*, a *rotor escapement* and *lock*, and the *rotor release mechanism*. The propelling force of the mechanism is derived from the centrifugal driving weights (Figs. 4 and 5) which transmit their force through gears to the *main driving pinion* carrying the timing disk. The main pinion is also connected through a system of gears to the main escapement which governs the rate of rotation of the pinion and, through it, the rate of rotation of the centrifugal weights and the timing disk. During the setting of the fuze, as indicated in paragraph 3, these parts are all locked by means of the *main escapement lock*, consisting of a weighted lever held in place by a cantilever spring. When the projectile begins to rotate the lever flies outward against the action of the spring and the escapement is unlocked and free to function. The angular difference between the slot in the timing disk and the firing pin release shaft arm (Fig. 2) is determined by the amount the brass cap is rotated during the setting operation. In this way the angular travel of the timing disk while the fuze is in operation is controlled.

c. The *rotor* is located in the base of the fuze in rear of the clock mechanism (Fig. 4). The rotor itself is properly a part of the firing mechanism, but, as it is actuated by the rotor release devices contained in the clock mechanism, it is discussed here. The rotor proper is a centrifugal brass weight which rotates about a pin in the base of the fuze. It contains a cavity filled with tetryl. When the rotor is in its unarmed position, this tetryl pellet is out of alignment with the tetryl charges in the base of the fuze and the base plate. In its armed position (Fig. 3) these charges are brought into alignment. The rotor is prevented from rotating to its armed position, until the projectile leaves the bore, by means of the rotor *escapement* and *lock*, and the *rotor centrifugal weight*, located in the clock mechanism, and by a *rotor release pin* (Fig. 4). The rotor is held by the release pin one end of which rests in a groove in the rotor and the other against the rotor centrifugal weight (Fig. 4). During the setting of the fuze the rotor *escapement* is locked by the rotor escapement *lock*, which is similar in design and action to the *main* escapement lock, described in sub-paragraph *b* above. When centrifugal forces begin to act, the rotor escapement is unlocked in a manner similar to the main escapement. Centrifugal action also forces the rotor centrifugal weight outward. This movement is regulated (delayed) by the rotor escapement. After the projectile has left the bore, the centrifugal weight uncovers the end of the rotor release pin and it moves forward, under action of the release pin spring. This frees the rotor and centrifugal action forces it to its armed position, where it remains during the time of flight.

6. Summary of Fuze Action.—The action may be summarized briefly as follows:

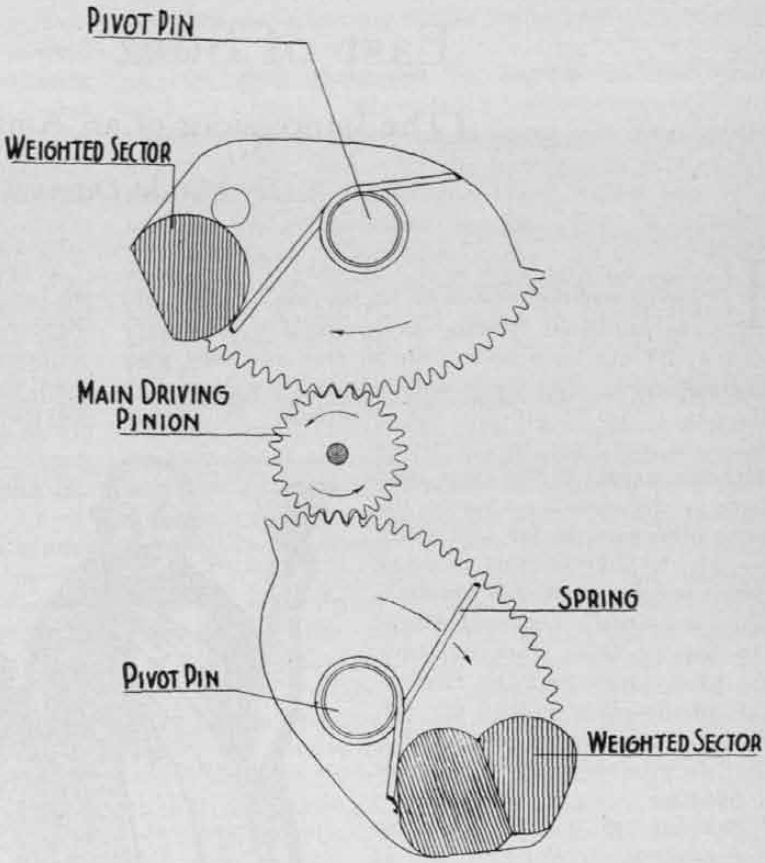
a. The timing disk release shaft slot is rotated to the proper position, in accordance with the fuze range data, by the fuze setter pawls engaging the slots in the brass cap and the base of the fuze, the setting pin in the cap engaging the release lever slot of the timing disk.

b. When the projectile is fired the brass hammers immediately flatten the timing disk release lever, thus freeing the timing disk from the brass cap, and permitting its rotation by the clock mechanism. The setback weight drops back and frees the firing pin release shaft. The rotor then turns, and its tetryl charge is brought in line with the explosive train, and the centrifugal weight gear starts to operate, thus starting the clock mechanism. This action rotates the timing disk until the timing disk release slot (set originally by the fuze setter) comes opposite the firing pin release

shaft arm. This shaft is now fully free to rotate and does so under the action of centrifugal force. The centrifugal firing pin weight may now pass through the slot in the release shaft. The weight, under considerable pressure from the firing pin spring and being free to rotate by centrifugal action, rotates and releases the firing pin at the instant the release shaft arm drops into the timing disk release slot. Driven by its spring, the firing pin strikes the primer, and successively detonates the tetryl pellets in the base, rotor, base plate, and booster and finally the bursting charge in the projectile.

EDITOR'S NOTE—It is understood upon reliable authority that the Ordnance Department is now engaged in developing a fuze which will eventually replace the M-2. This work is still in the secret and confidential stage, therefore, no details can be given at this time. Our information leads us to conclude that the modification of the fuze is in minor details of construction and that the essential principles will be changed very little if at all.

Inasmuch as M-2 fuze will later be replaced by a new and improved mechanical fuze it was suggested that the publication of the foregoing article be withheld until such time as information on the improved fuze could be disseminated to the service. From our knowledge of similar cases it is anticipated that a long time will elapse before the new fuze gets out of the experimental stage and into the production stage; therefore it was decided not to withhold the publication of a description of the M-2 fuze. It is believed to be a better policy to inform officers of the details of equipment as they actually are and later furnish a description of new or modified equipment when, and if, it comes into being. In addition one subscriber wrote in requesting a detailed description of the M-2 fuze; this inquiry convinced us that it was time to furnish the service some authentic information on this subject. Captain Milburn's article is the best and most complete of which we have any knowledge,—it was originally prepared for instructional purposes in the Coast Artillery School.



ACTION OF CENTRIFUGAL WEIGHTS
TOP (FRONT) VIEW.

Fig. 5

THE BASIC PURPOSE *of the National Defense Act was to surround a small but highly efficient professional force with echelons of reasonably trained citizenry so as to establish an efficient framework for mobilization in major emergency. This system combines efficiency and economy on a reasonable basis. It does not visualize instantaneous readiness for aggression, but only a reasonable readiness to marshal our strength before foreign hosts could be upon us.*—GENERAL DOUGLAS MACARTHUR.

East of Suez — Rangoon

(The Impressions of an American Woman)

By Maida Davis Turtle

IF Mr. Kipling had said "By the Shue Dagon Pagoda looking eastward to the sea," he would have sacrificed nothing as to rhythm or beauty and would not have been quite so free and easy with poetic licence. The sea is not eastward, the Moulmein Pagoda is in Moulmein, not Mandalay, the flying fishes, if any, are too overcome with the weight of the river mud to fly, and China is not across the bay—otherwise, as far as I could see, Mr. Kipling is exact in every detail and Rangoon was precisely like I imagined! On first thought the loss of these illusions made me pretty mad, but the fascination of the place soothed my ruffled feelings a good deal and I shall forgive the author if it takes a life-time.

Not only the city but the low flat country for miles around is absolutely dominated by this most important of all Buddhist monuments—the Shue Dagon Pagoda. It is to Rangoon what the Eiffel Tower is to Paris and the Leaning Tower is to Pisa. In the brilliant Indian sun it is aflame, and at night—shades of Broadway—it is electrically lighted, which sounds too modern and unromantic but which in reality makes of this solid gold shaft a thing of etheral beauty standing out in the darkness like a finger of light.

It was a magnet from which we could hardly turn our eyes as we sailed up the broad muddy Irrawaddy river, full of tiny native craft that look exactly like stinging-scorpions, tails in air. Their boatmen must indeed be experts to pilot them, with a solitary oar, safely across a stream so swift and treacherous; made even more dangerous by countless logs of teak-wood. These natives are clothed in a single garment—a sarang, but those who manned the launch that came out to meet us looked like pirates in their picturesque red caps and faded blue middy-like suits trimmed in red. Our launch seemed to struggle against the thick mud of the river, though I was told that it was really the tide, very strong even twenty miles from the sea.

". . . . quite a burden on the populace."

A saucy little pleasure boat with "Isabella" painted on her bow was the only familiar sight in that strange Burmese port. If there is a harbor in all the world without its "Isabella" I have failed to find it. I've seen them from Corpus Christi, Texas, to Colombo, Ceylon, and I'm convinced that they are inevitable.

My first impression of the city was a terrific glare and heat. The sun is whiter than elsewhere and the pavements are wide and unbroken, but such discomforts are soon forgotten in the interest of the place. On second thought I believe the chamber of commerce must employ beggars to distract the mind of the visitor from the heat, for they never give you time for such thoughts.

As the big pagoda dominates the eye, so the cawing of the crows dominates the ear in Rangoon. There can really be none left in any other part of the globe for it seemed that they were attending a world convention and every one was trying to speak at once. No matter where you go nor what you do the sound is incessant, and they are so bold as to fly through the unscreened windows and help themselves from the table at which you sit.

The caste system is still very prevalent in Burma, the outward sign being painted on the forehead and down the nose in all sorts of different colors and figures. Thus, two men with three daubs of orange paint between the brows would be of the same class and faith. It is a religious law that each person must prepare his own food. Think what emancipation that means for the housekeeper—and servants so cheap over there, too. The food is cooked over tiny charcoal burners on the edge of the sidewalk, and if during the preparation or consumption of the meal the shadow of a person of different caste falls upon it, it must all be thrown away. Such a waste—and such an opportunity for an enemy to starve one to death!

I suppose there must be women there—for there is no doubt of the children—but they are carefully concealed. In four days I can safely say I saw less than

a dozen women, and we went all over the city. However I can't say I blame them much, for I should make myself scarce too if my nose were as thickly studded with rings as theirs. Of course I had heard of this custom and had imagined rings of various sizes through the nose, about the same as cattle sometimes have; but that kind is the rare exception, the rule being tiny screw earrings through the fleshy part of the nose on each side. The effect is weird to say the least.

The place seems full of old Roman senators with shining shaved heads. These are the Buddhist priests; and as they toil not, neither do they spin, their number seems quite a burden on the populace. They are not allowed to have money nor to ask for food, so each morning they may be seen walking slowly in the neighborhood of their monasteries with bowls hanging around their neck which the lay public fills with food—verily the faith of a little child. Their flowing robes are strikingly picturesque—rich orange color and draped like a classical toga, leaving one arm and shoulder bare. They wear no shoes or head covering but carry a small fan with which to cover their eyes when a woman is in sight and thus keep out evil thoughts. Evidently foreign women do not inspire forbidden thoughts for only one I saw with covered eyes, the others stared quite frankly.

The incongruous combinations of some of the costumes are amusing. While the majority of natives on the street are simply and very casually clad in an inconspicuous gee-string or a one-piece sarang, those in foreign business buildings combine this native simplicity with the formality of an undertaker in full regalia. In Thomas Cook's the dignitary at the door would strike awe in the heart of the most seasoned traveller, be he American or British. Above his thin brown face was a thick white turban, a head-dress of surprising dignity. Below this face of calm oriental placidity was the high, stiff collar of a formal coat made of heavy dark goods with long tight sleeves. Across the breast and over one shoulder was a broad red ribbon such as diplomats wear; and below the formality of the uniform-like coat protruded the skinniest and the barest legs in all Christendom—or rather out of all Christendom.

Old fashioned victorias, rickshaws and bullock-carts take the place of automobiles almost entirely. The heavy hauling is done by men on crude heavy-looking vehicles with only two wheels—but such wheels. They are higher than the men and so massive and solid that when the cart is loaded to capacity with rice or opium or whatever carts are loaded with in Burma, one wonders that four or five slim little brown men can budge it.

The loading of two thousand tons of rice on our cargo ship proceeded in stolid silence under the blazing tropical sun, but after darkness had fallen and one huge bright light was turned into the hold, it became a picture worthy of a Rembrandt. The beautifully molded bronze bodies, naked except for a bright colored loin-cloth, stood out from the surrounding darkness in bold relief. The night seemed to cast a spell upon the workers themselves, for the loading was then done not in silence but in song. The very creaking and groaning of the crane took on a musical sound as it announced the coming of each bag of rice and discharged its burden in the vivid spot of light. Then with rude ceremony the leader of the workers would stand, one foot on the object of toil, and with an unconscious lift of his closely turbaned head would chant a few bars in a musical half-tone, joined by the other in a short ringing chorus. Then quickly and with cat-like grace, five or six men would swing the bag onto one pair of slim brown shoulders, the owner of which would go trotting cheerfully off to drop his load in its proper place.

Nothing less than the most important religious building in all Indo-China would have tempted me to go bare-footed through the dirty-beyond-belief pagoda and risk all sorts of nameless, and mostly imaginary, diseases. At first I thought the sign "No foot wearing allowed" was because of some deeply pious idea of covered heads and uncovered feet, but I was later put right on the subject—it is merely part of the non-cooperative policy, now widespread in India against the British government. Be that as it may, it took a good deal of courage and curiosity to leave shoes and stockings in the carriage and fly to evil we knew not of, for one cannot even see to the top of the flight of stairs which is the entrance. There are over six hundred steps, dirty as no steps in America ever could be; sacred maybe, as the approach to the holy place, but lined on each side with shops and markets of all kinds kept by a big part of the great unwashed.

Six hundred and seventy steps with that many million germs and microbes waiting to pounce on bared white feet! And then when the almost-seven-hundred steps had been climbed, the agony of stepping out on the red-hot pavement at the top! For the pagoda proper is built on the top of an artificial hill and the surrounding pavement is perilously near the tropical sun. Around the tall impressive monument, with its dome and point of leaf-gold, are countless numbers of shrines, temples and smaller pagodas. The shrines are little or big, simple or fantastically elaborate, according to the wealth of the family to whom they belong, but each contains at least one image of Buddha plainly seen beyond the grated door. In one the figure was of beautiful alabaster, in another the forehead was set with a diamond the size of a marble, and in another the hands were covered with rings with precious stones. Before many, candles were burning in the mid-day sun, while others, falling into decay, have become the roosting place for homeless chickens and pigeons.

The temples are much larger and are evidently community affairs. These are built of wood carved in fantastic designs and gaily painted in red and gold. Inside there are usually several impressive Buddhas—calm and peaceful, placid and feminine—though our Burmese guide was highly indignant when I asked if by any chance Buddha could have been a woman. This guide gravely told us that he was eighty-two feet tall, and when I asked how he knew he showed me even more gravely Buddha's foot-print in concrete. From its size he must needs have been at least that height

to carry such feet! In each temple is a huge bronze bell, and our guide insisted that we strike one three times with a stick of wood at the same time making a wish, which would surely come true. We hesitated to disturb the worshippers bending to the floor in prayer but he persisted so we are reasonably sure of at least one wonderful thing in this life.

There is a little building at the foot of the big pagoda which is neither shrine nor temple and which houses the most extraordinary collection I've ever seen—case after case filled to overflowing with articles of value, jewelry, solid gold life size flowers, gold and silver cups and dishes, alabaster vases and bowls, precious stones, rare lace, carved ivory and jade, piles of money, and in a frame a 100,000 rupee bond—all given for charity! And there they stay, year after year, in their glass cases, with the names of the donor's growing dim on yellowing cards. When I asked our guide if none of the things were ever sold and the proceeds given to the poor or to the priests, he was horrified. Sold? Why these things were given for charity and therefore could not be sold.

Descending the stairs was, if anything, more painful than the climbing, for more dirt had collected in the meanwhile and the problem of donning white shoes and stockings without a bath was troublesome to say the least. Suffice to say that we hurried back to our good ship and lost no time in finding hot water and disenfectant soap aplenty.

To reach our ship we took a smaller boat, and just at sunset we passed an uncovered launch crowded with native workmen from a nearby oil company. As the sun dropped below the water, with one accord their dark figures sharply outlined against the vivid sky, bowed low to the west, a strange sight to Occidental eyes. And as these Mohammedans unconsciously made a never-to-be-forgotten picture at their evening devotions, a British gun boomed a single shot. It was Tuesday and the weekly mail from home was in, heralded as always at sunset by the cannon's voice.

WHILE IN THE FIELD, *Napoleon usually went to bed early in the evening and rose about one o'clock in the morning to dictate his orders for the day. This method had great advantages. If he had sent out his orders at eight o'clock, the commanders would have received them in the middle of the night and their rest would have been disturbed. By waiting until one o'clock Napoleon had the advantage of later information received during the night, and his commanders received their orders soon enough.*—MITCHELL.

Organization of a Motor Transport Pool

By Capt. J. T. de Camp and 1st Lieut. L. M. Morton, CAC.

MOTOR vehicles used in the Army are classified as Combat vehicles, Special Service vehicles, Plant vehicles and General Service vehicles. Combat vehicles are defined as those primarily designed or intended for combat purposes and upon which armor and (or) weapons are usually mounted. Special Service vehicles are those which require a special design to accommodate them to the special or technical purposes for which intended. The Searchlight truck supplied by the Corps of Engineers is an example. General Service vehicles include all other types except plant vehicles, i.e., those used at arsenals, depots, proving grounds and upkeep of flying fields.

The classification of all cargo and passenger vehicles, except special types, as General Service thus ends the former distinction between vehicles assigned to a post and those assigned to a tactical unit on the post. The present policy requires that all general service motor vehicles be pooled for the general use of the command, except that general service vehicles which may be assigned to tactical units are not pooled when actually needed for drill or instruction purposes. This modification, made necessary by the present shortage of motor vehicles, is based on the same general principle laid down for operation in the field by armies, corps and divisions. *(See Par. 8—AR. 30-1075 and G. O. No. 3, W. D., 1933.)*

Whatever the makeup of the pool, whether it operates under the Quartermaster or whether it is under an officer so detailed, there must be a responsible head directly in charge who is commonly known as the Motor Transport Officer. It is from the point of view of such an officer that the subject matter herein is based. The same principles, perhaps to a lesser degree apply equally to the officer who finds tactical motor vehicles assigned to his unit.

Briefly his duties are to administer, operate and maintain the vehicle in the pool and to act as a technical advisor on the staff of the Commanding Officer. If the size of the pool warrants it, he may have commissioned officers or trained noncommissioned officers available as assistants who can perform the functional duties described hereinafter. Inasmuch as such duties must be performed anyway, they will be so divided at this time.

THE OPERATIONS OFFICER should have supervision over all vehicles pooled for general transportation purposes. He should be selected for his knowledge and experience with motor transportation and should be familiar with the routine work that is performed at the station and the vehicles necessary to accomplish it.

All vehicles should be dispatched from a motor transport center with proper dispatching orders. A competent noncommissioned officer should be on duty as dispatcher and provided with such other enlisted assistants as are necessary.

THE MAINTENANCE OFFICER should have supervision and control of all maintenance. He should be selected for his knowledge of motor mechanics and shop operation. All repair shops and facilities assigned to the command should be under his control.

THE INSPECTOR OF MOTOR VEHICLES should be charged with the systematic inspection of all vehicles and should be responsible only to the Motor Transport Officer. He should be an excellent diagnostician of motor troubles and strict and thorough in his work. With vehicles properly inspected, many defects are discovered and corrected before serious damage results. Inspections should be made so as to interfere as little as possible with operating duties. However, AR 30-1075 requires that each vehicle must be inspected once every two weeks and the results recorded.

THE SUPPLY OFFICER should have supervision of the procurement, storage and issue of the supplies and equipment needed by the pool. He should have an intimate knowledge of the nomenclature and requirements of the pool in regards to its supply needs. Necessarily he will be concerned with considerable paper work and must be competent to handle the administrative and clerical work involved.

THE PERSONNEL assigned for operating the pool should be carefully selected and highly trained if the fleet of vehicles is to be maintained in a state of high operating efficiency and the personnel is to render satisfactory, courteous and willing service. The driver or mechanic works under conditions of considerable individual latitude and his judgment and sense of responsibility must be constantly developed. For this reason it is advisable to make permanent assignment of drivers to vehicles and so organize the interior administration of the pool that each individual knows exactly where he fits into the organization as a whole.

VEHICLE INSPECTION AND MAINTENANCE. If motor vehicles are not to be unduly laid up for repairs, a careful system of inspection and maintenance must be installed, based more or less upon existing conditions, type of equipment and available personnel.

The maintenance of vehicles is divided into five echelons. The first two, constituting chiefly preventive maintenance, pertain to the vehicle driver and the Company Commander and are applicable to commanders of motorized batteries, garages and small convoys. In general these echelons include cleaning, lubrication and supervision of vehicles by the driver and inspection and enforced regulations by the Company Commander. The limited nature of the tool kits issued

with the vehicles and the supplies available indicate the character of the work that can be done. The third echelon consists of unit replacement and contemplates the removal of an unserviceable unit assembly in which a sub-assembly or part needs a repair and immediate replacement thereof either from stock or from a fourth or fifth echelon establishment. Third echelon work must be authorized by a Corps Area or a Department Commander, who is required to investigate and determine if the shop in question is possessed of the following requirements:

(a) Mechanical personnel of proper training.
(b) The shop and tool equipment required on hand.
(c) The spare unit assemblies, sub-assemblies or parts in stock or easily and quickly obtainable.

The fourth echelon embraces the "tear down" and repair of any or all unit assemblies which are used in the motor vehicles of the command. Fourth echelon work contemplates a balanced personnel organization composed of the various types of mechanics, classified and qualified in accordance with the various trades, i.e., electricians, welders, engine repairers, carpenters, painters, upholsterers, etc. Necessarily it also requires a wide assortment of tool equipment and an extensive supply of spare unit assemblies, sub-assemblies and spare parts. The fifth echelon embraces repair, manufacture, reclamation and salvage and is of no immediate concern at this time.

It can be seen from the above that third echelon repair is the normal procedure in the average post or regiment, while first and second echelon work is left to the battery or small operating unit. Fourth echelon work is necessarily more or less an exclusive function of Quartermaster Repair Shops or stations possessed of special facilities.

Idle Vehicles and Vehicle Abuses. Abuse and improper operation are responsible for the majority of vehicles that are idle. Truck abuse includes overloading, overspeeding, lack of lubrication, delayed maintenance, etc. Improper operation implies lack of road and routing survey, improper control of vehicle assignment and dispatching, and general lack of supervision. Accurate records of vehicle performance, including mileage, cargo transported, fuel consumption, tire wear, repair costs and time out of service are essential if the operating officer is to have any guide as to the efficient and economical operation of his organization. The keeping of certain tabular records is required by regulations, the keeping of certain graphical records, however, in addition, will be found most valuable.

Required Records. A list of the most important War Department regulations and publications pertaining to Motor Transportation will be found at the end of this chapter. Inasmuch as this material is available to all officers, and as changes are being issued from time to time, it will not be reviewed herein. AR 30-1075 and Cir. 1-10, O.Q.M.G., which are probably the most essential, cover the following prescribed records and reports:

(a) Driver's Permits.
(b) Accident Forms.
(c) Mechanical Inspection Forms.
(d) Vehicle Service Record Book.

In addition, the whole subject of the obtaining supplies and the disposition of unserviceable vehicles, assemblies and spare parts is covered in detail in Cir. 1-10, O.Q.M.G.

Records and Forms Not Definitely Prescribed. The War Department issues certain Q.M.C. forms as follows:

(a) Driver's Trip Ticket and Performance Record.
(b) Driver's Daily Vehicle Report.
(c) Daily Dispatch Records of Motor Vehicles.
(d) Gasoline and Lubricant Issue Slip.
(e) Motor Vehicle Operation and Maintenance Cost Record.

In addition it is required that records be kept of tire mileage, vehicle inspection and storage battery inspection on improvised forms. These forms or ones of similar nature to fit local conditions, must be provided in order to furnish the data which is required to be entered in the Vehicle Service Book.

It is by checking the Gasoline Issue Slips against the Daily Dispatch Record that any appreciable loss of gasoline by unlawful disposal can be detected. Further, it is the source from which these items are entered on the Motor Vehicle Operation and Maintenance Cost Record. Issues of tires and tubes, and cost of repairs are obtained from the Maintenance and Supply Departments and also entered on it. At the end of the month the entries must be totaled and posted to the Vehicle Service Record Book.

From the total cost of all vehicles and the total mileage, the cost per mile can be computed. The cost per mile is an index of the efficiency either as a comparison between individual vehicles or as a month to month comparison. Major variations should indicate to the Motor Transport Officer possible sources of investigations within his organization.

Issue of Gasoline. While not definitely prescribed, two general methods of gasoline issue are now practically universally employed in the service. The first method favored by many officers as the most efficient check is to fill up each vehicle at night when it comes in. The amount of gasoline drawn is then an accurate check of the amount used by the vehicle. By checking against the Dispatcher's mileage report, any discrepancies are at once apparent.

The second method is to issue gasoline as required during the day. Its disadvantage as compared to the first method is that while the daily issue can be posted and checked against the Dispatcher's record, it is necessary to observe the gas consumption over a period of days to discover any excess consumption. Its advantage is that in a large and busy pool operating continuously, time and facilities are not such as to

make it easy to issue gasoline to each vehicle at the end of the day's operation. A further disadvantage is that if a vehicle is not used daily it is not desirable to park it with a full tank, particularly when it cannot be safely stored under lock and key.

METHODS OF LUBRICATION. The proper lubrication of vehicles is one of the greatest problems of proper garage management. Probably the most satisfactory method, if the size of the pool warrants, is to detail one mechanic or mechanic's helper for the job of lubricating all the vehicles. He must be supplied with the proper equipment and check list of all points to lubricate. Lubrication is done on a mileage basis and when sufficient mileage has accrued, the vehicle is taken out of service and completely lubricated. The alternative method is to charge the individual driver with this duty which vastly increases the necessary supervision and spreads the responsibility for proper lubrication among too many individuals.

APPEARANCE AND UPKEEP. In contrast to the above method of lubrication, the appearance and upkeep of the vehicle rests largely on the attention given to it by the individual driver. If the driver is trained to check the water, gasoline and lubrication of his vehicle before leaving the garage, to tighten nuts and bolts between runs, to clean it at night and report promptly any defects in its operation, the most difficult obstacle has been overcome. Necessarily this requires constant supervision and inspection. Flapping tops, banging tail-gates, missing hood latches, dirt and lack of paint all indicate lack of proper supervision. On the other hand a clean engine is usually the sign of a well kept vehicle.

THE FINAL ORGANIZATION. So far the necessary organization has been described briefly and its various subdivisions and some of the more important phases of upkeep and operation discussed. In the final analysis, the Motor Transport Officer is primarily interested in making the pool operate as a whole. In Military Service it is almost second nature to build up a chain of command and such a chain is at once obvious, such as the driver, truckmaster dispatcher and operation officer. However, the inspector must have access to a vehicle, for maintenance cannot be carried out while it is operating, nor can it be repaired if the necessary parts are not available. This lateral co-ordination will be found the most difficult part of the Motor Transport Officer's plan of organization. Lateral control may be assumed by him in person in a small pool, but if possible the Motor Transport Officer should avoid becoming a cog in the machine and only step in under unusual situations or to vary the routine procedure. Lateral co-ordination can be obtained by "routing," that is by directing or laying down the procedure to be followed in advance. Thus it is by planning, routing and supervision that the framework of the final organization into a workable whole must be based.

REFERENCES:

1. Table of motor vehicles authorized for operation during a fiscal year. This chart is issued annually by the War Department.
2. Ambulances—AR. 40-75.
3. Shipment of motor vehicles—AR. 30-995.
4. Marking of vehicles and property—AR. 850-5.
5. Storage of Motor Vehicles and Equipment—AR. 30-1055.
6. Use and care of Motor Transport—Basic Field Manual, Vol. 5.
7. Operation of Motor Vehicles—AR. 30-1075.
8. Motor Vehicle Operator—TR. 75-85.
9. Issue of gasoline, oil, etc.—AR. 35-6560.
10. Gasoline, oil and grease, Training purposes—AR. 730-10.
11. Motor Transport—Handbook for Quartermasters.
12. Cir. 1-10, O. Q. M. G. which covers:
    (a) Storage of Motor Vehicles and Equipment.
    (b) Repairs to Motor Vehicles.
    (c) Reclamation of Motor Vehicles and Parts.
    (d) Records and Reports.
13. Moving ammunition by truck—Par. 105, Tech. Reg. 1507-A.

GENERAL STOESSEL *(in the Russo-Japanese War) ordered the south wall of Tsintchow (near Nanshan) blown down at once to prevent its use for shelter by Japanese. This was not done, as the work would have required 719,000 pounds of triton, 36 times the amount in the depot of the First American Army in France, and 53,000 wagon loads to haul the debris away or scatter it. A general need not be a technical expert, but he must know something about all operations of war, technical as well as non-technical.*—MITCHELL.

News and Comment

Policies Affecting the Reserve Officers Training Corps

UNDER date of June 1 the War Department caused to be transmitted to the head of each educational institution where a unit of the Reserve Officers' Training Corps is maintained an explanation concerning the temporary withdrawal of R.O.T.C. instructors as follows:

"1. The missions of the War Department have been materially increased by the Civilian Conservation Corps program of the President. In carrying out this mission, which imposes a greater burden on the War Department than that pertaining to the Spanish-American War, considerable numbers of officers are being withdrawn temporarily from their regular duties. Among these officers will be many who are now on R.O.T.C. duty.

2. The Secretary of War wishes me to inform you that he regrets this necessity exceedingly; that this use of the officers assigned to you is a temporary measure and that the needs of your institution will not be forgotten by the War Department. It is the intention of the War Department to restore these officers as far as practicable to their normal duties in time for the opening of their respective units this fall although it may be necessary to reduce their numbers.

3. It is hoped that no serious inconvenience will be caused you by this unavoidable curtailment of your personnel."

New Training Manual 2160-25

THE revision of Training Regulation 435-325, "Orientation," has been approved by the Adjutant General for publication. The revision is considered to be a great improvement over the old Training Regulation. It will be known as *Training Memorandum 2160-25*. The first paragraph of this Training Manual sets forth the scope and purpose as follows:

"This manual is a complete revision and rearrangement of TR 435-325, "Orientation." Certain phases of the former text have been amplified to provide a self-instruction manual for the orientation requirements of Coast Artillery organizations. The scope is indicated in the foregoing table of section contents. Section IX, "Orientation Requirements of Reconnaissance Officers," has been added to outline the specific responsibilities, duties and procedure of reconnaissance officers of the battery, battalion and regiment."

Regulations Affecting Reserve Personnel

HERETOFORE changes in the regulations governing the administration of the Organized Reserves have become effective immediately upon issue. In certain cases this has operated to the disadvantage of individual reserve officers and has had the effect of disrupting personal plans and blasting hopes of early promotion. Sometimes it has caused embarrassment to the Unit Instructor by rendering it impossible for him to fulfill a promise, made in good faith, to a reservist.

Information has just been received which indicates that hereafter changes affecting appointment, promotion, transfer, etc., of reserve personnel will contain a proviso making such change effective at an appropriate future date. This policy will, in many cases, react to the benefit of reserve officers and remove the criticism, which occasionally has been made, to the effect that the War Department does not always keep faith with reserve personnel on these vital questions.

Changes in the Chief's Office

AS this issue of the COAST ARTILLERY JOURNAL goes to press several new faces have made their appearance among the personnel of the Chief's Office. Lt. Col. George A. Wildrick, one of the most recent graduates of the Army War College, has been assigned to duty in the plans and projects section. This section is charged with the revision of all harbor defense projects. A most comprehensive study is being made of such questions as the elimination of guns and accessories of questionable value, the modernization of elements to be retained and the installation of additional armament wherever deemed necessary. This work has been in progress for several years and a vast amount of data collected and correlated.

Major Randolph T. Pendleton (better known as Tucker) also a recent alumnus of the Army's highest institution of learning, has been assigned to the personnel section and is now working on a plan designed to please all officers who desire a particular assignment and to hear intimate and personal reasons why they should receive only assignments agreeable to them. To begin with it should be stated that Tucker's job is impossible but we know that he will follow the path mapped out by his predecessor, Major George F. Moore, and will do his best for a hundred per cent performance.

Major George F. Moore has been designated a member of the next class at the Army War College, which according to present expectations will open in September.

Major John H. Cochran will leave Washington in the near future for a tour of duty at the home of the Coast Artillery on Hampton Roads, where (it is understood) he will become a director in the Coast Artillery School. To the new members of the official family the JOURNAL extends greetings and best wishes; to the departing members appreciation and thanks for past favors.

COAST ARTILLERY BOARD NOTES

Any individual, whether or not he is a member of the service, is invited to submit constructive suggestions relating to problems under study by the Coast Artillery Board, or to present any new problems that properly may be considered by the Board. Communications should be addressed to the President, Coast Artillery Board, Fort Monroe, Virginia.

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Projects Completed Since the Last Issue of the Journal

No. 926. Test of Homelite Generating Unit.—The Generating Unit M1, manufactured by the Homelite Corporation, is a standard article of equipment for tractor artillery units. It is a 12-volt, 600-watt unit suitable for furnishing lighting power. The Homelite Corporation recently reported that their latest model 12-volt unit incorporated several important improvements over the original model accepted as the Generating Unit M1. It was originally thought desirable to make additional tests of the improved unit before accepting the reported improvements. A member of the Homelite Corporation visited Frankford Arsenal and demonstrated their new 110-volt unit before certain Ordnance officers. It is reported that the demonstration included playing a stream of water on the unit while it was operating; which did not affect the operation in any way. The demonstration, while made on the 110-volt unit, indicated that the improvement in both the 110-volt and 12-volt units were such as generally to increase their dependability, so that it was felt that actual further tests of the improved 12-volt unit were not necessary. It was, therefore, recommended that the improvements made in the latest model 12-volt unit be accepted and incorporated into the specifications for the Standard Generating Unit M1 unless, in the opinion of the Chief of Ordnance, such improvements detracted from its suitability for Army use.

No. 927. Test of Radio Set, Type SCR-177.—This set was designed as a replacement for the present standard radio set SCR-136. One set was tested for several months in the Canal Zone and another set at Fort Monroe, Va. The conclusions reached by both testing agencies were in close agreement. The SCR-177 is considered a satisfactory replacement for the SCR-136, the improvements having been principally in better construction of component parts. However, recommendations for standardization have been held in abeyance pending tests of a lighter weight all-purpose set which is expected to be available for test in the near future.

No. 931. Test of Roller Bearing, 3″ A. A. Gun Truck Mount T1.—The 3-inch antiaircraft gun truck mount T1 was equipped when received with a special pedestal bearing known as the SKF self-aligning bearing. This type of bearing is a commercial product and is available in quantity in time of emergency. Furthermore, it is cheaper than the type normally employed in the M2, 3-inch antiaircraft gun mounts. Considerable difficulty, however, was experienced with this bearing. During the tests at Aberdeen Proving Ground in 1930 the bearing gave indications of failing. In 1931 during the firings at Fort Story, Va. the bearing when disassembled was found to be badly scored so that it was necessary to ship the mount to the arsenal for repair and reassembling of the bearings. It was thought that the failure of the bearing might be due to improper assemblage. After the bearing was reassembled it was given a service test which consisted of firing 500 rounds during the various target practices and demonstration firings conducted during the current year at Fort Monroe, Va. Preliminary but inconclusive examination showed no signs of failure. The carriage was sent to Aberdeen Proving Ground where it is understood a more complete examination will be made. It was therefore recommended that the SKF self-aligning bearing not be accepted as a suitable replacement for the type used in the 3-inch antiaircraft gun mount M2 until further and more severe firing tests have been conducted at an Ordnance proving ground.

No. 941. Markings for Projectiles and Storage Cases.—The object of this project was to make recommendations concerning possible methods of reducing the amount of work incident to re-marking projectiles and cartridge storage cases, and also to reduce the possibility of mistakes in markings. To accomplish these aims the Coast Artillery Board recommended (a) reference symbols, supplemented by an index tabulation posted in each place of storage, be used for marking projectiles only; (b) the ammunition lot number of the projectile constitute the reference symbol used; (c) the reference symbol be stenciled on the center of gravity of the projetile; (d) no reference symbols be used for marking cartridge storage cases; (e) metal ammunition data tags be used on the outside of cartridge storage cases in lieu of the present type of ammunition data card; and (f) pending action on the recommendation in (e) above, that data stenciled on cartridge storage cases

be as indicated above. As yet no instructions have been issued to the service making any changes in marking ammunition.

No. 946. Test of Range and Height Finder T-12 for Use With Tractor Artillery.—The Range and Height Finder T-12, obtained primarily for use with antiaircraft artillery as a height finder, was tested at Aberdeen Proving Ground during 1931. It was found that where as it was slightly more accurate than the 4-meter base instruments, this increase in accuracy was not sufficient to warrant the increased cost and weight of the instrument. The instant test conducted by the Coast Artillery Board at Fort Monroe was to determine whether or not this particular instrument was suitable as a range finder for use with tractor artillery. Extensive tests were conducted on moving targets consisting of commercial shipping of all types, from fishing boats to large steamers. As a result of the test the Coast Artillery Board recommended that (a) no four-meter base stereoscopic range finders be purchased for test with tractor artillery for the present; (b) the final decision as to the base length and type of stereoscopic range finder to be supplied tractor artillery be held in abeyance until after the test of the T-2 range finder, which test was being taken up at that time; and (c) the T-12 range and height finder be held at Fort Monroe, Va. until after the test of the T-2 range finder, after which date it will be available for use elsewhere.

No. 954. Test of Modified Traversing Mechanisms for Ten and Twelve-Inch D.C. Carriages and of Modified Azimuth Pointer for Twelve-Inch D.C. Carriage.—This project consisted of tests of various types of handwheels for ten and twelve-inch disappearing carriages, and a modified azimuth vernier for the 12-inch disappearing carriages to facilitate the laying of these pieces. As a result of the test the Coast Artillery Board recommended that (a) traversing handwheels be substituted for the traversing cranks on such of the following disappearing carriages as the Chief of Coast Artillery may designate:

10-inch, Model 1901,
10-inch, Model 1894 MI,
12-inch, Model 1896,
12-inch, Model 1901;

(b) small traversing handwheels be placed on the traversing crank shaft of such carriages, 10-inch Model 1896, as the Chief of Coast Artillery may designate; and (c) when a redesign of the azimuth vernier mechanisms is made, it be placed on such carriages as the Chief of Coast Artillery may designate.

No. 955. Depression Angle Indicator for Use in Airplanes.—An altazimuth instrument was developed by the Air Corps as the result of experience with various types of horizontal and vertical angle measuring devices used in long range tracking and firing tests of the last two or three years in Panama and Hawaii. The present instrument combines an aperiodic compass, a level bubble and a vertical angle measuring device. The instrument is held in the hands of the observer, it having been found that the instability of the plane in flight prevents, for this type of work, the use of instruments attached to the plane. The magnetic azimuth and angle of the target below the horizontal together with the altitude of the plane provide the data from which the position of the ship relative to the plane is determined. The test was conducted in conjunction with the personnel of Langley Field, the plane being located for purposes of the test. It is presumed that the position of the plane under war conditions will be determined by radio direction finding apparatus. This latter apparatus, at the present time, leaves much to be desired, however, and the ultimate success of the system will be dependent upon improvements in radio direction finding. The instrument tested was satisfactory in principle but certain mechanical improvements were suggested by the Air Corps observer. The results were sufficiently promising to warrant further tests. The Coast Artillery Board recommended that the altazimuth instrument, in its present form or, preferably, incorporating certain mechanical changes recommended by the Air Corps, be used with the next long range firings to determine the accuracy of the range finding system when the instrument is used in conjunction with radio direction finders for locating the position of the plane.

Projects Now Before the Board

Of Such Projects Those to Include No. 961 Were Listed in the May-June Number of the Journal.

No. 608. "Duco" Surfacing for Guns.—This test continues. Another gun carriage of Battery Montgomery (6″ Barbette) has been painted with "Dulux" paint. The various guns and carriages that have been painted will be kept under observation.

No. 929. Experimental Field Chronograph (Jackson).—It is understood that the first test of this field chronograph will begin shortly at Aberdeen Proving Ground. It is proposed to give the instrument an accuracy test at Aberdeen Proving Ground and then a field test at Fort Monroe, Va.

No. 937. Test of Submarine Mine Equipment.—This project includes several items to be used with the single conductor system. To date tests have not progressed sufficiently to render definite reports on any of the items tested. Considerable progress is being made in the development of modifications of the submarine mine system.

No. 946. Chamber Swabbing Sponge T3, 12-inch.—This sponge is now under test. The test should be completed in July.

No. 947. Test of Oil Clothing for Use by Army Mine Planter Personnel.—The test of this clothing by the crew of the Mine Planter *Schofield* was inconclusive. The clothing has now been shipped to the Cable Ship *Joseph Henry* for an extended service test of one year.

No. 953. Radio Controlled High Speed Target.—Whenever opportunity affords, work on the construction of this target continues. Progress is necessarily slow and it is difficult to say when the project will be completed.

No. 956. Test of Compress, Lensatic, With Leather Case.—This device has not been received and nothing is known about it.

No. 958. Device for Checking Mobile Artillery Sight Mountings.—This device is now under test and so far has shown considerable promise.

No. 959. Weston Universal Exposure Meter, Model 617.—This is a commercial device for determining proper aperture setting in photographic work. It has been tested for normal photographic work and is now under test by antiaircraft units to determine its value for use with the antiaircraft spotting cameras. The Cadets of the United States Military Academy are using the device in the antiaircraft firing they are now carrying on at Fort Monroe, Va.

No. 960. Draw-Bar Pintle Check, 155-mm Gun.—This is a device to prevent undesirable rotation of the draw-bar pintle of the 155-mm gun. The test has been completed and the report is now in preparation.

No. 961. Improvised Mounting, Telescopic Sight, 155-mm Guns.—This is a mounting proposed to accommodate a telescopic sight suitable for Case II firing. Under study.

No. 963. Test of Stereoscopic Range Finder T-2.—The Stereoscopic Range Finder T-2 is a heavy six-meter self-contained range finder made especially for use with tractor artillery. It was given a comparative test with the Range and Height Finder T-12. The test has been almost completed but due to the large amount of data that has been collected and the amount of plotting and computation involved the date when the report will be submitted cannot be definitely stated. The test so far as analyzed indicates that the T-2 is perhaps the most accurate self-contained range finder so far tested by the Board.

No. 964. Test of Rubber-Jacketed Submarine Mine Cable.—This cable differs from ordinary mine cable in that it has a rubber-coated exterior which tends to eliminate kinks and bird-caging. A test is in progress.

No. 965. Test of L-T Seacoast Director E-1.—This director was tested by the Coast Artillery Board during the month of June. The test consisted (1) of static tests to determine the accuracy of the instrument; (2) tests on moving targets to determine the operating characteristics of the instrument, and (3) of subcaliber and service practices with 155-mm guns to determine the accuracy of the instrument under service conditions. Upon the completion of these tests a preliminary report was submitted. The results of these tests, in general, were most satisfactory. The instrument appears to afford such a complete solution of the technique of seacoast gunnery that early steps should be taken to complete the development and issue of this director. As was to be expected, certain improvements can be made in the mechanical construction. In its partial report the Coast Artillery Board recommended that the instrument be adopted as a development type and that the Chief of Ordnance be requested to construct at the earliest practicable date another model incorporating such mechanical changes as are to be specified by the Coast Artillery Board.

No. 966. Test of Circuit Closer, Model 1933.—This is an improved circuit closer developed at the Submarine Mine Depot. Procurement authority has been granted for the purchase of 50 of these circuit closers, which will be given a service test over a period of two years. The test of this device by the Coast Artillery Board is to be continued.

Address Changes

SUBSCRIBERS are urged to notify us promptly of each change of address. The infrequency in publication of the Army List and Directory has proven this medium as unreliable, due to changes made between dates of publication. Leaves of absence and temporary addresses on change of station are missing from War Department orders. Notices of change of address furnished by the Post Office Department in many instances are illegible or incomplete; such notices, formerly furnished publishers free, now require payment of 2c postage by the publishers.

We earnestly request each subscriber to advise us immediately when he moves or is transferred. Just send us a postal card, giving:

Name .....

Old Address .....

.....

New Address .....

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NOTES ON RESERVE ACTIVITIES

Department Convention Held in Duluth

WE are indebted to Lt. Col. F. C. Tenney, CA-Res., for the following account of the meeting of the Department of Minnesota Reserve Officers' Association, which was held in Duluth on May 20-21, 1933.

Some ninety officers, delegates from six Chapters in the State, were in attendance. Our guests of honor were: Brig. Gen. John H. Hughes, Commanding General, 88th Division; Colonel Osmun Latrobe, Executive Officer in charge of Reserve affairs Seventh Corps Area, and Colonel R. L. Gray, Jr., Engineer Reserve, St. Paul, representing the National Council.

After an informal lunch, a group picture of the assembled delegates, with members of their families, was taken. The convention then convened.

A committee of ladies, headed by Mrs. W. H. Sweet, wife of Captain Sweet, our Unit Instructor, escorted the ladies on a drive around the city, and then to the home of Mrs. J. R. McGiffert for tea.

The convention session was confined entirely to business, with the exception of one very interesting and instructive address by Colonel Latrobe, on the functions of the Regular Army officer and the Reserve officer in the Civilian Conservation Corps work.

The reports of the President and the Secretary, indicated an increase in membership in the Department from 205 to 501. The Department trophy, a beautiful loving cup, was awarded to the Minneapolis Chapter for the largest increase in memberships.

Resolutions bearing on our National Defense policy, and the R. O. T. C. at the State University, were unanimously passed, spread upon the minutes, and copies ordered sent to the President of the United States, our senators and congressmen, and to the Board of Regents at the University of Minnesota.

The following Department officers were elected for the next fiscal year:

President—Major Floyd E. Eller, Inf.-Res. Minneapolis

1st Vice-Pres.—Col. B. W. Kelly, Med.-Res. Aitkin

2d Vice-Pres.—Lt. E. A. Martini, Inf.-Res. Duluth

3rd Vice-Pres.—Major Samuel Amberg, Med.-Res. Rochester

Sec.-Treas.—Capt. Harold E. Blodgett, Inf.-Res. St. Paul.

At seven o'clock the officers, together with the families, assembled for the convention banquet. General Hughes was guest of honor at the banquet, and made the principal address following short talks by Capt. W. H. Sweet, Unit Instructor for this Area—Major A. B. K. Lyman, Engineer Corps, District Engineer, and Colonel Elmer McDevitt, C. O. of the 125th F. A. An informal dance followed the banquet.

On Sunday morning, through the courtesy of the U. S. Coast Guard, the visiting officers and their families were taken for a very delightful cruise on Lake Superior and through the Duluth-Superior Harbor on the U. S. S. "Crawford." This trip, which was the highlight of the entertainment program, completed the scheduled features of the convention.

Organized Reserves Participate in Century of Progress Parade

THE Organized Reserves of the Illinois District were mobilized on May 27 for participation in the Century of Progress Parade which inaugurated the official opening of the exposition at Chicago. The following units were well represented:

6th Division (Infantry)
86th Division (Infantry)
56th Division (Cavalry)

The non-divisional troops comprised elements from the Coast Artillery, Field Artillery, Engineers, Signal Corps, Air Corps, Medical Corps, Quartermaster Corps and Chemical Warfare Service. In sending out the call for officers to participate the District Commander pointed out the necessity for each officer to make a special effort to be with his organization, not only to assure a creditable representation for this occasion but also to demonstrate to the distinguished visitors and spectators the importance of the Organized Reserves as a component of the Army of the United States and an important factor in the scheme of National Defense. The plan was well received with the result that a large and representative officers' corps took part in the parade.

Meeting of the Washington Chapter, Coast Artillery Club

THE final meeting of the Washington Chapter, Coast Artillery Club, was held in the club rooms on the evening of June 20. About 40 members were present. After the transaction of the regular business officers were elected for the ensuing year. They are:

President—Lt. Col. James B. Bentley, C.A. (Res.), Laurel, Md.

Vice-President—1st Lt. Stanley McGee, C.A. (Res.), Washington, D. C.

Sec.-Treas.—1st Lt. J. Curtis Ladd, C.A. (Res.), Washington, D. C.

A resolution commending the Unit Instructor, Major Elmore B. Gray, C.A.C., for his exemplary leadership, sound professional advice and clear cut instructions, was moved, seconded and adopted. A similar resolution was adopted in the case of Captain Thomas J. Betts, C.A.C. While Captain Betts has not been assigned to duty with the Organized Reserves he has

given unstintingly of his time and efforts during the past four years to furthering the interest and activities of the Reserve Corps and has, by his wise counsel and timely advice, proved himself to be a true friend, ardent supporter and wise councillor. On many occasions he has conducted the conference and addressed the chapter on military subjects. It is deeply regretted that War Department orders have removed Captain Betts from Washington. He will be greatly missed. Major Gray has been temporarily relieved from duty in Washington and is now engaged in reforestation work in the mountain regions of Pennsylvania. After this work is finished we hope to have him back at his accustomed desk.

Captain Betts made a farewell address in which he expressed his deep regret at being compelled by War Department orders to forego his pleasant associations with the Coast Artillery Club. We hope he will enjoy his tour of duty with the 61st Coast Artillery at Fort Sheridan, Illinois. Major Bennett made a short address on the work of the War Department in connection with the Civilian Conservation Corps and some other questions of interest to the Reserve Corps. Captain Caswell made a report on the Coast Artillery Association meeting which was held at the Danish Rose Restaurant. A committee was appointed to inquire into the advisability of having some form of entertainment during the summer. The date and nature of this will be announced later.

Seattle Chapter Meeting, Coast Artillery Association

A GOOD time was had by all who remember,—and—well—who could possibly forget? The occasion was the first of its kind of the Seattle Chapter of the Coast Artillery Association, and if the spirit of fellowship, loyalty and enthusiastic approval which prevailed at the banquet is at all indicative, there will be regular similar social functions in the future. The time was the evening of June 14, 1933, the place, Coon Chicken Inn, immediately north of the city limits, the crowd, about thirty officers including visitors from eastern Washington who had made the trip to the Charmed Land especially to be among those present at the first jovial get-together of the Seattle Chapter.

Col. Walter S. Pollitz, CAC-Res. as toastmaster provided the tone and theme for the banquet program which included a number of after dinner talks, versatile in character, ranging from well received humor to flights of inimitable oratory. Col. Edward Kimmel, CAC, the Professor of Military Science and Tactics, University of Washington R.O.T.C., reminisced on "Coast Artillery Activities." Major William D. Frazer, CAC, Professor of Military Science and Tactics, University of Washington R.O.T.C., discoursed upon "The Coast Artillery Officer—His Status," which found favor with the group. Major W. K. Richards, CAC, Seattle Executive for Organized Reserves, stirred every officer present with his "Challenge to the Coast Artillery Officer."

If there was idealism and nobility in the program proper there was also practical action in the agenda of the evening. A committee was named to acquaint the new Reserve appointees in the work of the Association, and meetings were planned for the next six months under the supervision of 1st Lt. P. G. Lewis and 1st Lt. H. C. MacLaughlin, whose duty it will be to provide programs of a combined professional, instructive and entertaining nature. The latter factor will undoubtedly be supplied in full and overflowing measure by the Fusiliers, headed by 1st Lt. G. W. Sargent—that gang within the group, whose originality and wit creates both fun and diversion for the Chapter. In fact, at the first meeting their partial initiation of 1st Lt. Alexander Young constituted one of the rare highlights of the evening—an evening which bids fair to become the forerunner of many of its kind for the Seattle Chapter of the Coast Artillery Association.

Doings of the West Point Chapter of the U. S. Coast Artillery Association

A MEETING of the West Point Chapter of the U. S. Coast Artillery Association was held at West Point, on May 6, 1933. The President, Lt. Col. Sanderford Jarman, C.A.C., presided. The principal speaker for the occasion was Lt. Col. Walter K. Wilson who spoke on the subject of experimental firing at Fort Morgan, Alabama, in 1914. Colonel Wilson was the recorder of the board that conducted the test. He gave a very interesting account of the circumstances that led up to the firing, as well as the firing itself, and the conclusions drawn therefrom. At the termination of Colonel Wilson's talk an executive session of the chapter was held and the following officers elected for the ensuing year.

President—Major Charles Hines, C.A.C.

Sec.-Treas.—Capt. Marvel H. Parsons, C.A.C.

These officers will succeed Lt. Col. Sanderford Jarman, C.A.C., and Capt. William H. Donaldson, C.A.C., respectively. The outgoing officers were given a vote of thanks for their untiring energy and service in promoting the activities and interest of the West Point Chapter.

250th Coast Artillery, Calif. N. G., Makes Record in Extension Courses

IN a report just submitted by the instructor, Major J. D. MacMullen C.A.C. (DOL) to Colonel R. E. Mittelstaedt, it is noted that the Regiment has completed a total of 456 subcourses or 6,739 hours of work. There were 58 officers and 21 enlisted men enrolled making an average of 80.5 hours work per student.

Counting uncompleted subcourses, the total work done is well over 7,000 hours which is more than double the amount last year. It must be remembered that the correspondence work of a National Guard unit is only a small part of the work accomplished during the year. In addition to these schools there are many Regimental schools for specific groups and quite a number of refresher courses in addition to Chemical Warfare instruction, Riot Duty instruction ad infinitum.

Coast Artillery Reserve Officers Club
(Second Coast Artillery District)

ON June 5th, the Coast Artillery Reserve Officers Club sponsored the Annual Dinner of the Reserve Officers of the Second Coast Artillery District at the Building Trades Employers Association, 2 Park Avenue, New York City.

This year's attendance was by far greater than that of last year, despite the continued depression—thus marking this as one of the most successful dinners held.

Lieutenant Colonel A. C. M. Azoy, 908th C.A. (AA), acted as toastmaster, and in the most masterful fashion introduced the guests and the speakers.

Among the guests were General Cole, General Byrne, Colonels R. S. Kirkland, George Nugent, George Cocheu, Arthur S. Conklin and others. Each was given a few minutes (three, to be exact,—a Second Lieutenant with a whistle was time-keeper) to say a word of greeting. Colonel Stopford, our Executive, outlined the growth of the extension course study in the Reserve.

The principal speaker of the evening was Colonel George A. Nugent, G.S.C., Chief of Staff—Second Corps Area, which was very interesting and especially well received, judging by the applause which followed.

Next on the program was a sketch with sound effects given by the members of the 908th C.A. (AA) called "The General's Decision." This was a burlesque on the routine at a front line command post; represented in the cast were:

General Nerts .....Lieut. Louis Blesser
Lieut. Knowall .....Lieut. Seymore Baum
Colonel Doolittle .....Major Charles Clark
Mr. Plant .....Captain Jack Mayer

Each regiment had as its guest one of this year's graduates of the R.O.T.C. of Fordham University and also a representative gathering of the Brooklyn Chapter National Sojourners.

Practically all in the assemblage wore uniforms and the very successful dinner of 1933 will be long and well-remembered by all who attended.

Pittsburgh Chapter, U. S. Coast Artillery Association, Elects Officers

AT a meeting of the Pittsburgh Chapter of the U. S. Coast Artillery Association held on May 24, 1933, the following officers were elected to serve for the ensuing year:

President ....Capt. James I. Martin, 508th C. A.
Vice-President Capt. T. O. Ryan
Secretary ....1st Lt. John W. C. Ramaley, 503rd C. A.
Treasurer ....1st Lt. O. R. Rutemiller, 503rd C. A.
Board of Governors:
Chairman ...1st Lt. Kenneth A. Wing, 508th C. A.
Members ....Col. James S. Ervin, 508th C. A.
Col. Carl M. Deakin, 523rd C. A.
Col. Allison F. H. Scott, 622d C. A.
Major Edward W. Turner, C. A. C.
Major Lloyd A. Corkan, 523rd C. A.
Capt. Charles H. Fleming, 508th C. A.
Capt. Paul O. Langguth, 508th C. A.
2d Lt. George C. Saltzman, 503rd C. A.

The meeting was attended by 35 officers representing the most active members. Colonel Scott, who is at present located in Johnstown, Pa., was present and gave the chapter the benefit of some interesting and instructive remarks. The newly elected officers promise to exert their best efforts to make the ensuing year the most successful in the history of the organization. More power to them, we know that they will make good.

IN CONSIDERING *the extent to which the theory of mechanization can be practically applied, it is necessary to recall some of the obvious limitations of the motor-driven armored vehicle. One of these is its inability to negotiate certain types of terrain. Swamps, mountains, thick woods, streams, and extremely rough ground are in general effective obstacles to its use. In such areas, if important from a military standpoint, the Infantry, Cavalry, and Artillery must operate without the assistance of mechanized units.*—GENERAL DOUGLAS MACARTHUR.

COAST ARTILLERY ACTIVITIES

Office of Chief of Coast Artillery

Chief of Coast Artillery
MAJOR GENERAL JOHN W. GULICK

Executive
COLONEL W. F. HASE

Personnel Section
MAJOR G. F. MOORE
MAJOR R. T. PENDLETON

Materiel and Finance Section
MAJOR R. E. HAINES
MAJOR O. L. SPILLER
MAJOR J. H. COCHRAN

Organization and Training Section
MAJOR E. E. BENNETT
MAJOR F. P. HARDAWAY

Plans and Projects Section
LT. COL. G. A. WILDRICK
MAJOR G. R. MEYER
MAJOR R. V. CRAMER

Hawaiian Separate Coast Artillery Brigade News Letter

Brigade Commander—Brigadier General R. S. Abernethy
Chief of Staff—Colonel Arthur L. Fuller, C.A.C.
S-1—Lt. Col. W. V. Carter, AGD.
S-2—Capt. E. T. Conway, C.A.C.
S-3—Major A. G. Campbell, C.A.C.
S-4—Major F. A. Mountford, C.A.C.

BRIGADE REVIEW

THE Hawaiian Separate Coast Artillery Brigade, under the command of Brigadier General Robert S. Abernethy, conducted a review at Kapiolani Park in Honolulu, June 14, 1933, in honor of Vice Admiral Gengo Hyakutake, of Japan, and the officers and midshipmen of the Japanese Training Squadron. The ceremony was one of the most spectacular affairs conducted in Hawaii since the gigantic Department Review, held for Ex-Secretary of War Newton D. Baker, last spring.

The Brigade was formed of three composite regiments. The 16th Coast Artillery, composed of elements from the 16th C.A. and the 2nd Battalion of the 55th C.A., under command of Colonel Harry L. Steele, was on the right of the line. The 15th Coast Artillery, occupying the center, was commanded by Colonel Homer B. Grant; it was composed of elements of the 15th C.A. and the first battalion of the 55th C.A. Two battalions of the 64th Coast Artillery from Fort Shafter, commanded by Lieutenant Colonel W. W. Hicks, comprised the third regiment which was located on the left. Regiments consisted of two battalions of three batteries each. Batteries were divided into two four-squad platoons.

The setting for the review was almost perfect with a typical blue and cloudless Hawaiian sky overhead. Kapiolani Park is located under the very shadow of the extinct volcano, Diamond Head, the landmark of Hawaii. The Polo House was jammed to capacity with distinguished guests; these included Mrs. Lawrence M. Judd, the first lady of Hawaii, Mrs. Briant H. Wells, the wife of the Department Commander, A. J. Bowley, Rear Admiral and Mrs. W. C. Watts, and many others. Several hundred Japanese officers and midshipmen from the visiting squadron flanked the Polo House. Approximately 15,000 spectators completely encircled the field. The Honolulu press complimented the Coast Artillery troops in glowing terms on the perfection of the ceremony and especially on the way the crowds and motor vehicle traffic were handled. Another job well done!

Vice Admiral Gengo Hyakutake was very appreciative of the honor accorded him by the Army. In addition to the personal honors, the Admiral considered it a special honor for the Japanese Empire, our former ally.

The Department Commander, Major General Briant H. Wells, was so well pleased that he sent the following letter of commendation to the Brigade Commander within a few hours after the completion of the review:

> The review of your Brigade at Kapiolani Park on June 14th, in honor of Vice Admiral Gengo Hyakutake of Japan and the officers and cadets of the Japanese training squadron visiting Hawaii, was in every particular an outstanding military exhibition. The excellent appearance and marching of your troops, the orderly arrangements for receiving

visitors and handling the crowd, were among the commendable features noted by me.

I congratulate you and the officers and men of your Brigade. This demonstration of the thorough training and general efficiency of your command is very gratifying to me as Department Commander.

TARGET PRACTICE

The 1933 target practice season has just closed and the results obtained by the Hawaiian Separate Coast Artillery Brigade are very gratifying. Many of the batteries will undoubtedly be rated "Excellent," and we have one organization that will make a serious bid for the Knox Trophy. A table of scores computed by the battery commanders is published herewith:

TABLE OF SCORES

155 mm. Long Range Firing

Battery	*Battery Commander*	*Day*	*Night*	*Average*
A-55th	Capt. A. A. Allen	94.4	116.8	105.6
B-55th	1st Lt. A. O. Nelson	94.8	102.1	98.45
C-55th	Capt. H. C. Archibald	78.4	103.1	90.75
D-55th	Capt. P. W. Hardie	70.2	120.8	95.5
E-55th	Capt. J. A. Ryan	93.2	137.0	115.1
F-55th	Capt. M. Bottoms	83.7	117.4	100.55

12" Mortars

C-16th (Fixed)	1st Lt. H. E. C. Brietung	37.0
A-41st (Ry)	Capt. F. H. Koerbel	61.7
B-41st (Ry)	Capt. E. H. Stillman	64.83

6" Disappearing Guns

C-15th	1st Lt. C. P. Young	58.4
A-16th	Capt. R. C. Jones	81.6

12" Disappearing Guns

B-15th	Capt. V. P. Foster	182.4

Excaliber Practice (155's), Long Range, Day

		1st	*2nd*	*Total*
A-15th	Capt. LeRoy Lutes	94.9	86.0	180.9

A.A. Searchlights

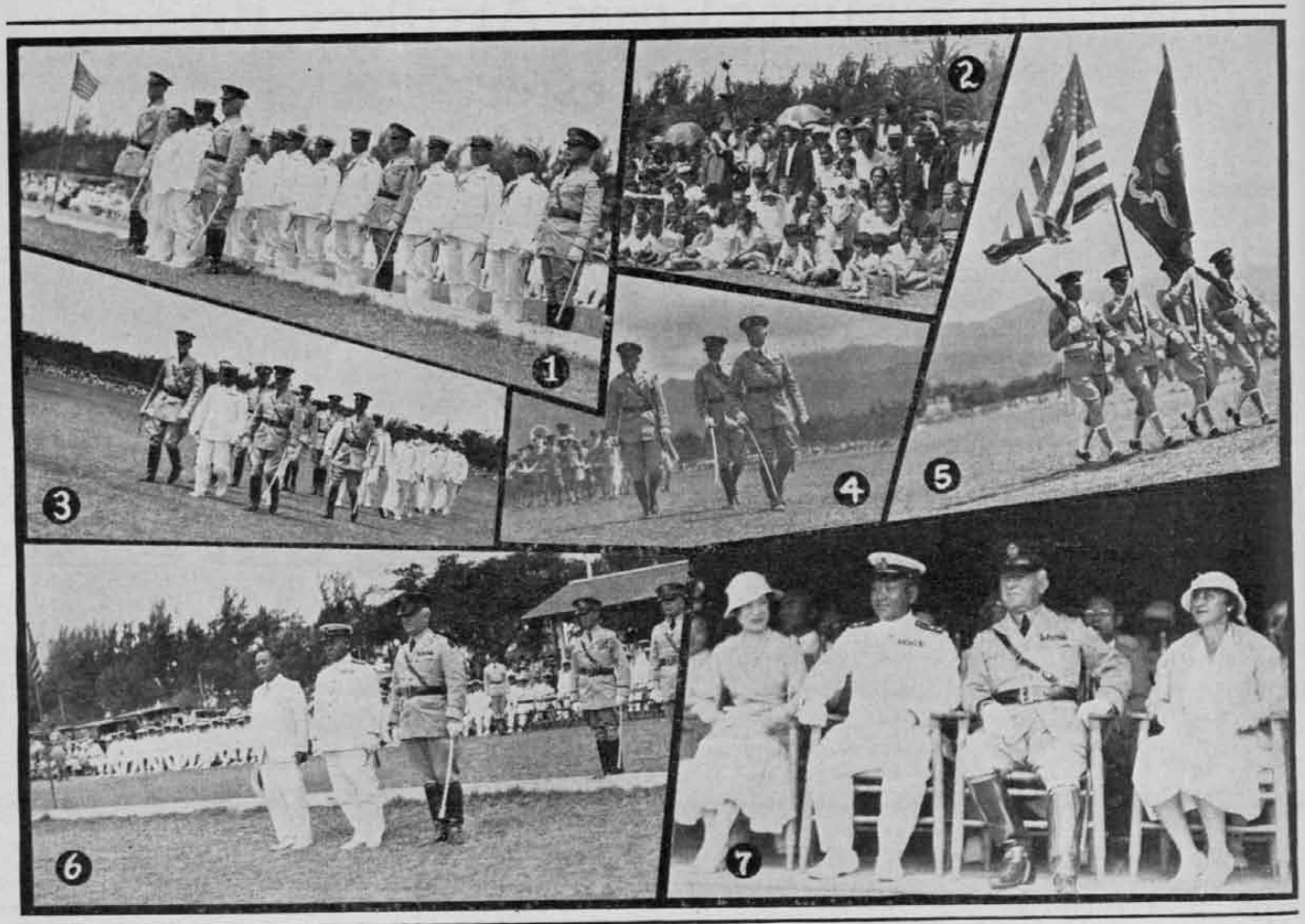
		1st	*2nd*	*3rd*	*Average*
A-64th	Capt. John H. Wilson	126.3	122.5	118.9	122.6
E-64th	Capt. K. C. Bonney	113.6	116.5	123.3	117.8

A.A. Machine Guns

		Cal. 30	*Cal. 50*
		Average all sections	
1-64th	Capt. A. W. Waldron	59.82	93.815

Battery B, 15th Coast Artillery, firing Battery Selfridge, a 12" D.C. Battery, at Fort Kamehameha, commanded by Captain Valentine P. Foster, fired 15 rounds, four of which were ranging shots, and every round fired scored a hit. It is believed that this is one of the best firing records ever attained by an organization in the Coast Artillery.

Captain John H. Wilson, Commanding Battery A, 64th Coast Artillery, (until recently on duty in the office of the Chief of Coast Artillery) attained



SCENES AT THE REVIEW OF THE HAWAIIAN SEPARATE COAST ARTILLERY BRIGADE HELD IN HONOR OF VICE ADMIRAL GENGO HYAKUTAKE

1. Front row, left to right: Brigadier General R. S. Abernethy; K. Okada, Consul General of Japan; Vice Admiral Gengo Hyakutake; Major General B. H. Wells. Staff in rear rank. 2. Part of the crowd of 15,000 which witnessed the review. 3. Inspecting party moving toward troops. Left to right: Brigadier General R. S. Abernethy, Vice Admiral Gengo Hyakutake, Major General B. H. Wells, and Colonel A. L. Fuller. 4. Colonel Homer B. Grant, Commanding the 15th Coast Artillery and Staff. 5. The colors passing in review. 6. K. Okada, Consul General of Japan; Vice Admiral Gengo Hyakutake, I. J. N.; Major General B. H. Wells, Colonel Arthur L. Fuller, and Lieutenant John R. Lovell. 7. Mrs. K. Okada, Vice Admiral Gengo Hyakutake, Major General B. H. Wells and Mrs. Wells.

what is believed to be the highest scores ever made by a Searchlight Battery when his organization scored 126.3 points out of a possible 128. High, white clouds overhead with a moon above them formed the best possible background. Night glasses, which Captain Wilson borrowed from the Navy Yard at Pearl Harbor, were used; these were a great help to observers stationed near the comparators. However, uniformly good results under less favorable conditions mark this Battery as a well trained organization. Notice that Battery E was well up in the competition.

The 55th Coast Artillery, with the First Battalion stationed at Fort Kamehameha, and the Second Battalion at Fort Ruger, will be strong contenders for the Coast Artillery Association Trophy for 1933. It is probable that all of the batteries in this regiment will be rated "Excellent."

A specially designed high-speed target towed by the mine layer "Ramsey," loaned by the Navy for the purpose, was used in all of the long range day practices by 155 mm G.P.F. batteries in Hawaii. The Navy cooperated one hundred per cent in towing the courses, not only for target practices, but also for drills. Their efforts were greatly appreciated. It was noticed that this target had considerable lateral and longitudinal sway when it was towed at high speed (over 12 knots), especially when the mine layer encountered the heavy seas coming around Diamond Head. In spite of this, the work of the plotter was easier because of the greater distance between plotted points. Judging from the results it was much more difficult to obtain bow-on hits on the high speed target than under normal target practice conditions. Much attention was given by battery officers to increasing the accuracy of the plotting section, to checking the data being laid on the guns during practice, and to careful orientation. An error of one mil in direction was a miss on the bow-on target.

ATHLETICS

The Sector-Navy Baseball League opened friendly hostilities June 3, 1933. The League is composed of three Navy teams and four Army teams as follows: Harbor Defenses of Honolulu, Fort Shafter, Fort Kamehameha, and Luke Field. At the present writing, Lieutenant "Sandy" Goodman's Fort Shafter team is tied for the lead in the circuit. Fort Kamehameha has a percentage of .500, while Honolulu has lost all four of its contests by very close scores. It appears that Fort Shafter has an even chance to win the Sector-Navy Baseball Championship. Lieutenant Joe Dillon, the Sector Athletic Officer, reports that none of the umpires have been assaulted with pop bottles as yet. Of course, the season is quite young.

Fort Shafter barely nosed out Fort Kamehameha to win the Honolulu Sector Track and Field championship for 1933. Luke Field and the Harbor Defenses of Honolulu finished third and fourth respectively. Much excellent materiel was developed during the season when a series of six dual meets was held to decide the title. A slight blond lad named Stanley S. Sadaj (pronounced "sadeye") became the hero of the 64th Coast Artillery when, after winning the 440 and 880 yard runs in the final and deciding dual meet, he pleaded with Lieutenant Goodman to be allowed to run the two-mile grind. Sandy reluctantly gave permission and the blond Czech, or whatever he is, won the race and the team championship against a strong two-mile team from Honolulu with a rallying sprint in the last lap that left the crowd on its feet and cheering madly minutes after the race was over. The final team scores for the season are as follows:

Fort Shafter	202-1/6
Fort Kamehameha	194
Luke Field	183-1/3
H.D. of Honolulu	149-3/4

Battery "B", 41st Coast Artillery, commanded by Captain E. H. Stillman, won the Interbattery baseball championship at Fort Kamehameha this season. Sergeant Paul U. Vick, who hails from Beaumont, Texas, coached the successful team.

Battery "G", 64th Coast Artillery, Captain Edward W. Timberlake's outfit, won the Interbattery baseball title of the 64th Coast Artillery, while the combat train, Second Battalion, 55th Coast Artillery, vanquished all competition and finished the season undefeated in the Honolulu Harbor Defense League.

The Battery "A", 16th Coast Artillery swimming team, coached by First Sergeant E. C. Corn, won the Interbattery swimming championship of the Harbor Defenses of Honolulu at the famous War Memorial Natatorium in Honolulu June 3, 1933. Sergeant Corn is not only an outstanding swimming coach but he is also a nationally recognized authority on track and field. He is chairman of the Track and Field Committee of the Hawaiian Association, AAU.

KAMEHAMEHA DAY CELEBRATION

Fort Kamehameha, where the Harbor Defenses of Pearl Harbor are located, was named after King Kamehameha I, the conqueror of the Hawaiian Islands. A special ceremony was held on the King's Post on June 12, 1933, to commemorate the birthday of the man who is to Hawaiians what George Washington is to the United States.

The entire command of the Harbor Defense, over 1,200 Coast Artillerymen good and true, who can boast of winning the Coast Artillery Association Trophy and the Department Commander's Cup for all around proficiency in arms during the past year, were assembled in their new gymnasium for the celebration. Colonel Homer B. Grant eulogized Kamehameha I, for whom the post is named, in a way that would melt the heart of even a hard boiled Oriental.

Lieutenant Logan O. Shutt, the Harbor Defense adjutant, Lieutenant Clarence E. Rothgeb, 41st Coast Artillery, Lieutenant Courtney P. Young, 15th Coast Artillery, and Lieutenant H. E. C. Vandersluis, 15th Coast Artillery, briefly reviewed the history of their respective organizations. It certainly was a back-slapping contest to see which could say the nicest things about their respective regiments. Rothgeb went so far as to insinuate that the 41st Coast Artillery had very little room for improvement.

Brigadier General R. S. Abernethy, in delivering the principal speech of the occasion, complimented the

command on the results obtained and encouraged them to greater ambitions for the future.

Athletic medals and trophies were presented by General Abernethy, Colonel Grant, and Lieutenant Rothgeb, the commander of the Elmer J. Wallace Post No. 7 of the American Legion.

SHORT SNORTS

Fort Shafter conducted a very impressive Mothers' Day service on May 14, 1933, in the gigantic athletic arena at the Kalihi Post. The entire command turned out to honor our mothers. There were many visitors present in addition to a considerable number of officers and their families. The 64th Coast Artillery Band, with Warrant Officer Francis E. Resta conducting, played appropriate music featured by several instrumental solos. Colonel Richard H. Williams made a very impressive talk.

Very glad to announce the installation of two Brunswick Balke-Collender bowling alleys in the new gymnasium at Fort Kamehameha. Another pleasant pastime provided for the enlisted men of King's Post. Incidentally, the new gymnasium was conceived, designed and actually constructed by enlisted men. It is a large building providing facilities for all sports, with plenty of seating capacity for spectators. Master Sergeant Arthur W. Holt, the Harbor Defense sergeant major, and the late Corporal Summerville, took leading parts in the design and construction work.

Battery B, 15th C.A., and the 15th Coast Artillery Band, under the command of Captain V. P. Foster, provided an escort of honor for the Honorable Frank Murphy, new Governor General of the Philippines, when he passed through Honolulu recently. Battery A, 41st C.A., with the 15th C.A. Band did likewise for Rear Admiral Yates Stirling when the latter was relieved from command of the 14th Naval District and on his departure from the Paradise of the Pacific. Captain Frederick H. Koerbel was in command on the occasion.

While the ordnance officer and the Ordnance Machinist were arguing whether it was safe to fire a 12 inch railway mortar of Battery B, 41st C.A., during record practice, the gun commander yelled "Ready, FIRE." The ordnance officer was right, it was safe! A range error of 100 yards was made in laying the gun and that shot was the only hit scored by the Battery in that zone. A delay of several hours was necessary before the Battery could fire four shots in the next zone. When they did fire, three of the four shots were hits. Can you tie that?

Did you ever hear of an ex-excaliber practice? Well, we had one this year at Battery Williston, Fort Weaver. The solution is the 16-inch guns with the regular 75 excaliber material, the 155 G.P.F., with a 37 mm. gun mounted thereon, firing at a small pyramidal target and using the regular 16-inch fire control system. Write and ask Captain LeRoy Lutes, the Battery Commander of Battery A, 15th Coast Artillery, how they did it.

Lt. Col. W. W. Hicks, executive officer at Fort Shafter, won fourth place in a large field of entries in the officer's charger class at the Hawaiian Division Horse Show, June 16, 1933.

Notes from Fort Monroe

THE annual battle practice scheduled to have been held at Fort Story, Va., on June 10, had to be cancelled because War Department orders terminated the school year approximately three weeks earlier than had been planned. Also, student officers and many of the instructors were required to report on short notice, to duty with the Civilian Conservation Corps. Elaborate preparations had been made for the conduct of this practice and a part of the troops had already moved to, and established camp at, Fort Story, Va. Major General Paul B. Malone, the Corps Area Commander, had announced that he would witness the firing. The elimination of the annual battle practice was a great disappointment to every one but in these times of uncertainty anything may happen. Better luck next time.

Sixty per cent of the staff and faculty of the Coast Artillery School have been released for duty with the S.C.C. Camps. Most of these officers have been sent to the Ninth Corps Area and are now buried deep in the forests of California and the Rocky Mountain States; what a place for a coast artilleryman—not even a rowboat in sight. Many of them are in places which they never expected to see, all of which goes to show that the Coast Artillery has to be versatile and ready to assume any kind of duty, from keeping the sky free of hostile airplanes to helping mother nature furnish wood for toothpicks. In addition to the officers from the School, thirty-six of the commissioned personnel of the regular garrison and 165 of the enlisted personnel are now in the field with the C.C.C. The date of their return is extremely problematical. These officers cannot be placed on a rental allowance status, therefore, many of them have taken their dependents to the great open spaces. This is an added expense, while the pay freeze and the 15% cut still goes on.

More than 5,000 enrollees for the C.C.C. Camps have been processed at Fort Monroe and are now in the field. This was a severe test of our training facilities and imposed a double or treble duty on the greatly depleted officer personnel. In fact it now appears that the officers on duty in the forests are really the lucky ones especially in view of the fact that reports reaching us indicate that at some of these camps the fishing is very good.

The first class of the United States Military Academy arrived at Fort Monroe on June 15. The class was divided into three battalions, these were immediately sent for training to Fort Bragg, N. C., Langley Field and Fort Monroe, Va. Groups will change station at the end of each week so that all three groups will receive training and instruction at the three posts.

The training at Fort Monroe will consist of antiaircraft firing and firing with 8-inch railway guns at moving targets. During the stay of the cadets the post took on increased activities, especially along social lines, and dances were held about twice each week at Langley Field and Fort Monroe.

The annual encampment of the R.O.T.C. and C.M.T.C. remained in doubt until almost the last minute. However funds were finally made available and the usual training activities for these components were carried out according to schedule. The C.M.T.C. was curtailed to the extent that no basic course students were ordered out for training. This year the training of these components will be conducted by the officers of the regular garrison in place of bringing officers from the various educational institutions as has been the custom in the past.

With the release of money appropriated under the public works program it is hoped that much needed construction will take place at Fort Monroe. Officers, warrant officers' and non-commissioned officers' quarters are badly needed. New stables, garages, warehouses and other buildings are hoped for. The post development board, of which Colonel Harold E. Cloke is President, has made an exhaustive study of the needs of the post and has prepared a plan by which new construction will fit into a symmetrical layout instead of having buildings placed at random.

Training

The Coast Artillery School

THE program for the school year 1933-1934 has been approved. The program shows several changes in the Advanced and Battery Officers' Courses but these changes consist principally of a rearrangement of the subject matter of instruction with comparatively few changes in the subject matter itself. In the Advanced Class, seacoast and antiaircraft matériel and gunnery have been moved from the first 8-week period to the 25th to 33d-week period, and antiaircraft target practice has been combined with the Battery Officers' Class rather than with the National Guard and Reserves. This is particularly advantageous as the Advanced and Battery Officers' Classes are now able to work together through all target practices leading up to the school battle practice at Fort Story. In the Battery Officers' Class the instruction in Tactics has been moved from the fall to the spring. In the Advanced Class a short course in Submarine Mining (14 hours) has been added to serve as a refresher course and to familiarize officers with the new mine materiel. There is a new Advanced Technical Course for officers which is a combination of the old Advanced Gunnery and Advanced Engineering Courses. There will be only 22 officers in the Battery Officers' Class, 12 officers in the Advanced Class and 2 officers in the Advanced Technical Class. The faculty has also been somewhat reduced. There will be no change in the number of enlisted students. Courses for enlisted students have been changed very little.

Notes from Fort Barrancas, Florida

COLONEL and Mrs. Francis H. Lincoln left Fort Barrancas June 26th for Washington, where Colonel Lincoln will take up new duties on the War Department General Staff. Fort Barrancas and the 13th Coast Artillery, both deep in the "Three C's," laid aside duties and turned out *en masse* to bid them *au revoir*. This mark of respect and affection was a fitting sequel to the regimental dinner of the previous evening and of the many recent entertainments in post and town honoring the departing Harbor Defense Commander.

From the time he assumed command, Colonel Lincoln steadily pursued a two-fold policy. His primary concern was the improvement of his command in training and efficiency. At the same time Post and Harbor Defense improvements were stressed.

Hand in hand with these policies went a development of cordial relations with the Naval Air Station (the largest of its kind in the world), and the civilian population of Pensacola. As a result, post and town looked on each other with respect and gladly engaged in reciprocal favors. As a Rotarian and honorary member of the Chamber of Commerce, Colonel Lincoln worked continually for the welfare of Pensacola. So well was he known and liked that on the eve of his departure all of the civic clubs of Pensacola met jointly at the San Carlos Hotel to tender him their respects. Mayor Clay H. Armstrong presided at the dinner, and in the name of the City of Pensacola, the Commissioners of Escambia County, the Pensacola Chamber of Commerce, and nine other civic organizations presented Colonel Lincoln with a joint resolution as a token of their esteem and respect. From this resolution the following is quoted:

"Francis H. Lincoln, Colonel Coast Artillery Corps, is now ending two and a half years of service commanding the Harbor Defenses of Pensacola. Early in those years he took his place as a citizen of Pensacola and as a friend of Pensacola people, and throughout that time he has willingly given his time and his marked abilities to the civic tasks and enterprises of this community.

"His frankness and human understanding have made possible a close and friendly cooperation between his command and all public and private agencies. His conduct of the varied and difficult duties of his profession while at this post have marked him as an outstanding soldier and officer. The quality of his character and personality has made his fellow citizens his admirers and friends.

"At the end of his tour of duty here, we express to him our genuine appreciation of his qualities as a soldier and commanding officer; our gratitude for his helpfulness in our civic enterprises; our warm appreciation of his friendship; our sincere regret that his stay with us is to end; and our hearty wishes for his continued good fortune."

NATIONAL GUARD NOTES

National Guard Status Bill Passes

IN an interval between measures of emergency legislation the House of Representatives brought up and passed the National Guard Status Bill. It then went to the Senate and was passed. It was signed by the President and became a law on June 15.

The Bill in its present form was introduced by Chairman McSwain on May 15th and is designated as H.R. 5645. It constitutes an amendment to the National Defense Act of June 3, 1916.

The measure is designed to fix the status of the National Guard and give it a dual capacity as a state and federal force, enabling the President to use it in the latter capacity without the necessity of drafting it into the service of the United States. It also has the effect of maintaining its identity while in federal service, reverting back to the states on the termination of that service and thus obviating the necessity for a complete reorganization such as was necessary following the World War.

Section 1 of the Bill defines the components of the Army of the United States as the Regular Army, the National Guard of the United States while in the service of the United States, the Officers' Reserve Corps, the Organized Reserves, and the Enlisted Reserve Corps.

In Section 2 the participation of the National Guard and Organized Reserve on the War Department General Staff is provided for. There will always be not less than five officers of each of the two components on duty with the General Staff, and when subjects affecting the policies and regulations governing the organization, distribution, training, appointments, assignment, promotion and discharge of the civilian components are under consideration the committee is to consist of an equal number of each component.

The composition and organization of the Officers' Reserve Corps is provided for in Section 3, which amends Section 37 of the National Defense Act. It provides that all persons appointed in the Officers' Reserve Corps shall be commissioned in the Army of the United States. Appointments are for five years, but an appointment in force at the outbreak of war may be continued in effect until six months after its termination, when an officer can make application and secure his release from the service. Any officer of the Reserve Corps may be discharged at any time in the discretion of the President. The rules governing the appointment of persons and the promotion of members of the Officers' Reserve Corps are specifically set forth and in general conform to the present regulations.

Section 4 amends Section 38 of the National Defense Act which relates to the appointment and assignment of officers of the National Guard. They are appointed and hold office during the period of their federal recognition and they may be held in service during a period of six months after the termination of a war, after which time an officer may request his release from service and it must be granted to him. The active duty status of officers of the National Guard is also provided for.

The composition of the National Guard and its designation as a reserve component of the Army of the United States is provided for in Section 5. It is specifically provided that it is not to be considered in the service of the United States except when so ordered under the law, and in time of peace it is to be administered, armed, uniformed, equipped and trained in its status as the National Guard of the several states, territories and the District of Columbia.

Section 6 covers the organization of the National Guard and contemplates that the units maintained in the several states shall be such that when combined together they will form complete tactical units.

The enlistment of the National Guardsmen is provided for in Sections 7 and 8 which specify the conditions under which enlistments may be made, and the enlistment contract which must be entered into. This latter gives the soldier the dual status and makes him available for service both to his state and to the United States. Original enlistments are for a period of three years, but subsequent enlistments may be for one year or three years. In an emergency the enlistment period may be extended at the discretion of the President for a period of six months after its termination. This insures the service of the guardsman for that period of time in case he may be needed.

Section 9 is devoted to definitions which specifically define the term "National Guard of the United States" as a reserve component of the Army of the United States composed of federally recognized units, organizations and persons duly appointed and commissioned in the National Guard of the several states and who have subscribed to the oath of office or oath of enlistment as provided for in the Act.

The discharge of enlisted men is provided for in Section 10 which states that a discharge certificate in such form and with such classification as is provided for the Regular Army shall be given. In time of peace the Secretary of War may prescribe the conditions under which discharge may be granted prior to the expiration of term of service. At the present time this matter is solely in the hands of state authorities.

Section 11 amends Section 73 of the National Defense Act and prescribes the oath of office for the officers of the National Guard. It gives them a dual status as officers of the National Guard of their state and officers of the National Guard of the United States. It further provides that all officers who are now federally recognized officers of the National Guard may be appointed in the grade they now hold without further

examination except physical and in the meantime they continue to enjoy the privileges, emoluments, rights and benefits of their grade.

The examination for appointment to the National Guard is covered in Section 12. Such examination contemplates an inquiry into the physical, moral, and professional fitness of the applicant. It is to be conducted by a board of three officers of the Regular Army or National Guard of the United States, or both. The examination may be held at any time prior to the appointment or promotion. When found qualified the candidate may be issued a certificate of eligibility which is good for two years. It is understood that this section does not modify the existing regulations under which a candidate may qualify through pursuing the regular extension courses in the Army educational system.

Section 13 provides the law under which the federal recognition of an officer of the National Guard of the United States may be withdrawn. It contemplates that there shall be an efficiency board comprised of Regular or National Guard officers senior in rank to the officer being investigated, appointed by the Secretary of War. If the findings of the board are unfavorable to the officer and they are approved by the President, federal recognition shall be withdrawn. An officer absent without leave for three months may also have his federal recognition withdrawn. The appointment of officers in the National Guard may be terminated or vacated in such manner as may be provided for in the laws of the several States. Federal recognition is withdrawn automatically when an officer reaches the age of 64 years.

The National Guard Reserve is in effect provided for in Section 15. It is denominated the "Inactive National Guard." Men duly qualified for enlistment in the active National Guard may enlist for one term of one or three years only in the inactive National Guard. Members of the active National Guard may be transferred to the inactive National Guard. Members of the inactive National Guard may be transferred to vacancies in the active National Guard. In time of peace no enlisted man will be required to serve in the National Guard for a longer period than that for which he enlisted. This proviso includes service in both the active and inactive National Guard.

The Message Center Set-up of the 105th Infantry, New York National Guard, on C.P.X. at Camp Smith, During the Summer Training of 1932.

Section 16 changes the designation of the Militia Bureau to "The National Guard Bureau." The Chief of the Bureau is to be appointed by the President with the advice and consent of the Senate, by selection from the lists of officers of the National Guard of the United States recommended as suitable for such appointment by their respective Governors, and who have had ten or more years commissioned service in the active National Guard, at least five of which have been in the line, and who have attained at least the grade of Colonel. He holds office for four years and is not eligible to succeed himself. It is understood that an endeavor will be made to change this proviso in the Senate so that the Chief of Bureau will be eligible to succeed himself. The provisions of officers and enlisted men of the Regular Army for duty with the National Guard is continued and not more than nine officers of the National Guard are authorized for duty in the National Guard Bureau. The actual number to be detailed in the Bureau will always depend upon the funds available for the purpose. At the present time there are three, one from each of the old Army Areas. The succession in command for the National Guard Bureau is also provided for in this section during the disability of the Chief of Bureau.

The arming and equipping of the National Guard is provided for in Section 17 which contemplates that they shall be so armed and equipped in like manner as the regular Army as far as practicable.

Section 18 provides the law under which the National Guard of the United States may be ordered into the service of the nation in any emergency declared by Congress, and in which troops in excess of those available in the Regular Army are necessary. The organization of units when called for such service is to be maintained intact as far as possible, and this will necessitate a much more complete system of replacements than existed during the World War. All of this contemplates that at the termination of the emergency and the completion of active service, the National Guard organizations will revert back to the States. The Section also provides that the war strength officer personnel shall be taken from the National Guard as far as practicable. This will necessitate definite arrangements for providing officers for such expansion.

The right to pensions provided for by law is extended to members of the National Guard when disability is incurred in active service of the United States. This right does not extend to the periods of field training of the National Guard.

Finally a provision is made for the appointment of officers of the Regular Army to the National Guard in time of war, with a temporary higher grade, and when so appointed they do not vacate their regular Army permanent appointment.

This law has been on the boards since 1924. It has been passed by the Senate at a previous session but failed of passage by the House.

Tactical Walks

IT is notable that many of the National Guard training programs and schedules include provisions for tactical walks and terrain exercises in connection with the tactical training of the units and organizations. It is good to see the increased interest in this form of training, for it has been demonstrated over the years that it has an important place in the schedules.

When officers and noncommissioned officers go on a tactical walk over the ground where it is proposed to stage tactical problems with troops and work out the details of the problem, their unit most certainly is in position to conduct the exercise more efficiently than the one which undertakes such an operation without this preliminary training expedient.

In the course of the tactical walk the special situations are considered in their logical sequence and a reasonable solution worked out for each phase of the exercise. With all of this fresh in their minds when the unit is taken out to execute the problem, the officers and noncommissioned officers go through with it in an orderly way and are able to explain to their men the reasons for doing things thus and so. The critique at the termination of the problem may then be conducted so that each man will understand the part he has played. Thus the exercise is indelibly impressed on his mind.

It is to be hoped that the time will come in the National Guard when no tactical exercise with troops is ever undertaken until after the problem has been worked out on the ground through the process of a tactical walk. Those commanders who give it a reasonable try-out will see the advantages at once and adopt the system to the exclusion of all others.

Personal Hygiene

THE *Blinker Flash* is a National Guard publication turned out by the Intelligence Platoon, Headquarters Company, 104th Infantry, Massachusetts Naitonal Guard.

In a recent number Major Merrill F. Hosmer, the regimental surgeon, made a contribution to its columns regarding personal hygiene at field training camps that is worthy of repetition in these columns. If every man would observe the injunctions which Major Hosmer sets forth there would be less sickness and accidents while at camp. Here is what he says:

"We are about to go to camp—that tour to which we old-timers look forward so much and to which the new ones will be looking forward next year.

"There are a few things worth thinking about in connection with this camp business. We are all there together and it is up to us to see to it that there are as little sickness and as few accidents as possible during the tour. We must appreciate the fact that our health is of the utmost importance to us. With it we can stand cuts in pay, being out of work and other tough breaks, but with poor health, we are sure out of luck when these tough breaks come along. Bear in mind that the rules of sanitation and inspection are not made for the fun of it. I can get a lot more fun doing something else, than I can by poking around kitchens, latrines, barracks, etc. If you will look into each rule you will find that by breaking it you have taken a chance on your health or the health of the fellows who are with you. Another thing, the fellow who takes a foolish chance and gets hurt, is not a hero, but a fool. Nearly every accident that happens while in camp is preventable. While most of them have been slight, each of them could have been serious. For instance, last year, take the man who was burned by lightning; he did not think, but if he had, he would have realized that he was foolish to be handling those wires when there was an electrical storm. He might better have stayed out of the rain till the storm was over. That accident could have been serious, and that man was just downright lucky.

"Another tip, watch your shoes; see that they are in good condition. No one is forced to wear wornout shoes. Blisters came from broken linings, tight shoes, or shoes that are too loose. Carry your pack high on your back; it will save you many backaches. Wrap your puttees loosely, you new fellows, or you will soon learn the reason why. If your legs ache, loosen up your leggings to relieve them.

"One more hint—I am not particularly interested in your morals. That is the Chaplain's job and he sure can do it, but from a physical point of view, keep this in mind: There is no place where you can buy GOOD liquor; at least we poor devils cannot afford it. All the stuff is poison. If you do not believe it, put some on varnished wood, or touch a match to it and see what happens. Then remember it goes into your stomach and out your kidneys. After that, if you are darned fool enough to drink it, do not expect too much sympathy from me when you go haywire and I get an SOS to get you out of it."

Reduction of State Staffs

IN his talk before the National Guard Convention at Norfolk last October Major General George E. Leach, Chief of the Militia Bureau, suggested that it might be possible to effect a reduction in the State Staffs and detachments of the National Guard, with a view to saving funds that could be more profitably used in other activities.

The National Guard Association adopted a resolution in line with the suggestion which provided that the matter be referred to the Executive Council for study and report at the next convention, which is to be held in Chicago in September.

The Executive Council met in Washington in December and referred the subject to a committee headed by Brigadier General Ellard A. Walsh, the Adjutant General of Minnesota. General Walsh has communicated with State authorities throughout the country and the results were taken up for consideration at a meeting held at Camp Ripley on June 15th, at which time the report to the Association was formulated.

The strength of the State Staff and detachment is

based on the strength of the National Guard allocated to the several states, and varies all the way from six officers and 22 enlisted men in Nevada to 36 officers and 111 enlisted men in New York. While there are a few vacancies here and there, in general the state staffs are maintained at their full authorized strength. The total cost has been estimated at approximately $400,000, which includes armory drill pay, field training pay, and all other expenses incident to supply, equipment and operation.

At the convention last fall the opinion was advanced that the organization could be materially reduced and at the same time leave sufficient personnel to conduct the duties involved in an efficient manner. The extent of this reduction will be determined by the committee at Camp Ripley and reported to the Association for final action when it meets in Chicago in September.

Elimination of Recruits

A DETERMINED effort is being made throughout the National Guard to eliminate recruits from the field training camps this summer. In many of the states the authorities have prohibited original enlistments over the period of two months preceding the date of opening of the camp for the unit concerned and this is having its effect.

In past years much emphasis has been laid on a 100 per cent attendance at the camp, with the result unit commanders have filled up their vacancies with recruits immediately preceding the date of the training camps. In some instances this procedure has been extended to include those men who for various reasons are unable to attend camps with their outfits.

All of this has necessitated a system for the special training of recruits and this has been accomplished in many organizations by assembling them in a regimental recruit detachment. This activity requires the services of a considerable number of officers and noncommissioned officers who must be taken away from the regularly scheduled training with their own units. This is not so good.

With reduced funds available for field training, every dollar must be expended to the best advantage and the National Guard is foregoing the old objective of 100 per cent attendance in the interests of more efficient training, and the elimination of recruits from the field training camps is a long step in the right direction.

Pay of National Guard

NUMEROUS inquiries have been received regarding the pay status of National Guard officers and enlisted men since the wave of economy hit the service. There is set forth below complete information on the subject:

From July 1, 1932, to March 31, 1933, National Guard officers had 8⅓% deducted from their base and longevity pay while attending field training camp. From April 1, 1933, to June 30, 1933, National Guard officers have a deduction of 15% made from their base and longevity pay and a corresponding deduction made in their rental and subsistence allowances based on the allowances in effect on June 30, 1932. National Guard officers did not have any deduction made from their armory drill pay prior to April 1, 1933, after which date a deduction of 15% was made.

Reserve officers have the same deduction made from their active duty pay as in the case of National Guard officers attending field training camps.

National Guard enlisted men, prior to April 1, received full pay; since that date a deduction of 15% has been made.

Guard-o-Grams

Prohibition on School Courses

Officers of the National Guard who are on the Emergency Officers' Retired List or who are drawing compensation for any degree of disability are not eligible for detail at the Army service schools. Student officers are required to undergo a searching physical examination on their arrival at the school. Those who fail to measure up to the requirements are forthwith relieved from duty as student officers and returned to their homes.

Minority Discharge

An enlisted man in the National Guard was discovered to be under 18 years of age. Under the provisions of paragraph 64, NGR No. 25, such a person cannot legally become a member of the National Guard and must be discharged. The question has come up as to the kind of discharge to be given, and this was put up to the Militia Bureau. The ruling of the Chief of the Bureau was to the effect that: "A soldier discharged on account of minority should be discharged with the form of certificate to which his service after enlistment shall entitle him. If his service has been honest and faithful he should be given an honorable discharge."

Armory Drill Pay

A master sergeant of the National Guard assigned to a regimental headquarters was directed by his regimental commander to attend the armory drill assembly of the regimental staff officers. For this service he claimed armory drill pay covering such assemblies. Payment was refused on the rolls by the Finance Officer who quoted as his authority, a decision of the Comptroller General of October 22, 1932, as follows: "An enlisted man belonging to an organization of the National Guard is not entitled to armory drill pay for attending the ordered assemblies of the regimental staff officers, as such an assembly is not a drill in accordance with section 110, National Defense Act." In accordance with this decision it would seem that master sergeants assigned to a unit (Headquarters Company) must attend drill formations with that unit in order to be entitled to armory drill pay.

The Foreign Military Press

Reviewed by Major Alexander L. P Johnson, Infantry

AUSTRIA—*Militarwissentschaftliche Mitteilungen*—June, 1933.

"The Concluding Operations or an Enlarged Manchuria and Considerations of the Problems of the Pacific," by General Otto Wiesinger.

A summary account of the Japanese operations in Jehol, and a brief comment upon the Japanese withdrawal from the League of Nations form the background of an interesting survey of Japan's international relations. Thus, the author points out, that Japan's relations with Great Britain involve political, economic and racial questions. Politically, Japan and Great Britain were allies from 1902 to 1922. The treaty clause, which assured Japan of British help in the event of war with the United States, the author observes, proved rather irksome to the British. Great Britain feared that it might encourage Japan to aggressive action at a time which might prove embarrassing to British interests. Great Britain secured release from that treaty obligation, the author notes, by assigning to Japan the Port of Kiautchau (Tsingtau) and the German Pacific Islands.

In the author's opinion, Japan is Great Britain's natural ally against Soviet Russia, and similarly Great Britain is Japan's natural ally against the United States. He states, that in the event of a war between the United States and Japan, the former could hardly rely upon British racial kinship and comradeship at arms. Great Britain has basic interests in maintaining Japanese power as a counterweight against both Soviet Russian and American projects.

From an economic point of view, Japan became England's greatest competitor in China. The growth of Japan's trade in India is likewise viewed with misgivings by the British. In racial matters, owing to the attitude of the Dominions, the British Government was unable to meet the wishes of Japan. The exclusion of Japanese immigrants from the Dominions caused considerable ill-feeling among the Japanese.

The three powers, Japan, Great Britain and the United States, the author observes, are now engaged in an acute commercial competition for the markets of Asia. Japan is consolidating her position on the continental mainland, and, at the same time, she is also getting her Pacific front ready for eventualities.

The relations between Japan and the United States, the author writes, are influenced by the same factors which dominate relations with Great Britain. The friction is, however, intensified by the greater aggressiveness of the American people. He points out, that the American press quite frequently assumes an openly hostile attitude towards Japan, although upon sensing an actual peril of war, a more conciliatory tone is assumed. The racial difficulties arising from the exclusion of Japanese immigrants from the United States brought the two Powers to the verge of war in 1914. The Washington Conference not only deprived Japan of all advantages she had secured in China, but it actually compelled Japan to recognize the policy of the Open Door in China. This tended to aggravate the difficulties between the two nations.

America's trade in the Far East, in 1913, amounted to $125,000,000 while in 1931 it actually exceeded two billion dollars. Since 1919 the United States has doubled her trade with China, and trebled that with Japan, which receives the lion's share of America's Far Eastern trade. In the author's opinion, the United States can bide her time, since all her interests in the Pacific appear to be satisfied. Japan, on the other hand, is in dire need of expansion. The Philippines, Yap, and Guam, the author believes, constitute focal points of the clashing Japanese-American interests. It is there, he believes, that the fate of the world will be decided. He does not consider the Philippine Independence Bill enacted by the last Congress as the final word upon the subject.

In the author's opinion, a naval war between Japan and the United States is at present out of question without the active cooperation of a third power. He considers the naval establishments in Hawaii and the Philippines inadequate for war time requirements. He believes, that in the event of war, naval superiority favors the United States, but that the probable theater of operations accrues to Japan's advantage. The great distances involved affect the United States unfavorably, while her isolation and the hostility of China and Soviet Russia have a similarly adverse effect upon Japan.

The Chino-Japanese conflict after two years established Japan as the absolute master of the Far East. Japan achieved this result at a comparatively small human sacrifice, but at a staggering financial cost. Japan's shipping and banking interests in South China were practically destroyed.

Relations between Soviet Russia and Japan, the author believes, are somewhat difficult to gauge. Notwithstanding the conflicting interests of these Powers, he writes, war between them in the near future is unthinkable. Nevertheless, it is within Japan's power to set the day which will witness the elimination of Russia from the Far East. Whether this will occur before or after the settlement of the Pacific problem, the author states, remains to be seen. In any event, it will compel Russia to face westward again, and whatever her political complex might then be, she will once more become an active factor in European affairs.

Although Japan seeks to cultivate friendly relations with France, an actual alliance, the author writes, is not considered at this time. Such an alliance might tend to force Great Britain into the American camp. The author does not believe that either France or the Netherlands would assist Japan in a war against the United States.

Summarizing all factors, the author concludes that we are on the threshold of the great struggle for the mastery of the Far East and the Pacific; that Japan and the United States will play the principal roles in that struggle which is destined to decide the primacy between the white and yellow races. The outcome of that struggle, the author believes, will affect materially the future of Europe and the entire world.

GERMANY—*Militär Wochenblatt*—January 25, 1933.
"Tactical Control of Anti-Aircraft Artillery," by No. 337.

The peculiar character of its material, and the special mission for which it is designed, renders antiaircraft artillery unsuited for employment against terrestrial targets. In order to perform its functions efficiently and execute its missions effectively, the author writes, it is essential that the antiaircraft artillery commander be at all times thoroughly informed of the situation within the area which he must protect. For this reason, the author holds, antiaircraft artillery should never be placed under the tactical control of the divisional or higher artillery commander. He believes, that the most efficient employment of antiaircraft artillery demand, that it be at all times under the direct control of the division and higher commanders.

MEXICO—*Revista del Ejercito y de la Marina*—March, 1933.
"The Army National Bank," by General Rafael Aguirre Majarrez.

General Depression hit Mexico as severly as it did other parts of the world. That the army, like all armies, traditionally poorly paid, should feel the pinch of an economically adverse situation, is to be expected. That an army under such circumstances should seek to lift itself out of this depression by its own boot straps is, to say the least, a decidedly novel experiment. This the author seeks to accomplish by means of an Army National Bank. He submitted to the President of the Republic, General Rodriguez, a project for the establishment of such an institution whose stockholders would consist of the officer personnel of the army.

The March issue of the *Revista del Ejercito y de la Marina* publishes the text of General Aguirre's proposal. He would allot shares to officers according to rank, which is but another way of saying that the official rate of pay determines the number of shares each officer may acquire. Payments are to be made in ten monthly installments, each representing about five per cent of the officer's pay per month. The author calculates that in ten months the paid-up capital would amount to $847,443.60 (Mex.).

This will prove a novel experiment indeed. For the present, it still lacks presidential approval. If put into execution, it will be interesting to watch its progress. Difficulties are to be expected, but evidently the author of the plan does not include among these the possibility that certain officers may not be financially able to acquire the allotted number of shares, for apparently the acquisition of the prescribed number of shares would be obligatory, and with each promotion in grade there would go an automatic increase in the number of shares allotted.

No doubt General Aguirre could obtain some very valuable information if he looked into the effects of mandatory pay reductions upon the comparatively higher paid officers of the United States Army. The author credits his colleagues with financial and business acumen that is not ordinarily associated with the profession of arms. Whether that optimism is justified remains to be seen. If put into execution, let us hope, this beautiful project will not result in giving a literal meaning to the Filipino figure of speech: "los paraos andan y los banqueros son pobres."

URUGUAY—*Revista Militar y Naval*—March, 1933.
"Armaments of the Principal Powers."

A statistical tabulation, though not so stated, seemingly obtained from German sources.

	Population	Army	Air-planes	Guns	M.G.'s
Russia	153,000,000	1,200,000	1,950	3,000	23,000
France	40,700,000	655,000	3,000	2,920	35,000
Great Britain.	45,600,000	422,000	1,853	2,400	14,200
Italy	42,500,000	288,000	1,507	2,132	4,300
Germany	63,300,000	100,000	.....	310	1,926
Czechoslovakia.	14,600,000	140,000	687	1,276	9,800
Poland	30,400,000	298,000	1,309	1,850	9,700
Belgium	8,000,000	66,000	358	859	4,173
United States.	121,000,000	130,000	2,800	1,800*	30,000*
Japan	64,500,000	210,000	1,939	1,500*	20,000*

* Approximate figures.

HUNGARY—*Magyar Katonai Szemle*—January, 1933.
"Organization of the A.A. Defense of the Civilian Population in Germany," by Colonel Stephen Petróczy, retired.

The latest decree relative to the organization of the A.A. defense of the civilian population, released by the German government last spring, is the result of methodical, scientific study of the question. The solution not only seeks to provide for all contingencies, but endeavors with equal care to provide the best possible defensive plan at a minimum of expense.

The basic principle of the plan is that it makes the entire police force of the nation, and as far as practicable the entire force of civil officials and organized society itself, a part in the A.A. defense of the nation. Appreciating the fact that existing agencies for the preservation of public order and first aid would not be adequate to meet all demands of an air attack in the event of war, the German defensive plan calls for certain auxiliary organizations. These constitute the active portion of the population, while the remainder is designated as the passive portion. The active element is to receive special training and equipment, while the passive element is to be provided with the necessary protective shelters. The general conduct of the A.A. and Gas Defense is entrusted to the police. Industries, the railroad, and postal services are required to establish their special defensive organization. Cooperation between these agencies is compulsory.

Each community and organization is required to set aside the funds necessary for the effective func-

tioning of its own defensive system. This is an innovation. France provides the funds by public appropriation, while Poland relies mainly upon voluntary contributions through the A.A. and Gas Defense League.

The German plan places great emphasis upon the proper instruction and enlightenment of the "passive" portion of its population. The actual work in this important phase of preparedness is entrusted to the German A.A. Defense League and its affiliates. The press, radio broadcasting system, movies, schools and colleges are required to lend full assistance in this respect. Members of the active element, who, in case of war, may suffer injuries, are to be placed upon an equal footing with other war casualties.

The police is to organize in every community a council of technical advisors to consist of a representative each of the municipal board, industries, railways, postal service, ambulance service, Red Cross and similar organizations, the fire department, the National Labor Defense, schools, associations, the press, and selected technical experts. An Executive Board of five members and ten committees serves to promote the effective functioning of this otherwise unwieldy council. The mission of the council is to provide for public order, first aid, promotion of self-help, decentralization of protective installations, organization of a fire-fighting unit for each house, establishment of bomb and gas proof shelters, and sanitation. All services are required to be rendered without compensation.

The *Pesti Naplo,* prominent daily of Budapest, Hungary, in its May 4 issue, publishes a London news dispatch quoting Thomas Reid, Canadian M.P., who in a dramatic speech before the House of Commons at Ottawa declared that the British Columbia coast is overrun by Japanese spies disguised as seamen and fishermen. Japanese naval officers in disguise accept any employment on fishing craft in order to familiarize themselves with the coastal waters and bays of western Canada, which according to Mr. Reid might serve as bases of operations for an expeditionary force.

GREAT BRITAIN—*The Army, Navy and Air Force Gazette*—March 9, 1933.

"Bessarabia," by C. F. A. Maitland-Macgill-Crichton.

Bessarabia is the territory between the Rivers Pruth and Dniester and the Black Sea. Transferred to Russia by Turkey in 1812, it continued a Russian province until 1917, when it passed under Roumanian domination. Soviet Russia never recognized this change and her maps still show the province within the boundaries of U. S. S. R. Although the soviet authorities have declared that they would not go to war over the lost province, the Soviet press constantly refers to it as the "Alsace on the Dniester." The question induced Roumania to seek an alliance with Poland since her other allies, Jugoslavia and Czechoslovakia declared their unwillingness to defend Roumanian frontiers against Russia. In the author's opinion, the treaty which transferred Bessarabia to Roumania is without legal effect, partly because one of the signatories failed to ratify it but mainly because Russia was not a party to it, and she has consistently protested against Roumania's action. The Roumanian case is based on historic grounds, claiming that Bessarabia had been part of Roumania from time immemorial until forcibly severed in 1812. Russia counters that claims based on a situation prior to 1812 are impossible since at that time Roumania did not even exist. There were only two Turkish provinces, Moldavia and Wallachia, without any trace of Roumanian national sentiment. Russia lost a part of the province as a result of the Crimean War. It passed to Roumania in 1859, but was recovered by Russia in 1878. As a compensation Roumania then acquired the Dobroudja.

The Bolsheviks likewise challenge the means whereby the present situation was created and charge the Roumanians with bad faith. They set forth that the so-called "National Council" which voted the transfer of allegiance, was not truly representative of the people, and they insist upon a plebiscite to determine the wishes of the Bessarabians. The author points out that the moral value of the Russian case lies in the fact that the Russians are not claiming for themselves any more right than Roumania to dispose of Bessarabia.

—*Journal of the Royal United Service Institution*—May, 1933 "The International Situation—The European Crisis," by Major E. W. Polson-Newman, B.A.; F.R.G.S.

The author summarizes the chief causes of the European crisis as follows:

1. The general collapse of international confidence together with the political tension caused by the situation in the Polish Corridor, Central Europe, and on the Adriatic.
2. The unsettled state of affairs in Germany as a result of Hitler's accession to power. Its disturbing effect upon Germany's neighbors. It increased the tension in the Corridor.
3. The bad moral effect of the economic depression.
4. The threatened failure of the disarmament conference arising out of the fact that the *status quo* is rapidly dividing Europe into two hostile camps, each desiring adequate armaments either for aggressive or defensive purposes, and the consequent tendency of delegations to see what they can get or keep rather than what they can do without or give up.

The author writes that the combined efforts of these causes produced the disarmament deadlock, which is in reality the pivot on which the whole situation has turned. He points out that all efforts to bring about disarmament without removing the potential causes of war is "putting the cart before the horse." It springs from the delusion that cooperation is compatible with the *status quo* of Versailles, St. Germain and Trianon. The author believes that the most important result of the MacDonald-Mussolini collaboration has been the realization that treaty revision must in principle precede disarmament. Treaty revision, he states, is the only open door to peace, and that without revision, war will sooner or later be inevitable.

Great Britain and Italy, on the whole, seem to agree on most points. The attitude of France is, however, more complex as she must take into consideration the

attitude of her allies, Poland and the Little Entente. M. Titulesco, spokesman of the Little Entente, and other champions of the *status quo,* the author writes, have been resorting to every conceivable argument to convince the French that treaty revision can only lead to war. That, of course, compels France to pursue a cautious course to avoid ultimate isolation in the face of a rearmed Germany.

The author regards the situation in Central Europe and on the Adriatic as the most important factors in the present crisis, but he sees in the Polish-German relations the most immediate danger. With feeling running very high in Danzig, the Corridor, and in Upper Silesia, a mere incident might easily entail serious complications. Danzig is a stronghold of German nationalism. The extensive privileges enjoyed by the Poles in the Free City have been a continual source of political irritation. A grave situation may quickly arise. In Silesia the bad feeling arises chiefly out of the Corridor question but is intensified by the personal inconvenience of individuals. It is another area where the Polish-German question may easily come to a head.

INDIA—*The Journal of the United Service Institution of India*—October, 1932.

"The Cut in Pay," editorial.

This editorial is quoted practically in its entirety because of its timely interest to officers of the military and naval services of the United States.

"In his pay bill for the month of November, 1931, every officer in the employ of the Government of India found himself confronted for the first time by that unwelcome item "Deduction on account of temporary ten per cent cut in pay." He was told that the condition of Indian finances was such that this sacrifice was demanded of him as much by patriotism as by necessity, and he accepted it on those grounds, comforting himself with the assurance that it *was* temporary. He has now had ten months' experience of this reduction in his income, and he would be more than human if, as the year draws to its close, he were not wondering whether these reasons of patriotism and necessity still hold, or whether the time is approaching when it might wisely and safely be demonstrated that the cut was indeed temporary.

"The truth is that the officer, especially the junior married one, whether civil or military, has found the effects of the cut much more serious than was anticipated. A good deal of nonsense has been talked, usually by those whose experience is limited, about the high standard of living amongst European officials in India, but no one who had any first-hand knowledge of conditions in the ordinary station believed that the average married couple wasted much of their substance in riotous living. Nevertheless, when the cut fell upon them, the official and his wife started off optimistically enough to reduce "their standard of living." It was then that they discovered there really was not very much that they could reduce. They could not move into a smaller house—there were no smaller houses and the hotels of India are as expensive as they are bad. Servants were already reduced to the minimum unavoidable. * * * Something could be saved * * * by giving up the occasional dinner party to their friends, by passing a fraction of their cut to their servants * * *. But the sum total of their efforts—and they did make real, honest efforts—was grievously small; few of the larger items of the family budget could be seriously touched. Rent, servants' wages, regimental subscriptions, income tax, family pension funds, clothing, stores bills, education and insurances, all were as before; any slight reduction in one was counterbalanced by increases in others. Indeed with increased customs duties and higher income tax, the cut was in practice found to be fifteen per cent rather than ten.

"After doing their best to reduce expenses to the utmost practical limit * * * it is safe to say that there are no junior, and few even comparatively senior Government officers, with families and without private means, who do not find it desperately difficult to provide for their children's education. Either the children are at home—and there has been no cut in school fees—or they are still in this country and, if they are to have any hope of future schooling, money must be found for their educational insurance. The amount that could be spared for such educational and for life insurance was calculated before pay was cut, but the same premiums must still be paid from the reduced pay. This has been one of the main factors of upsetting the family budget, and it is not often realized in how many cases the insurance policy has had to be pawned to cover either an overdraft at the bank or its own premium. On the surface things may not seem so very changed—less entertaining, families that stay longer in the plains, a greater keenness to get any job with a little extra pay; beyond this all is much as it was. But underneath is a growing anxiety as to what will happen if the overdrafts go on increasing, month after month, year after year. *The cut may be temporary, but if it continues much longer, its effects will be permanent.* For most married British officers of every Service in India the alternatives are a gradually increasing indebtedness with all that this entails in anxiety, ill-health, discontent and loss of efficiency, or a restoration of the cut in some form.

"It is not only because of the increasingly serious position of the individual officer, but because of its adverse effects on the contentment and efficiency of the Services as a whole that every possible avenue of alternative economy should be explored in order that the cut may be restored. Above all things it is essential that, before legislation to prolong the cut another year is brought forward, it should be conclusively shown that its retention is necessary for the financial stability of India. Compared with a year ago the financial position of India has vastly improved. Civil disobedience with all its cost in disturbance and delay in collecting revenue is practically dead; agricultural prospects are on the whole good; drastic economies made in expenditure should produce a balanced budget. Unless there is some unexpected deterioration in the restoration of the cut ought not unduly to strain India's resources in 1933.

COAST ARTILLERY ORDERS

Colonel Edward Carpenter, report to President, Army retiring board, First Corps Area, Boston.

Colonel John T. Geary, detailed member Army retiring board, Ninth Corps Area, San Francisco.

Colonel John C. Ohnstad, from duty C. A. Board, retired, June 30.

Colonel Frederick W. Phisterer, home to await retirement, June 23.

Colonel Richard H. Williams, from 64th, Hawaii, to Organized Reserves, Ninth Corps Area, Los Angeles.

Colonel William H. Wilson, relieved General Staff Corps and from office Chief of Staff, War Department, Wash., D. C., June 10, to 11th, Ft. H. G. Wright.

Lt. Col. Thomas C. Cook, from instructor, C. A. School, Ft. Monroe, to 52d, Ft. Hancock, August 1.

Lt. Col. Walter Singles, from 8th, Ft. Preble, to Recruiting Duty, Ft. Slocum.

Major Glenn P. Anderson, from student, Air Corps Tactical School, Maxwell Field, Montgomery, to instructor, New York National Guard, New York.

Major Donald M. Cole, from the Philippines to 11th, Ft. H. G. Wright.

Major Felix E. Gross, from student, Naval War College, Newport to Aberdeen Proving Ground, Aberdeen, as Coast Artillery representative.

Major James L. Hayden, from student, C. A. School, Ft. Monroe, to 51st, Ft. Monroe. Previous orders revoked.

Major Thomas O. Humphreys, from duty Kansas State College of Agriculture and Applied Science, Manhattan, to 8th, Ft. Preble.

Major LeRoy H. Lohman, from student, C. & G. S. School, Ft. Leavenworth to Kansas State College of Agriculture and Applied Science, Manhattan.

Major Kenneth McCatty, from Panama to 69th, Ft. McClellan.

Major Abram V. Rinearson, Jr., from student, C. A. School, Ft. Monroe, to Hawaii, sailing New York, June 20.

Major Erwin K. Smith promoted Lt. Col. June 1.

Major John P. Smith promoted Lt. Col. May 24.

Major Clesen H. Tenney, from student, Naval War College, Newport, to Vt. Polytechnic Institute, Blacksburg.

Major Berthold Vogel, from Hawaii to 8th, Ft. Preble.

Major Sydney S. Winslow, from Phila. Q. M. Depot, Philadelphia, to duty in office of Quartermaster General, Washington, D. C. Previous orders revoked.

Captain Elvin L. Barr, from the Philippines to 14th, Ft. Worden. Previous orders revoked.

Captain William R. Carlson, from Hawaii to 14th, Ft. Worden.

Captain Homer Case, from student, C. & G. S. School, Ft. Leavenworth, to the Philippines, sailing New York, June 20.

Captain Franklin E. Edgecomb, from student, C. & G. S. School, Ft. Leavenworth, to Panama, sailing New York, June 16.

Captain William D. Evans, from the Philippines to Georgia School of Technology, Atlanta.

Captain Arthur W. Gower, from student, C. A. School, Ft. Monroe, to Panama, sailing New York, August 25.

Captain Hugh N. Herrick, from student, C. & G. S. School, Ft. Leavenworth, to Philippines, sailing New York, June 20.

Captain Rolla V. Ladd, from student, C. &. G. S. School, Ft. Leavenworth, to University of Cincinnati, Cincinnati.

Captain Riley E. McGarraugh, from the Philippines to 2d, Ft. Monroe.

Captain Harold C. Mabbott, from Coast Artillery Board, Ft. Monroe, to Hawaii, sailing New York, August 25.

Captain Carl F. Massey, CA-Res. to active duty, June 16, from Winchester to Washington, D. C.

Captain Joshua D. Powers promoted Major May 24.

Captain Mahlon M. Read, from student, C. A. School, Ft. Monroe, to 6th, Ft. Winfield Scott.

Captain George T. Rice, from Panama to home to await retirement, June 28.

Captain Edward L. Supple, from student, C. A. School, Ft. Monroe to Hawaii, sailing New York, June 20.

Captain Lynn P. Vane, from Panama to 61st, Ft. Sheridan.

Captain Thomas P. Walsh, from 6th, Ft. Winfield Scott, to Finance Department, Ft. Hayes, August 23, sailing San Francisco, August 1.

Captain Webster H. Warren, from instructor, C. A. School, Ft. Monroe, to the Philippines sailing New York, June 20.

1st Lt. George R. Burgess, from Panama Canal Department to 62d, Ft. Totten.

1st Lt. Pio Q. Caluya (P.S.) from student, C. A. School, Ft. Monroe, to the Philippines, sailing New York, September 1. Previous orders revoked.

1st Lt. Clair McK. Conzelman, from student, C. A. School, Ft. Monroe, to Panama, sailing New York, June 16.

1st Lt. Lester D. Flory, from instructor, C. A. School, Ft. Monroe, to 2d, Ft. Monroe. Previous orders revoked.

1st Lt Albert G. Franklin, Jr., from student, C. A. School, Ft. Monroe, to 51st, Ft. Monroe, July 8.

1st Lt. Paul W. George, from instructor, Mass. National Guard, Fall River to detail Quartermaster Corps, Ft. Adams, May 26. Previous orders revoked.

1st Lt. John C. Smith, from student, C. A. School, Ft. Monroe, to 6th, Ft. Winfield Scott.

1st Lt. Leland S. Smith, from student, C. A. School, Ft. Monroe, to instructor, Mass. National Guard, Fall River, Mass.

1st Lt. Alba C. Spalding, from student, C. A. School, Ft Monroe, to Panama, sailing New York, August 25.

1st Lt. William F. Steer, from student, C. A. School, Ft. Monroe, transferred to Infantry and assigned to 24th, Ft. Benning, Sept. 12.

1st Lt. Albert J. Wick, from 7th, Ft. DuPont to detail Quartermaster Corps, June 15. Previous orders revoked.

1st Lt. Clark C. Witman, from Letterman General Hospital, San Francisco to Army and Navy General Hospital, Hot Springs National Park, Arkansas, for treatment.

2d Lt. Laurance H. Brownlee, from Panama, to 11th, Ft. H. G. Wright.

2d Lt. Robert E. Cron, Jr. (CAC) Quartermaster Corps, student, Carnegie Institute of Technology, Pittsburgh, to Fort Mason, duty with constructing quartermaster.

2d Lt. Matthew K. Deichelmann promoted 1st Lt. June 10.

2d Lt. Virgil M. Kimm promoted 1st Lt. May 24.

2d Lt. Olaf H. Kyster, Jr. promoted 1st Lt. April 4.

2d Lt. Aloysius J. Lepping promoted 1st Lt. June 1.

2d Lt. Nathan A. McLamb promoted 1st Lt. June 10.

2d Lt. Morris H. Mills, CA-Res. promoted 1st Lt. June 9.

2d Lt. Kai E. Rasmussen, from Philippines to 2d, Ft. Monroe.

2d Lt. Lawrence E. Shaw promoted 1st Lt. June 1.

2d Lt. Harry F. Townsend promoted 1st Lt. April 16.

Warrant Officer George W. Dahlquist, from bandleader, 2d, Ft. Monroe, to 34th Inf. Ft. George G. Meade.

Master Sgt. William G. Beaver, 64th, Ft. Shafter, retired, April 30.

Master Sgt. William E. Bostick, 52d, Ft. Hancock, retired, April 30.

Master Sgt. Adolph W. Rutter, 6th, Ft. Winfield Scott, retired, May 31.

Master Sgt. Thomas J. Stephens, Ft. Monroe, retired, April 30.

1st Sgt. Oliver Lewis, 52d, Ft. Monroe, retired, May 31.

1st Sgt. Wesley J. Martin, 14th, Ft. Worden, retired, June 30.

1st Sgt. William J. Murray, 7th, Ft. DuPont, retired, May 31.

1st Sgt. Lewis W. Robinson, 11th, Ft. H. G. Wright, retired, April 30.

1st Sgt. William H. Thomas, 14th, Ft. Worden, retired, June 30.

Sgt. George Davis, 13th, Ft. Barrancas, retired, June 30.

Corporal Bumpass M. Oakley, Coast Artillery School detachment, Ft. Monroe, retired, June 30.

BOOK REVIEWS

MODERNE KAVALLERIE (Modern Cavalry), REFLECTIONS ON ITS EMPLOYMENT, LEADERSHIP, ORGANIZATION AND TRAINING, by G. Brandt, Lieutenant General. Retired, late Inspector of German Cavalry, German Army. E. S. Mittler and Son, Berlin, 1931.

The book gives the latest thought on modern cavalry as seen by a German writer of known reputation as a soldier.

The author's cavalry experience embodies both peace and war. His discussion of various cavalry problems gives food for thought.

He stresses the use of cavalry masses as the only means to success. This doctrine he holds is being constantly violated by applying cavalry piecemeal instead of in concentrated masses at the decisive point. General Brandt holds that the main mission of cavalry in battle is that of a combat force, not distant reconnaissance. For this he considers aviation and armored cars much better suited. His discussion of cavalry marches is very timely. He emphasizes the absolute necessity of rapid deployment from route column in attack or defense. The author stresses the speeding up of battle reconnaissance, issuing of orders, movement of troops, as well as the rapid entry of machine guns and artillery into action. He gives as the constant watchwords for cavalry, mobility, speed, and aggressiveness.

The chapter on organization is of special interest, as it discusses questions of vital importance on organization and the required changes to bring the cavalry arm up to date to meet modern battle conditions.

The chapters cover the following subjects: Historical retrospect: 1. Missions of the army cavalry such as frontier protection, reconnaissance, screening, occupation of territory, use in battle, flank protection, pursuit, retreat, army reserve, independent operations against enemy communications (raids); 2. Leadership; 3. Tactics; 4. Organization; 5. Corps or divisional cavalry; 6. Training.

Field Marshall General von Mackensen recommends this book very highly as being one of the best writings that have come out since the war. It is to be hoped that an English translation will be made available not only to cavalrymen but to all services for a correct appreciation of the mission of modern cavalry.

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THE CONCERT OF EUROPE, by R. B. Mowat. Macmillan and Co., London, 1930. 5½″ x 8¾″; 364 pp.; $5.00.

Since the World War many writers have laid the blame for that conflict on the Concert of Europe, or the Balance of Power as it is frequently called. Professor Mowat, of the University of Bristol, England, combats that view vigorously, claiming, not only that the Concert was in no way responsible for that conflagration, but that it preserved the peace of Europe for nearly fifty years, during which time many serious situations arose, some being even more critical than that of 1914.

The book deals with international affairs during the period between the Franco-Prussian War and the outbreak of the World War, in some respects one of the most remarkable epochs in the history of the world. It was the era of the Armed Peace, when every continental power was a nation in arms, ready for instantaneous war. "Europe was mobilized all the time," yet war did not result, which is strange if the pacifist idea that preparation for war creates war has any merit. The reason for this absence of armed strife was "because the Concert of Europe kept the peace. It was not a very stable condition of affairs, but it worked and resulted in peace over a period of nearly fifty years."

During that time there were many crises which tested the harmony of the Concert, but they were successfully passed, friction was eased and settlements were made, by diplomacy instead of by force of arms. Among the most serious of such cases may be mentioned the Eastern Question of 1876-78, settled by the Congress of Berlin, the first triumph of the Concert. The Russo-Bulgarian crisis of 1886 and the Armenian massacres of the nineties nearly precipitated general conflicts, while the Moroccan question, early in this century, was most acute. All were settled by the Concert, the United States joining in the last.

If these were as dangerous as the Austro-Serbian issue which brought forth the World War why did the Concert fail in 1914? Professor Mowat's answer to this question is that Germany refused to collaborate then. "This is not to say that the German Government deliberately sought for war, or that it desired war. There is absolutely no evidence for such a view, all the evidence is against such a judgment." Nevertheless "Germany must bear the chief responsibility," because it never really believed in the Concert. It took part in the previous conferences grudgingly, its foreign policy being a legacy from Bismarck, who refused to recognize that Germany had any international responsibility other than its own self-interest. This view was maintained throughout the life of the German Empire. Furthermore German policy was to support its ally, Austria, in everything. For some reason, not satisfactorily explained, the Germans were obsessed by the idea of encirclement by foes; only Austria was its friend, and Austria being needed must be supported at all hazards. This worked when the latter country annexed Bosnia and Herzegovina. Russia had not yet recovered from the Japanese War and had to give

in, but in 1914 the situation was different, and the result is well known.

This is an excellent work for the student of modern international relations and advocates of our entrance into the League of Nations will undoubtedly draw a parallel to favor their own views between the prewar attitude of Germany anent the Concert and our own situation with regard to the League.

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I Lavori Da Mina In Campagna (Mining Operations in War), by Dr. Attilio Izzo, Captain of Engineers, Royal Italian Army. 161 pages. Published by the "Rivista d'Artigleria e Genio," Rome, Via Astalli 15.

The author of this pamphlet offers a concise, well-arranged discussion of the use of explosives for mining operations and demolitions in war. The introduction discusses briefly the various types of explosives used by modern armies, their characteristics, uses and limitations. The subject matter covers all types of military demolitions and mining operations. It includes necessary formulae and comparative tabulation of the corresponding provisions in force in the German, British, French and Belgian armies. The author suggests some new methods for demolition of works of reinforced concrete. It is a valuable handbook for use of engineer officers.

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Radio Engineering, by Frederick Emmons Terman. McGraw-Hill Book Company, New York, 1933. Price $5.00.

During the past several years there have been published many books devoted to radio as applied in practice and containing only the very necessary theoretical treatment required for explanation. The time was ripe and the field clear for an up-to-date authoritative book on radio for students and engineers.

This need was very effectively met by Professor Terman's "Radio Engineering." Some indicate of its real value may be found in its adoption as a radio text in several colleges and universities within a short time after publication. Engineers and students have found this book to be a mine of modern authentic information on radio and its applications.

The many original and distinctive features embodied in this book make its contents understandable and available. For instance, we find that all mathematical derivations have been relegated to footnotes, leaving the important final equations occupying a prominent place in the text, thereby accentuating them and not their derivations. Analytical discussions are set down as far as possible without the use of generally unnecessary computations to prove the discussion. Words, instead of symbols, are used whenever practicable in setting up equations. Formulas requiring dimensions of length are set up in inches—a splendid departure from the use of the metric system for the dimensions in constantly used equations. The use of footnotes to give references applicable to the matter under discussion is worthy of note. The index is very complete.

The first nine chapters are devoted to a thorough discussion of the fundamentals of radio, while the last nine chapters treat the practical applications of the fundamentals. Noteworthy are the chapters on Antennae, Radio Aids to Navigation, Radio Measurements, and Sound and Sound Equipment. The chapters on transmitters and receivers discuss modern equipment, even to data on ultra high-frequency equipment.

Professor Terman has included many discussions original with this book. There will be found a thorough treatment of resonance, resistance, impedance, and transformer-coupled amplifiers, of the screen grid tube, and power sources for tubes and antennae. All of these are discussed with clarity, conciseness and accuracy that make this book a requisite on the shelf of every radio amateur and engineer.

The design engineer will find many subsections devoted to the actual design procedure of circuits discussed under this section. The innovation is invaluable in organizing the work of design for an engineer and gives the radio engineering student an analysis of factors to be considered in design problems.

The author's excellent presentations of the practical application of theory to actual conditions make "Radio Engineering" an indispensable reference for the amateur and an essential tool for the engineer. Because of its ability to be practical without being commonplace, theoretical without being abstruse, "Radio Engineering" will find a wide field of application as a text book for courses in radio. The Author is Associate Professor of Electrical Engineering at Stanford University—A.D.W., Jr.

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Manchuria: Cradle of Conflict, by Owen Lattimore. Published by the MacMillan Company, New York, 1932. 301 pages. Price $3.00.

This book is based on the experience of the author gained during nine months of travel and residence in Manchuria in 1929-30, under a fellowship from the Social Science Research Council, New York. Before leaving for Manchuria he spent six months in the Department of Anthropology at Harvard University and at the Widener Library, in order to become thoroughly oriented as to just exactly what to learn before he started in search of it. Before returning to the United States some time was spent in Peiping studying "source material;" most of it, therefore, is Chinese. Under the auspices of the American Geographical Society the author had previously spent a number of years along the "borderlands" of China, and had written two books, "The Desert Road to Turkestan," and "High Tartary." This brief resumé of the author's experience is given for the purpose of clarifying any doubts as to the authoritativeness of the book under discussion.

Mr. Lattimore discusses Manchuria in a way that is not usual in other books on the same subject. He claims that Manchuria is the battleground between three types of civilization, namely "Western," "Chinese" and "Russian." The driving exponents of "Western" civilization are the Japanese, whom he considers

to have become thoroughly "Westernized" in every respect and to have whole-heartedly adopted "Western" methods of dealing with so-called "backward" nations. The Russian civilization, in Mr. Lattimore's opinion, is well established, distinctly different, and has a great facility for absorbing alien peoples. The "Chinese" civilization is so old that the Chinese have reached the point where they feel themselves superior to everyone else, and are impatient and intolerant of receiving new ideas, believing they cannot benefit by any change. Manchuria, by virtue of its being the meeting place of the three types, will undoubtedly furnish the ground upon which the three protagonists will fight.

In the twelve chapters of his book Mr. Lattimore discusses how originally Manchuria was the battleground of different races and cultures and how it became, and still is, the "reservoir" of tribal invasions southward into China proper. He shows how the Chinese spread northward into Manchuria, and how whenever they met a serious check their northward movement ceased, and the outer fringes of the "spread" then became a rear guard force, the settlers again turning their faces southward in the direction of China. He discusses the cultural strength of the Chinese and how they were able to "Chinify" the Manchus. Then follows a short history of the Russian expansion towards the East, and the difference between the methods of colonization of the Russians and of the Chinese. In chapters dealing with land and power in Chinese Manchuria, exploitation and westernization, soldiers, opium and colonization, refugees, frontiersmen and bandits, aliens and the land, the cities against the country and Manchuria's place in the world, he shows how the colonization of the Chinese in Manchuria differs from the ordinary accepted "Western" ideas of colonization. The Chinese are exploiters of the land, rather than true pioneers. Their ideas are not so much to be real farmers, as to use the land merely as a stepping stone to power through officialdom.

It is an intensely interesting book, and most instructive. While it is true that the market is flooded with books on Manchuria at this time, nevertheless this particular book discusses the Manchurian situation from a distinctive angle, and it is recommended to all officers of the Army as valuable and worth-while reading.

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THE PERSONAL MEMOIRS OF JOFFRE, FIELDMARSHAL OF THE FRENCH ARMY, translated by Colonel T. Bentley Mott, D.S.M. Two Volumes, 657 pages. Harper & Brothers, New York, 1932. Price $6.00.

The "Hero of the Marne" left to posterity an interesting record of his part in the European war. The narrative consists of four parts: (1) the years preceding the war; (2) the war of movement; (3) the war of stabilization and (4) the Allied general offensive in 1916. These are followed by appendices including a note by the translator.

Joffre refutes the generally accepted version of his interview with President Wilson, on May 2, 1917, according to which the Marshal urged merely a show of our flag on the battlefront at the earliest moment. Joffre states, that he actually recommended the sending of a full division. He believed, that its training could be completed in France within the space of one month, after which period of intensive training it would gradually be worked into a sector at the front.

The translation, on the whole, is excellent, although one might take exception to Colonel Mott's rendition of the title. Joffre was a Marshal of France. "Fieldmarshal of the French Army" is a wholly unnecessary and unjustifiable interpretation.

The narrative is well documented. The volumes are separately indexed, and illustrated with reproductions of photographs and twenty outline situation maps.

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CAPITALISM, COOPERATION, COMMUNISM, by Andrew J. Kress, Ph.D. 149 pages; Ransdell, Inc., Washington, D. C., 1932. Price $2.00.

The title of this interesting and scholarly treatise is somewhat misleading. It is not, as the title might imply, a presentation of theories and principles underlying the social and economic organization of the types named, nor of the facts and factors involved in the same, but rather an historical and analytical study of cooperation as developed here and abroad. Recognizing the evils of capitalistic society on the one hand, and the fallacies of the communistic system on the other, the author believes and defends the thesis, that the ailments of this world may be cured and the greater evils of communism avoided by means of cooperation. This is an economic system that follows the middle course between the two extremes. In the author's opinion, this system "now stands ready to solve the problems of both systems, avoiding the excesses of either."

This highly informative study, carefully prepared and well presented, is highly recommended to the student of the present ills of organized society and of economics in general.

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THE FALL OF THE KAISER, by Maurice Beaumont. Translated from the French by E. Ibbetson James. 253 pages. Alfred A. Knopf, New York, 1931. Price $2.75.

The author collated the conflicting accounts of the closing days of the second German Empire. He endeavors to divest them of all fictitious and melodramatic elements, and gives to the reader a lucid, condensed story of the hectic events that led up to the abdication and flight of Emperor William II. The author concludes by quoting German comments upon the Emperor's act and the divergent views, whether or not he should have sought death leading his troops in a final, desperate assault upon the enemy. The book is an interesting summary and digest of evidence bearing upon a momentous historic event.

GENERALSHIP: ITS DISEASES AND THEIR CURE. A study of the Personal Factor in Command. By Major General J. F. C. Fuller. London, 1933: Faber & Faber, Ltd. 96 pages, with charts. 4″ x 7″. 2s. 6d.

This is Volume II of the series, *The Art of War.* Volume I was *The Future of Infantry,* by Captain B. H. Liddell Hart, reviewed previously. In the preface is the following story which we offer as our choice for the best military story of the month.

"In the summer of 1921 I was lunching at the *Restaurant la Rue* with the Deputy Chief of the French General Staff when he told me the following story: At the battle of Waterloo, Colonel Clement, an infantry commander, fought with the most conspicuous bravery; but unfortunately was shot through the head. Napoleon, hearing of his gallantry and misfortune, gave instructions for him to be carried into a farm where Larrey the surgeon-general was operating.

"One glance convinced Larrey that his case was desperate, so taking up a saw he removed the top of his skull and placed his brains on the table.

"Just as he finished, in rushed an aide-de-camp, shouting: 'Is General Clement here?'

"Clement, hearing him, sat up and exclaimed: 'No! but *Colonel* Clement is.'

" 'Oh, mon général,' cried the aide-de-camp, embracing him, 'the Emperor was overwhelmed when we heard of your gallantry, and has promoted you on the field of battle to the rank of General.'

"Clement rubbed his eyes, got off the table, clapped the top of his skull on his head and was about to leave the farm, when Larrey shouted after him: 'Mon général—your brains!' To which the gallant Frenchman, increasing his speed, shouted back: 'Now that I am a general I shall no longer require them!' "

General Fuller has mercilessly exposed the diseased state of generalship in our modern armies.

"Our senior officers must get back to sharing danger and sacrifice with their men * * * just as sailors have to do." "A sense of equality of sacrifice is an essential cement in a fighting force." "Directly the British front is broken, the generals and their staffs pack up. As the enemy advances there is much buzzing on the telephone wires; then the army headquarters go back so many miles, corps headquarters so many, divisional headquarters so many, and so on, day after day, dragging the front back with them, the tail of which is covered by weary rearguards of subalterns and private soldiers. What says the shade of Marshal Ney to this—I wonder? Is this an exaggeration? Well, I for one watched it, and it was the sorry picture which I saw: an army sliding backwards downhill, because, with one exception only, so I believe, no one of the higher commanders thought—it was no question of daring, for these men were not cowards—of rushing forward and kicking a moral stone under the backward-skidding wheels. The exception I witnessed myself, a divisional commander in the picket line with his men and everyone confident and smiling. He was doing nothing outside showing himself, yet his presence acted like a charm—it maintained confidence. He was a man who knew the value of moral cement."

This little volume is so concise and so condensed that it all would bear quoting.

" 'There are plenty of small-minded men who, in time of peace, excel in detail, are inexorable in matters of equipment and drill, and perpetually interfere with the work of their subordinates.

" 'They thus acquire an unmerited reputation, and render the service a burden, but they above all do mischief in preventing development of individuality, and in retarding the advancement of independent and capable spirits.

" 'When war arises the small minds, worn out by attention to trifles, are incapable of effort, and fail miserably. So goes the world.' "

" 'I could not help admiring the toughness of old Sir Colin, who rolled himself up in a blanket, lay down, to sleep in a hole in a field, and seemed to enjoy it.' "

About Grant: "At Fort Donelson, he was not on the battlefield when his army was attacked, and upon returning to it, he found it half-routed; how did he act? * * * In his ordinary quiet voice he said * * * "Gentlemen, the position must be retaken * * *" * * * What did he then do? Did he sit down and write an operation order? NO! he galloped down the line shouting to his men: 'Fill your cartridge boxes quick, and get into line; the enemy is trying to escape, and he must not be permitted to do so * * *' 'This,' as he says himself, 'acted like a charm. The men only wanted someone to give them a command.' " "On yet another occasion, when supervising an attack, he dismounted and sat down on a fallen tree to write a message. 'While thus engaged a shell exploded directly in front of him. He looked up from the paper an instant, and then, without the slightest change of countenance, went on writing the message. Some of the Fifth Wisconsin wounded were being carried past him at the time, and Major E. R. Jones of that regiment says: * * * that one of his men made the remark: 'Ulysses don't scare worth a d—n.' It is such generals who *can* lead men, who can *win* victories and not merely machine them out."

"With his great opponent, Robert E. Lee, it is the same. It was his personality, his example, his close contact with his men which infused into the Army of Northern Virginia its astonishing heroism. When on the third day of the battle of Gettysburg his great assault failed, and his men were driven back defeated, where was Lee? Forward among the Federal shells. Colonel Fremantle, a British officer present, says: 'If Longstreet's conduct was admirable, that of General Lee was perfectly sublime.' "

"When on May 12, 1864, Grant's troops broke through the apex of the Confederate works at Spottsylvania and the position became critical, what did Lee do? He again rode forward. Of this incident General Gordon writes: 'Lee looked a very god of war. Calmly and grandly, he rode to a point near the center of my line and turned his horse's head to the front,

evidently resolved to lead in person the desperate charge, and drive Hancock back or perish in the effort. I knew what he meant * * * I resolved to arrest him in his effort, and thus save to the Confederacy the life of its great leader. I was at the center of that line when General Lee rode to it. With uncovered head, he turned his face towards Hancock's advancing column. Instantly I spurred my horse across old Traveller's (Lee's favourite charger) front, and grasping his bridle in my hand, I checked him. Then, in a voice which I hoped might reach the ears of my men and command their attention, I called out, "General Lee, you shall not lead my men in a charge. No man can do that, sir. Another is here for that purpose. These men behind you are Georgians, Virginians and Carolinians. They have never failed you on any field. They will not fail you here. Will you, boys?" The response came like a mighty anthem that must have stirred his emotions as no other music could have done * * * "No, no, no; we'll not fail him" * * * I shouted to General Lee, "You must go to the rear." The echo, "General Lee to the rear, General Lee to the rear!" rolled back with tremendous emphasis from the throats of my men.'

"When in the World War did the men in the battle front order one of our generals back, let alone the general-in-chief? Never! No general-in-chief was to be found there, sometimes, perhaps, a brigadier, but as far as I have been able to ascertain, with the solitary exception of Major-General Elles, never a corps or a divisional commander. Why? This is my next problem; these men were not cowards, far from it, for many were potentially as gallant and courageous as Grant or Lee, as Lord Raglan or Sir Colin Campbell. No, it was not cowardice, it was the amazing unconscious change which rose out of the Franco-Prussian War, and which in a few years obliterated true generalship, dehumanizing and despiritualizing the general, until he was turned into an office soldier, a telephone operator, a dugout dweller, a mechanical presser of buttons which would detonate battles, as if armies were well tamped explosives or intricate machines."

Age. "Physically an old man is unable to share with his men the rough and tumble of war; instinctively he shuns discomfort, he fears sleeping under dripping hedges, dining off a biscuit, or partaking of a star-lit breakfast, not because he is a coward, but because for so many years he has slept between well-aired sheets, dined off a well-laid table and breakfasted at 9 o'clock, that he instinctively feels that if these things are changed he will not be himself, and he is right, for he will be an *uncomfortable* old man.

"Napoleon is a case in point. When a young man, as Baron von der Goltz writes, 'He passed half the day in the saddle or in his carriage, made all dispositions for his great army, and then dictated to his aides-de-camp ten, twelve, fourteen, or more long letters, a labour which alone is sufficient to keep a rapid writer fully employed. "I am in most excellent health; I have become somewhat stouter since I left," he wrote from Gera to the Empress Josephine,

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on October 13, 1806, at two in the morning, "and yet I manage to do some fifty miles a day on horseback, and in my carriage. I lie down at eight, and get up again at midnight; I often think that you have not then as yet retired to rest?" Such restless activity on the part of the general is the first condition of connected and rapid action in war.' "

"What repercussions will mechanization have upon generalship? * * * Thirdly, and this is the most important point of all, as mechanized warfare will approximate in many ways to warfare at sea, a general who does not man a tank and control his tanks from a tank, will be about as much use to his army as an admiral who, refusing to board his flagship, prefers to row about in a dinghy.

"In such wars as these, who will be the better general, that is the general the better equipped physically, intellectually and morally? Will it be the man of sixty-five or of forty-five, of fifty-five or of thirty-five? for there will be no dugouts, no fixed offices, no chateaux, in place—a bumping belching machine, and much breakfasting under the stars. Obviously the answer is that in nine cases out of ten the younger man will beat the older man, as easily as David beat Goliath—and David was a mechanical expert."

General Fuller places due and emphatic emphasis on the advantage youth gives a commander. He charts one hundred great generals, showing their ages at the times of their great achievements. Besides this, he has charted the average age of British generals and lieutenant-generals between 1914 and 1932. This book is a masterly presentation of sound ideas.

MARLBOROUGH by the Hon. Sir John Fortescue. Published by D. Appleton and Company, New York, 1932. 164 pages. $2.00.

Marlborough is considered one of England's most famous soldiers—if not the greatest. He was also a most successful diplomat. The author in a beautifully clear and concise style narrates the principal events of the Duke's life, both military and diplomatic, and in addition vividly describes the victories of Blenheim, Ramillies and Malplaquet. This little biography portrays a great soldier, a beloved commander and a loyal and loving husband; a splendid and endearing portrait of one of England's greatest sons.

THE CUBAN SITUATION AND OUR TREATY RELATIONS, by Philip G. Wright; 207 pages. The Brookings Institution, Washington, D. C., 1931. Price $2.50.

A scholarly analysis of Cuba's economic situation which is to a large extent attributed to her having become a "one-crop country." The author shows how that situation developed, and deals with the part played by our treaty relations and tariff policy in developing Cuba's tremendous sugar industry, and the causes of its collapse. The study also deals with various plans which have been proposed to extricate Cuba from her present precarious position.