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**DOUGLAS MacARTHUR**
**GENERAL, CHIEF OF STAFF, U. S. ARMY**

# THE FIELD ARTILLERY JOURNAL

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## GENERAL MacARTHUR

BORN in the Army, reared and educated in the Army, General MacArthur earned early distinction by graduating first in his class at the Military Academy.

As an officer of the Engineer Corps he served two tours on the General Staff, was an instructor at the Mounted Service School and participated in the Vera Cruz expedition.

During the World War his brilliant service included duty as Chief of Staff of the 42nd (Rainbow) Division, Commander of the 84th Brigade and 42nd Division, many acts of gallantry and two wounds in action.

Since the war he has been Superintendent of the Military Academy, Commander of the Fourth and Third Corps Areas and the Philippine Department.

The Field Artillery receives General MacArthur as its new Chief of Staff with full assurance that the interests of our Army, our Country and our Arm have been entrusted to the leadership of a man of distinguished military achievement, of keen intelligence and outstanding constructive ability.

# ANNUAL REPORT OF THE CHIEF OF FIELD ARTILLERY—1930

## SECTION I—PERSONNEL

### *Regular Army*

*Commissioned personnel*. The table below gives the number of officers, by grade, commissioned in the Field Artillery as of June 30, 1930, together with the authorized strength in the various grades and the difference between the authorized strength and the actual strength:

| | Cols. | Lt. Cols. | Majs. | Capts. | 1st Lts. | 2d Lts. | Totals |
|---|---|---|---|---|---|---|---|
| Actual Strength | 31 | 68 | 235 | 441 | 445 | 262 | 1482 |
| Authorized | 68 | 75 | 235 | 532 | 377 | 212 | 1499 |
| Difference | –37 | – 7 | None | – 91 | + 68 | + 50 | –17 |

The gains and losses during the fiscal year ending June 30, 1930, were as follows:

GAINS

| | |
|---|---|
| From the United States Military Academy, Class 1930 | 62 |
| By transfers from other arms | 11 |
| Total gains | 73 |

LOSSES

| | |
|---|---|
| Promoted to Brigadier General | 2 |
| Retired | 12 |
| Discharged per Class "B" proceedings | 2 |
| Dismissed | 1 |
| Resigned | 10 |
| Died | 3 |
| Transferred to: | |
| Air Corps | 19 |
| Chemical Warfare Service | 1 |
| Finance Department | 2 |
| Judge Advocate General's Department | 1 |
| Ordnance Department | 4 |

| | |
|---|---|
| Quartermaster Corps | 1 |
| Signal Corps | 3 |
| Total losses | 61 |
| Net gain | 12 |

The distribution of officers on June 30, 1930, is shown in Table "A":

TABLE "A"

| | Cols. | Lt. Cols. | Majs. | Capts. | 1st Lts. | 2d Lts. | Total |
|---|---|---|---|---|---|---|---|
| Duty with F.A. Organizations, R.A. | 11 | 14 | 44 | 211 | 271 | 168 | 719 |
| Office of Chief of F.A. | 1 | 3 | 6 | 3 | | | 13 |
| Field Artillery Board | | 2 | 4 | 2 | | | 8 |
| Liaison Officers | | | 1 | | 1 | | 2 |
| F.A.S. Staff and Faculty | | 1 | 17 | 15 | 7 | | 40 |
| F.A. Instrs. other schools | | | 3 | | | | 3 |
| School duty arm, Students | | | 10 | 39 | 38 | 38 | 125 |
| C&GSS Staff and Faculty | | 4 | 6 | 1 | 1 | | 12 |
| C&GSS Students | | | 31 | 11 | | | 42 |
| A.W.C. Staff and Faculty | | 1 | 3 | 1 | | | 5 |
| A.W.C. Students | | 2 | 8 | | | | 10 |
| Oriental Language Students | | | | 1 | 3 | | 4 |
| U.S.M.A. | | 1 | 4 | 5 | 31 | 3 | 44 |
| R.O.T.C. | | 2 | 19 | 47 | 38 | | 106 |
| Organized Reserves | 9 | 15 | 17 | 46 | 17 | | 104 |
| National Guard | | 4 | 30 | 43 | 9 | | 86 |
| G.S., W.D. | 2 | 5 | 9 | | | | 16 |
| G.S., Troops | 4 | 7 | 12 | | | | 23 |
| Duty with G.S., Troops | | | | 1 | 2 | | 3 |
| Office Chief of Staff | 1 | | | | | | 1 |
| G. S. Military Attachés | 1 | 1 | 5 | 2 | | | 9 |
| Detailed to Air Corps | | | | | 2 | 43 | 45 |
| " " I.G.D. | | 4 | 3 | | | | 7 |
| " " J.A.G.D. | | | | 2 | 1 | | 3 |
| " " Ordnance Department | | | | | 2 | 3 | 5 |
| " " Q.M.C. | 1 | 1 | 1 | | 1 | 4 | 8 |
| Aide-de-Camps | | | 1 | 3 | 16 | 3 | 23 |
| Disciplinary Barracks | | | 1 | 2 | 1 | | 4 |
| Recruiting | 1 | | | 4 | 4 | | 9 |
| Public Bldgs. and Grounds | | | | 1 | | | 1 |
| Bureau of Insular Affairs | | 1 | | | | | 1 |
| Instructor in Oriental Languages | | | | 1 | | | 1 |
| Totals | 31 | 68 | 235 | 441 | 445 | 262 | 1482 |

NOTES: The table shows the status of officers under orders on June 30, 1930. Many of these orders are not effective until September, 1930.

Sixty-two (62) second lieutenants, commissoned from the U. S. M. A., class of 1930, are included in the table, thirty-two (32) as on duty with Field Artillery organizations of the Regular Army, twenty-five (25) as detailed to the Air Corps, and three (3) as detailed to the Quartermaster Corps.

Considering the number of officers, commissioned in the various field grades as of June 30, 1930, it appears that the average service of officers with organizations of the Regular Army will be, approximately:

| | |
|---|---|
| Colonels | 3.8 years in 10 |
| Lieutenant-Colonels | 2.5 years in 10 |
| Majors | 1.5 years in 10 |

The policy that officers of battery grade will be left at their stations for four years has had to be largely abandoned during the past year, due to the reorganization of the arm. The shortage of officers in the arm is always borne by the troops.

*Enlisted personnel*. The situation, with respect to enlisted personnel, is shown in Table "B":

TABLE "B"

| Organizations | Auth. | Strength as of Sept. 30 1929 | Dec. 31 1929 | Mar. 31 1930 | June 30 1930 |
|---|---|---|---|---|---|
| 1st F.A. Brig. Hq. & Hq. Btry | 38 | 46 | 41 | 37 | 40 |
| 2nd F.A. Brig. Hq. & Hq. Btry | 38 | 37 | 45 | 23 | 45 |
| 3rd F.A. Brig. Hq. & Hq. Btry | 38 | 41 | 39 | 41 | 36 |
| 13th F.A. Brig. Hq. & Hq. Btry | 38 | 40 | 39 | 38 | 33 |
| 1st Field Artillery | 1000 | 1013 | 966 | 960 | 948 |
| 2nd Field Artillery, 1st Bn | 445 | 439 | 425 | 414 | 504 |
| 3rd F.A. Less 2nd Bn. & Hq | 371 | 334 | 338 | 372 | 475 |
| 3rd F.A., 2nd Bn. & Hq | 467 | 450 | 455 | 448 | 331 |
| 4th Field Artillery, 2nd Bn | 415 | 392 | 330 | 354 | 317 |
| 5th Field Artillery | 818 | 808 | 759 | 775 | 646 |
| 6th Field Artillery | 804 | 786 | 838 | 743 | 736 |
| 7th F.A., less 2nd Bn | 478 | 409 | 445 | 492 | 554 |
| 7th F.A., 2nd Bn | 371 | 356 | 361 | 386 | 495 |
| 9th F.A., 1st Bn | 326 | allotted on Organization as active unit | | | 204 |
| 10th Field Artillery | 796 | 747 | 809 | 806 | 689 |
| 12th Field Artillery | 796 | 724 | 837 | 781 | 705 |
| 15th Field Artillery | ** | 694 | 390 | 356 | 303 |
| 16th Field Artillery, 1st Bn | 427 | 426 | 461 | 434 | 450 |
| 16th Field Artillery, 2nd Bn | 375 | 305 | 350 | 362 | 330 |
| 17th F.A., less 3rd Bn | 682 | 667 | 678 | 682 | 738 |
| 17th Field Artillery, 3rd Bn | 326 | allotted on Organization | | | 262 |
| 18th Field Artillery, 1st Bn | 446 | 441 | 407 | 435 | 429 |
| 18th Field Artillery, 2nd Bn | 371 | 344 | 359 | 355 | 410 |
| 24th Field Artillery | 1003 | 984 | 990 | 983 | 990 |
| 82nd F.A., 1st Bn. (H) | 472 | 529 | 462 | 445 | 433 |
| 83rd Field Artillery, 1st Bn | 446 | 462 | 438 | 436 | 430 |
| F.A.S. Detachment (W) | 151 | 163 | 153 | 152 | 151 |
| F.A.S. Detachment (C) | 169 | 149 | 173 | 164 | 159 |
| 11th Field Artillery Brigade | 2736 | 2603 | 2536 | 2605 | 2416 |
| Totals | †15972 | 15168 | 14904 | 14958 | 15038 |

†Includes 332 for the 15th Field Artillery.

**796 authorized for 15th Field Artillery reduced upon reorganization to 332.

*National Guard*

National Guard Field Artillery and details covering its personnel are carried in the annual report of the Chief of Militia Bureau and will not be repeated here.

As in the past, a special effort has been made to select particularly qualified officers for detail as instructors with the National Guard.

*Officers' Reserve Corps*

During the year, the Field Artillery Section of the Officers' Reserve Corps changed as follows:

GAINS

| | |
|---|---|
| Regular acceptances | 308 |
| Dual commissions | 725 |
| R. O. T. C. | 1181 |
| Transferred | 60 |
| Total gains | 2274 |

(Note: The gain of 1181 reserve officers from R. O. T. C., as against 637 in fiscal year 1929, is due to the fact that many of the acceptances for the fiscal year 1929 were received after July 1, 1929, and are therefore counted in the fiscal year 1930).

LOSSES

| | |
|---|---|
| Died | 16 |
| Transferred | 49 |
| Discharged (Dual commissions) | 245 |
| Discharged (Reserve) | 499 |
| Declined reappointment | 467 |
| Resigned | 35 |
| Total losses | 1311 |
| Net gain | 963 |

Excluding from the above gains and losses Reserve Officers holding dual commissions, the net gain becomes 483.

The total number of Field Artillery Reserve officers as of June 30, 1930, was 11,289, of whom 2,006 held commissions in the National Guard; as of June 30, 1930, 12,252, of whom 2,486 hold commissions in the National Guard.

Table "C" shows the distribution of Field Artillery Reserve officers:

TABLE "C"

| Assignment Jurisdiction | Cols. | Lt. Cols. | Majs. | Capts. | 1st Lts. | 2d Lts. | Total |
|---|---|---|---|---|---|---|---|
| Corps Area | 63 | 101 | 328 | 849 | 1428 | 4647 | 7416 |
| Chief of F.A. | 5 | 7 | 28 | 35 | 28 | 74 | 177 |
| The A.G.O. | 2 | 2 | 5 | 1 | | 2 | 12 |
| Restricted | 8 | 17 | 58 | 222 | 573 | 1283 | 2161 |
| Sub-Total | 78 | 127 | 419 | 1107 | 2029 | 6006 | 9766 |
| Dual Commission | 41 | 48 | 125 | 670 | 735 | 867 | 2486 |
| Totals | 119 | 175 | 544 | 1777 | 2764 | 6873 | 12252 |

The procurement objective, based on the present mobilization plan, for the Territorial Assignment Group, Field Artillery Officers' Reserve Corps, requires a total of, approximately, 10,700 officers, exclusive of those required for Regular Army units. A comparison of this total with the number (9,766) of Reserve officers (exclusive of those holding dual commissions) shown in Table "C" above, indicates that efforts to build up the Field Artillery section of the Officers' Reserve Corps must be continued unabated.

## SECTION II—TRAINING

### *Regular Army*

The training of Field Artillery troops of the Regular Army progressed during the past year.

Target practice reports indicate a wider choice of targets, greater speed in firing, more comprehensive critiques. Excellent training has been had in the conduct of road marches and in the employment of the various means of communication in the hands of the Field Artillery.

Fire with air observation has received the hearty co-operation of the Air Corps units on duty at the Field Artillery School.

Training in sound ranging has expanded and improved. Deficiencies in materiel and in methods have been detected and are being corrected.

Field Artillery training literature has been further reviewed and revised; the following training regulations have been entirely re-written and are either in the hands of the printer or receiving the final review:

430- 85—Gunnery for Field Artillery.
430- 90—Field Artillery Signal Communications.
430-105—Tactical Employment of Field Artillery.
430-155—Reconnaissance, Selection and Occupation of Position.

In addition, Volume I, of the Field Artillery Field Manual, "Organization and Drill" has been written, and Volume II, "Tactics and Technique" placed in shape for review.

During the year, 11 Field Artillery officers were graduated from the Army War College and 17 completed the two years' course at the Command and General Staff School, Fort Leavenworth, Kansas. In addition, Field Artillery officers were in attendance at the following special service schools:

| | |
|---|---|
| Cavalry School | 2 officers |
| Infantry School | 3 officers |
| Signal School | 2 officers |
| Air Corps Tactical School | 4 officers |
| Chemical Warfare School | 3 officers |
| Ecole de Guerre, Paris, France | 1 officer |
| Italian Cavalry School, Pinerolo, Italy | 1 officer |

Under the provision of the National Defense Act, Field Artillery officers completed courses at the civilian educational institutions indicated below:

| | |
|---|---|
| Massachusetts Institute of Technology (Automotive Engineering) | 1 officer |
| Yale University (Communication Engineering) | 1 officer |
| Purdue University (Communication Engineering) | 1 officer |
| Purdue University (Automotive Engineering) | 1 officer |
| University of Pennsylvania (Sound Ranging) | 2 officers |

The Knox Trophy, awarded annually by the Society of the Sons of the Revolution in the Commonwealth of Massachusetts, to that Field Artillery battery of the Regular Army which shall have obtained the highest rating in a general efficiency test prescribed by this office, was won this year (1929)* by Battery A,

*The Knox Trophy for 1930 was won by Battery A, 13th F.A., and the Knox Medal for 1930 was won by Corporal Harvey R. Griffith, Headquarters Battery, 1st F.A.—see pages 50 and 52—of this issue of THE FIELD ARTILLERY JOURNAL.

83d Field Artillery, at Fort Benning, Georgia. This battery was commanded at the time of the test by Captain Solomon F. Clark, Field Artillery, and was successful over fourteen competing batteries from all over the United States, as well as over batteries in Hawaii and in the Panama Canal Zone.

The Knox Medal, awarded annually by the same society for excellence as an enlisted student at the Field Artillery School, was won this year (1929) by Corporal Ergo Iosbaker, Headquarters Battery and Combat Train, 2d Battalion, 18th Field Artillery, Fort Des Moines, Iowa.

*The Field Artillery School.*

On August 8, 1929, at a time when preparations for the coming school year were nearing completion, Snow Hall was completely destroyed by fire. This building housed the Headquarters of the Field Artillery School, and a major part of the instructional activities of the Academic Division. Practically all records were saved, but the stock of instructional literature and almost all of the equipment were lost. The short time before the opening of the school year, September 11th, necessitated prompt measures to rehabilitate the instructional plant. The Acting Commandant and entire staff deserve commendation and praise for the manner in which they handled the situation in the preparation of a new plant, by remodeling old buildings, and obtaining new supplies. The rehabilitated plant with minor exceptions was ready for operation by September 11th and the opening of the school year was not delayed.

The buildings of the instructional plant, as now constituted, are barely adequate for current needs. They are wooden temporary war construction buildings, and, while maintained in presentable condition, the facilities are crowded, particularly in the matter of class rooms and offices. The buildings are numerous and scattered, making administration inconvenient.

It is to be emphasized, in connection with the instructional plant, that in case of another serious fire, it would be impossible to again rehabilitate the plant, as was done in this case, for want of existing buildings; in other words, *the last reserve of buildings has been utilized*.

*Instructional Program and Courses*. The instructional programs

have been executed successfully as planned. It is felt that the standards of instruction have been fully as high as ever before. The courses have included all of those described in A.R. 350-600, except the detailed officers' course for which there were no students. The courses are being developed constantly as a result of experience, improved methods of instruction, changes in organization, regulations and governing doctrines, and inventions and other developments in the military arts. There has been and will be a continuing effort to shape the courses so that the instruction in the methods peculiar to the World War will not be unduly emphasized at the expense of methods which would be more appropriate for a war under other conditions.

The tables below show the number of students who completed the various courses at the School during the past year:

OFFICERS

| Course | Duration | | Students | | | | |
|---|---|---|---|---|---|---|---|
| | Months | Hours | Graduated | Failed | Died | Relieved | Total |
| Advanced Course | 9 | 1292 | 27 | 1 | 1 | 0 | 29 |
| Battery Off. Course | 9 | 1292 | 71 | 0 | 0 | 2 | 73 |
| Advanced Course in Horsemanship | 9 | 1292 | 6 | 0 | 0 | 0 | 6 |
| Adv. Course in Motors | 9 | 1292 | 5 | 0 | 0 | 0 | 5 |
| Refresher Course | 2 | 335 | 5 | 0 | 0 | 0 | 5 |
| N.G. & Reserve Battery Off. Course (Fall) | 3 | 485 | 32 | 2 | 0 | 1 | 35 |
| N.G. & Reserve Battery Off. Course (Spring) | 3 | 485 | 34 | 4 | 0 | 3 | 41 |
| N.G. & Res. Field Off. Course | 1½ | 226 | 9 | 0 | 0 | 0 | 9 |
| Totals | | | 189 | 7 | 1 | 6 | 203 |

ENLISTED SPECIALISTS

| Course | Duration | | Students | | | |
|---|---|---|---|---|---|---|
| | Months | Hours | Graduated | Failed | Relieved | Total |
| Horseshoers (Fall) | 4 | 694 | 23 | 0 | 3 | 26 |
| Motor Mechanics (Fall) | 4 | 694 | 7 | 0 | 0 | 7 |
| Saddlers (Fall) | 4 | 694 | 10 | 0 | 1 | 11 |
| Communications, R.A. & N.G. (Spring) | 4 | 694 | 47 | 15 | 2 | 64 |
| Btry. Mechs. (Spring) | 4 | 694 | 11 | 0 | 0 | 11 |
| Saddlers (Spring) | 4 | 694 | 6 | 0 | 0 | 6 |
| Horseshoers (Spring) | 4 | 694 | 6 | 0 | 0 | 6 |
| Totals | | | 110 | 15 | 6 | 131 |

In addition to conducting the above listed courses, the personnel of the Field Artillery School reviewed all training literature sent it by the office of the Chief of Field Artillery, prepared the Field Artillery Extension Courses, including special texts therefor, and carried out tests of Field Artillery tactical formations and doctrines sent to it for study. All the work has been accomplished in an especially satisfactory manner.

The most important need of the school is quarters for officers and enlisted men. All student officers and some of the officers of the permanent garrison must be quartered in the city of Lawton. While excellent relations are maintained between the post and the city Chamber of Commerce in the matter of obtaining quarters, still it is almost impossible for junior officers to obtain suitable quarters within their rental allowance. In addition to this, they must use private transportation in going back and forth to their duties. This condition is naturally detrimental to the morale of the younger officers and must affect the manner of performance of their duties. Officers and enlisted men stationed at the aviation field are quartered in old war-time buildings which are most unsatisfactory. Officers quartered in these frame buildings are placed at an additional disadvantage in that no civilian insurance company will insure their effects against fire. It is sincerely hoped that decision as to the permanent home of the Field Artillery School will not be longer postponed, in order that a suitable building program may be at once instituted and carried out without further delay.

The situation with reference to the replacement of war-time motor transport is fast becoming acute and is already affecting the instruction of students.

### *National Guard*

War Department policies, not contemplating any supervision or inspection of National Guard activities by the office of the Chief of Field Artillery, no contact was had with that important component of the National Defense, except such as was brought about by the attendance of officers and enlisted men of the National Guard at courses at the Field Artillery School.

*Officers' Reserve Corps*

Special training in sound ranging was given to selected groups of Reserve officers of the Field Artillery Branch Assignment Group. No other training contact with Reserve officers was had by this office, in accordance with present War Department policies.

*Reserve Officers' Training Corps*

The general rating of the twenty Field Artillery units, as determined by the Corps Area Inspection Board, is highly satisfactory.

In October, 1929, there were enrolled a total of 11,347 basic students and 1,942 Advanced Course students. At the close of the college year, commissions or certificates of eligibility were issued to approximately 695 graduates. Last year, this latter figure was 838. This decrease is believed due to higher standards demanded in the units and, in a few cases, to local conditions. Every effort is being made to increase the enrollments without lowering our standards, and considerable help has been given by a recent letter (A. G. 000.862 ROTC (4-12-30) Misc. M-C) from the War Department to Corps Area Commanders on allocation of R. O. T. C. enrollment and camp attendance for the ensuing and subsequent years.

Enlisted detachments are too small in a number of units, and cannot properly take care of both animals and equipment, to set a proper standard for the students.

*Extension Courses*

The Extension Courses of the Field Artillery School has operated intensively under the pressure of the 1931-32 revision. The organization is such that the sub-courses now being produced are in fact extensions of the courses given at this school to students in residence. The sub-courses are prepared initially by the regular instructors of the resident students, thus affording the extension course student the same expert instruction as is received by the resident student. This system is resulting in the production of sub-courses believed much superior to those now in use.

## SECTION III—MATERIEL AND EQUIPMENT

### *Transport*

The transport problem for Field Artillery is now and probably will remain for some time in a state of flux, depending, as it does, on constant improvements in motor vehicles, the often conflicting requirements for national defense and for commerce, and the availability of the transport at and after the outbreak of war. While the principal foreign nations seem to be deeply interested in complete motorization, they also seem loath to give up the tried and true means of transport for divisional troops, the horse, and the question is still unsettled in our service.

The development in this country of the multi-wheel, multi-drive truck, and in France of the Citroen-Kegresse flexible track tractor, may mark the beginning of the obsolescence of our standard tractors using metal tracks. The great improvement in all types of motor vehicles will result in the more extensive motorization of service and headquarters units. It will probably result in the consolidation into a single type of the two types, tractor-drawn and portée, of the light artillery of the G. H. Q. Reserve.

During the past year, several types of medium and heavy commercial trucks have been tested by the Field Artillery Board and declared suitable for use. Based on specifications drawn as the result of these tests, twenty-four heavy four-wheel-drive cargo trucks have been purchased for the replacement of a portion of the war-time equipment of the 5th Field Artillery. Two light and two medium trucks, one a six-wheel-drive truck, are now being tested by the Field Artillery. One medium six-wheel four-wheel-drive truck is now being tested by the Ordnance Department prior to its issue to the arm for test as a prime mover for weapons of division calibre.

Sufficient Caterpillar "20" tractors have been purchased to equip the two motorized divisional Field Artillery units in continental United States, viz., the 1st Battalion, 1st Field Artillery, and the 1st Battalion, 6th Field Artillery.

The need for replacement of war-time motor vehicles in Field Artillery organizations is becoming most acute.

*Cannon*

Requirements for greater speed and anti-aircraft fire characteristics have influenced the development of carriages in the direction of pedestal type mounts. While we are proceeding with these requirements in view, an attempt is being made to combine aerial fire characteristics in a weapon primarily used for ground fire. Improvements in the manufacture of new weapons promises some slight possibility of still further reducing the number of calibers used by the Field Artillery.

During the past year, two experimental 75 mm. gun mounts, T-2 and T-3, have been built and given preliminary firing tests by the Ordnance Department. Both mounts are capable of all-around and aerial fire. They are equipped with pneumatic tires, anti-friction bearings, and sprung carriages. They represent the first pedestal mounts built in recent years for the Field Artillery. The increase in weight for the anti-aircraft features has been less than was expected. The development of this type of carriage will be extended to include the 105 mm. howitzer in case it proves successful and the 105 mm. caliber is retained.

A preliminary study has been made to investigate the possibilities of the development of a single caliber weapon to replace the 75 mm. gun and 105 mm. howitzer in the division, and, at the same time, be capable of fire at air targets. An ideal weapon of this type must be capable of long range fire, of accurate zoned-fire, and of aerial fire, the last necessitating high muzzle velocity, which makes a most complicated problem.

Sufficient 75 mm. pack howitzer, M1, have been manufactured to equip the 1st Battalion, 2nd Field Artillery, in Panama, and one battery of the 2nd Battalion, 4th Field Artillery, at Fort Robinson, Nebraska.

The 75 mm. guns, M-1923E1, which were being service tested at the Field Artillery School, were returned to the Ordnance Department for modification of the recoil mechanisms and are now being retested at the Field Artillery School.

Ten 105 mm. howitzers, M2, and ten carriages, M1, therefor, have been manufactured, but are not yet ready for issue.

The top carriage of the 155 mm. howitzer, T1, has been redesigned and given preliminary tests by the Ordnance Department.

It will soon be issued to the arm for further test. Since this is a zoned weapon and at the same time approaches the maximum range of the present 155 mm. gun, M-1918, it may prove satisfactory as a replacement of both of the present types in the Corps.

Plans have been laid down and approval given for the manufacture of a pilot of a new 155 mm. gun—8-inch howitzer carriage. It will have a pedestal type mount and will be capable of elevations between 0° and 65° and of traversing 30° on either side of the center. It will be equipped with pneumatic tires, anti-friction bearings, and a sprung carriage. It will be transported as a single load and capable of going quickly in and out of position. It is estimated that it will be some 5,000 pounds lighter than the present 155 mm. gun, M-1918, and will not be an overload for the light pontoon bridge. Ballistically, it will be a great improvement over the 155 mm. gun, M-1918.

*Ammunition*

In the past year, the standard 75 mm. Mk-1 shrapnel, re-banded, has been adopted as standard for the 75 mm. pack howitzer. Development of other ammunition has been delayed awaiting the completion of the development of the super-quick short-delay fuze.

*Self-propelled Cannon*

Although no new self-propelled cannon assemblies have recently been built, the Infantry and Field Artillery Schools have each been furnished with a self-propelled 75 mm. gun for the study of the possibility of the use of this type of mount for an accompanying gun. Consideration is also being given to the inclusion of this type of weapon, on a faster chassis, in the experimental mechanized force. I believe, however, that standard weapons and standard means of transport will eventually be used for these purposes.

*Anti-aircraft Protection*

It is still believed that the best protection which the Field Artillery has against enemy aircraft is our own aircraft and concealment. In the second line of defense comes regularly constituted anti-aircraft service. However, it must be conceded that

the agencies mentioned cannot furnish complete protection. Some bombers and low flying attack planes will still be able to harass our troops. In an effort to furnish additional protection against the latter, I have recommended the use of the Browning automatic rifle pending the development of a more suitable shoulder weapon.

*Communications and Sound Ranging*

Inasmuch as the supply of wire in combat is visualized to become in the future much the same as that of ammunition, an attempt is being made to standardize our wire-carrying equipment. It is believed that all wire-carrying agencies in the Field Artillery can make use of the standard steel spool supplied by the manufacturer and carrying about one-half mile of wire.

The horse-drawn reel, designed by the Signal Corps to mount standard steel spools (DR-4), has been tested by the Signal Corps and is now under test by the Field Artillery. A pack carrier, which was designed to carry two DR-4 spools, has been tested by the Field Artillery and modifications recommended. The carrier has been modified and is soon to be tested.

The new seven-strand field wire is being given an extended service test by the Field Artillery.

The development of radio equipment has progressed to a point where it can be foreseen that all Field Artillery agencies communicating by radio will be equipped with the continuous wave, hand-generated, telegraph radio sets. The addition of three liaison sets in the 75 mm. gun battalion in the division will go a long way towards solving the very difficult liaison problem.

The radio set type SCR-131, a replacement for the SCR-77B set, has been tested by the Field Artillery and modifications recommended. The modified set is being tested by the Signal Corps. The development of the liaison set type SCR-161, hinges on the development of the type SCR-131 set. Progress in the development of the observation airplane radio set has enabled the Signal Corps to commence the active development of the replacement for the ground to air set of the Field Artillery.

The early standardization of the main Signal Corps items of sound ranging equipment is expected.

### *Other Equipment*

The development of rolling kitchens for the Field Artillery has been suspended pending the development of a more suitable type for the Infantry and experimentation with gasoline burning types.

The test of pack load accessories continues and should result in complete standardization in the near future.

### *Table of Basic Allowances*

During the past year, a single Table of Basic Allowances for all standard Field Artillery units has been compiled, approved, and published. These tables together with tables of organization and supply catalogues were designed to replace all former basic allowance and equipment tables for the arm on the principle that the allowance of an item should appear in one place only and require the change of one publication only when an item or an allowance is changed. In compiling these tables, an effort was also made to standardize types and allowances of equipment for units which are similar in character. The prosecution of these principles should greatly simplify the supply of the equipment and insure the integrity of the publications issued.

## SECTION IV—ORGANIZATION

### *Tables of Organization*

New Tables of Organization for the Observation Battalion, Corps Artillery Brigade, (T/O 153 W) and its components, Headquarters and Headquarters Battery, (T/O 154 W) and Observation Battery, (T/O 155 W) were submitted and approved. Considerable change was effected in the revision as the new battalion is organized to perform both sound ranging and flash ranging.

New Tables of Organization for the Ammunition Train, Corps Artillery Brigade, were submitted and approved. The organization prescribed by these tables is believed to make for a more efficient unit than the former ammunition train, and effects considerable saving in personnel. In accordance with the policy of this office to simplify and standardize units of Field Artillery, the components of this train are a train headquarters and five

ammunition batteries, truck, each identical with similar components of the ammunition train of the Field Artillery Brigade, Infantry Division, tables for which were approved June, 1929. This obviates the necessity for Tables of Organization 157-W, 158-W, and 159-W, components of the former Ammunition Train, Corps Artillery Brigade.

Tables of Organization for Corps Artillery, Corps Artillery Headquarters, Corps Artillery Brigade and all components (T/O 118-W, 119-W, and 131-W to 146-W, inclusive) have been corrected, submitted and approved. These corrections were necessary on account of the reduction of the number of 155 mm. howitzer regiments in the brigade to two, and to changes in the observation battalion and ammunition train.

Tables of Organization for the Horse Artillery regiment of the Cavalry divison were completed and submitted, but were later withdrawn for further study. Considerable progress has been made therein, and it is expected that completed tables will be submitted in December, 1930.

New combined peace and war tables of organization for the 75 mm. gun regiment, horse-drawn, were submitted and approved. In these tables the grades and ratings for signal and radio personnel were somewhat increased in order to better communications, and considerable attention has been paid to improving liaison with supported Infantry. These same features will be included, as far as practicable, in other tables of organization as they are revised.

Tentative tables of organization for a battalion of 75 mm. pack artillery were prepared for use by the 1st Battalion, 2d Field Artillery, Panama Canal Department. Early in 1931, based on experience with these tables, this office will submit for approval, a revision of all existing pack artillery tables.

Study on new tables of organization for 75 mm. Gun Regiment, Motorized, has progressed. It is contemplated that these tables will be submitted for approval in September, 1930.

### *Changes in Organization*

In order to provide 547 men for the third increment, Air Corps, the 15th Field Artillery, less 2d Battalion, was made inactive,

and one gun battery of the 4th Field Artillery Battalion and its section of the Battalion combat train were made partially inactive.

Because of reductions in enlisted men and animals and in order to remedy certain unsatisfactory features in the housing situation, in the training needs of various corps areas, and in order to improve communications and combat liaison with the Infantry, a necessary reorganization of the Field Artillery was effected May 1, 1930. The outstanding features of this reorganization were:

Rendering wholly inactive all partially inactive batteries with the exception of three which were made active.

Rendering inactive the 3d Battalion, 11th Field Artillery.

Rendering two ammunition trains inactive.

Changing the armament of the 5th Field Artillery as follows:

1st Battalion, formerly 155 mm. guns, to 155 mm. howitzers.

2nd Battalion, fomerly 240 mm. howitzers, to one battery of 240 mm. howitzers, and one battery of 155 mm. guns.

Making two 155 mm. howitzer battalions active, one at Fort Lewis, Washington, and the other at Fort Leavenworth, Kansas.

Reducing the strength of one brigade headquarters and headquarters battery to three officers and five enlisted men.

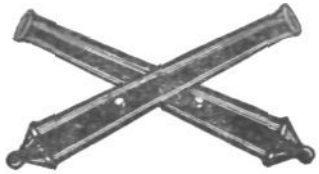
Regular Army regiments were returned, as far as practicable to their World War assignments, the only exceptions being those made necessary by the absence of certain regiments on foreign service.

Six additional observation battalions have been included in the General Headquarters Reserve Artillery of the general mobilization plan, in order to provide necessary sound and flash ranging for heavy Field Artillery Brigades therein.

## SECTION V—WAR PLANS

Those duties in connection with the War Department war plans and mobilization plans, which pertain to the Office of the Chief of Field Artillery, have been promptly and, it is believed, satisfactorily performed during the past year. All Field Artillery Annexes are constantly kept up to date, as changes occur. The liaison between this office and the various agencies of the War Department, charged with the preparation of these plans, is satisfactory.

H. G. BISHOP,
*Major General, U. S. Army,*
*Chief of Field Artillery.*



# RADIO INTERFERENCE TEST AT FORT SILL

IN order to obtain data on the practical feasibility of using airplanes in large numbers in connection with ground troops without interference in radio communication, tests on a rather large scale were recently conducted at the Field Artillery School. The results obtained seemed very favorable—more so than had been anticipated. It appears entirely practicable to operate all of the necessary ground nets and still obtain satisfactory radio communications with airplanes in numbers sufficient to meet all reasonable needs. The success obtained in the test was possibly due more than anything else to the greatly improved equipment recently installed in the airplanes. There is no reason to believe that with similar equipment for the ground stations even more favorable results would be obtained.

So far as is known such a test has not been made heretofore under conditions simulating those in active service. Therefore the test is described here in considerable detail.

*Purpose of Test*.—To conduct a practical test to determine the following:

The number of ground nets feasible in the frequency band allotted to the Field Artillery with the present equipment.

The number of airplanes that can work simultaneously.

The amount of interference in the ground nets from airplane transmission.

The feasibility of the airplane changing from one Field Artillery regimental net to another.

The practicability of continuous wave (CW) communication between airplanes and ground stations.

*Personnel*.—Officers and enlisted personnel employed as radio operators were detailed from the Electrical Laboratory of The Field Artillery School, from Headquarters Battery, 1st Field Artillery, from Headquarters Battery, 1st Battalion, 18th Field Artillery, and from graduates of the Enlisted Specialists' (Communications) Course, 1930, who are now in the 1st and 18th Field Artilleries.

All personnel employed in the tests should be classed as "above average" radio operators in the literal sense of the term.

*Equipment*.—The following equipment was available for the tests:

Three airplanes equipped with the SCR-134 transmitter and the SCR-152 receiver.

Sufficient radio sets of the SCR-109-A type for the Field Artillery stations represented in the tests.

Wavemeters of the SCR-125-A type for all sets employed by the ground stations.

One wavemeter, General Radio Company, type 174-D.

In addition to the sets listed above, there were a number of SCR-79-A and SCR-77-B sets, but qualified personnel was not available for the employment of these sets.

*Authority*.—The example of the assignment of frequencies for communication with airplanes as shown in "Combat and Signal Orders, Signal School Pamphlet No. 23, 1929-30," pages 103, 116 and 117 was taken as a general guide as to methods to be employed.

*General plan*.—Based on the authority as quoted above, the following policy in regard to communication with airplanes was assumed:

One frequency in each division and in the corps artillery brigade to be set aside for communication between airplanes and artillery brigade ground stations.

The frequency referred to above to be employed as a general "stand by" frequency and for the reporting of all data of a general nature such as in surveillance.

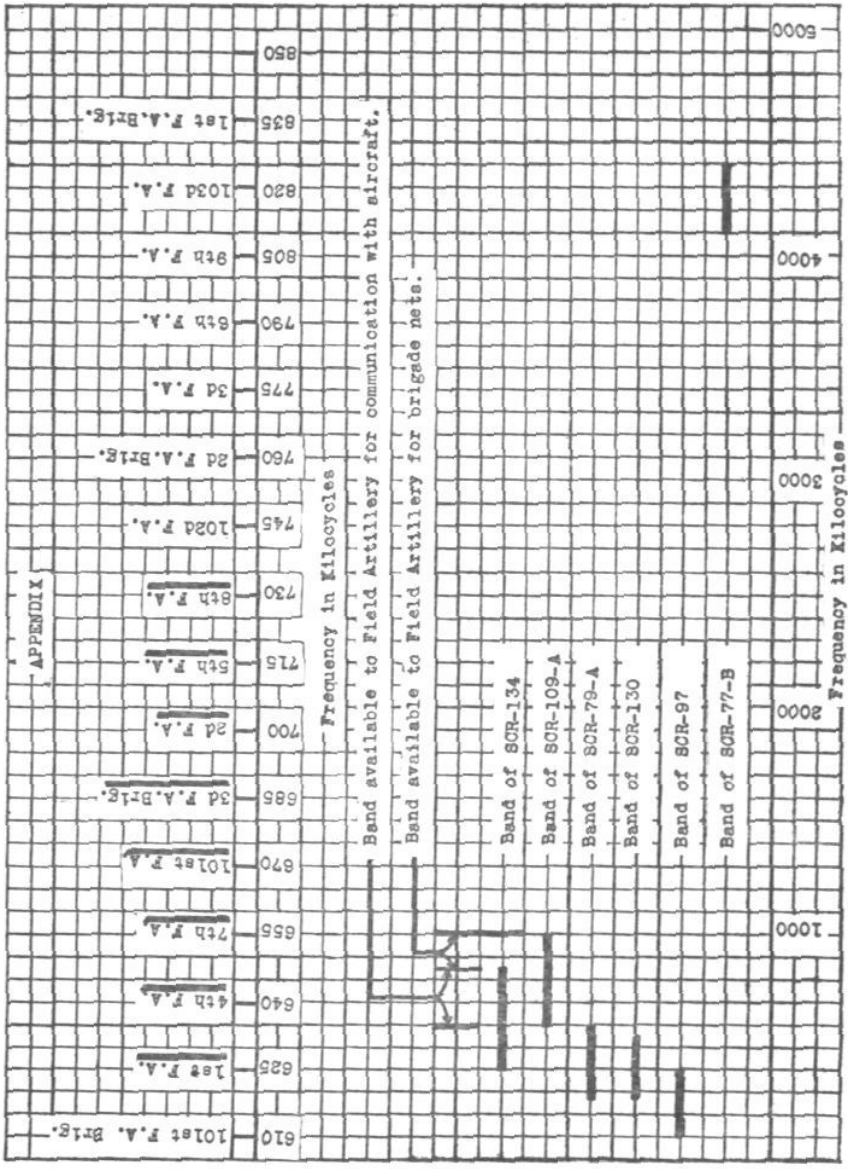
Airplanes working with Field Artillery battalions (observation of fire) to operate on the frequency of the regimental net in which that battalion normally operates.

*Unit assumed*.—A corps, consisting of three infantry divisions and a corps artillery brigade, was taken as the general basis for the test.

*Allocation of frequency bands*.

a. In assigning frequency bands, consideration was given to the following nets:

(1) Corps net.
(2) Division nets.
(3) Infantry brigade nets.
(4) Field Artillery brigade nets.


APPENDIX
Frequency in Kilocycles
Band available to Field Artillery for communication with aircraft.
Band available to Field Artillery for brigade nets.
Band of SCR-134
Band of SCR-109-A
Band of SCR-79-A
Band of SCR-130
Band of SCR-97
Band of SCR-77-B
Frequency in Kilocycles
1000
2000
3000
4000
5000
610
625
640
655
670
685
700
715
730
745
760
775
790
805
820
835
850
101st F.A. Brig.
1st F.A.
4th F.A.
7th F.A.
101st F.A.
3d F.A.Brig.
2d F.A.
5th F.A.
8th F.A.
103d F.A.
2d F.A.Brig.
3d F.A.
6th F.A.
9th F.A.
103d F.A.
1st F.A.Brig.

(5) Infantry regimental nets.
(6) Field Artillery regimental nets.

b. Due to the characteristics of the radio set used by Field Artillery organizations, sets (4) and (6) were restricted to a certain band of frequencies, namely, from 600 to 1000 KC.

c. Due to the characteristics of the airplane transmitter, communication between the airplane and ground stations was restricted to the band from 400 to 850 KC.

d. Based on b and c above, the Field Artillery stations and airplanes had to operate in the overlapping portion of the two bands, or in the band from 600 to 850 KC.

e. Based upon the facts given above, the frequency band from 600 to 850 KC was assigned for the Field Artillery regimental nets.

f. The remainder of the band of the SCR-109-A, from 850 to 1000 KC, was assigned to the artillery brigade nets.

g. All other nets refered to in a above, were and had to be, on frequencies outside the band of the SCR-109-A due to the characteristics of the equipment used in these nets.

h. For the assumed assignment of frequencies to the artillery nets, see Appendix.

*Absence of adverse conditions*.—In examining the results of the tests, consideration must be given to the following in order of importance:

Effect of enemy interference, either intentional or due to the normal operation of his radio nets.

Effect of a larger number of stations in each net.

Effect of harmonics from nets of lower frequencies.

Effect of interference from adjacent corps.

Effect of all nets of the Field Artillery being operated in place of the eight actually used.

*Conditions of the tests*.

Location—the stations were scattered over a rough oval about three by five miles.

Weather—hazy, slight amount of static.

Outside interference—none, except for the nets near the limits of the frequency band, these stations were slightly bothered by broadcast stations.

*Conduct of tests*.

Preliminary test:

Six nets were employed, two stations to each net. Nets were separated 20 KC. Each station was tuned by means of the ordinary SCR-125-A wavemeter.

The results obtained from this preliminary test were not wholly satisfactory, due to the impossibility of properly tuning the sets with the SCR-125-A wavemeter, especially, on the lower frequencies.

From the preliminary tests, it was obvious that any plan contemplating the extensive use of the SCR-109-A with the SCR-125-A wavemeter would not be satisfactory.

Test:

Preliminary tuning was accomplished by means of tuning calls sent out by an extra set which represented a set belonging to the corps. This preliminary step insured that all receivers would be tuned to their proper frequencies. Transmitters were then tuned to receivers by means of the SCR-125-A wavemeter and final adjustments of each transmitter were made at the request of the other station in the net.

Steps of the test:

Transmission by each net in turn and note made of the amount of interference in other nets.

Simultaneous transmission of messages by every other net.

Simultaneous transmission of messages in all the nets.

One airplane checked in and operated with one of the ground stations using CW only.

One airplane operated with one of the ground stations with simultaneous transmission of messages in the other nets.

One airplane operated with first one net then another.

Three airplanes operated simultaneously in three adjacent nets.

*Result of tests*.—The results from these tests showed conclusively that with well trained operators:

It is impossible to properly tune sets and nets with the present wavemeter (Type SCR-125-A).

The calibration of the various nets from one central source offers a satisfactory means of establishing all stations on the proper frequency.

The operation of ground nets with 15 KC separation between nets is satisfactory.

Radio communication between ground stations and the airplane (equipped with the combined SCR-134 and SCR-152) is highly satisfactory on CW.

The airplane can tune into an artillery ground net at will.

The airplane offers about the same characteristics in regard to broad tuning and interference as those offered by the ground station.

Airplanes can work with 15 KC separation in frequency without interference.

*Deductions*.

The operation of a large number of nets composed of the SCR-109-A sets is only feasible when employed with some auxiliary method of tuning such as employed in the last test described or with a more accurate wavemeter, along the lines of the General Radio Company, Wavemeter, Type 174-D.

There are sufficient frequencies available for the ground nets of the artillery of a normal corps.

It is feasible to operate one airplane in each Field Artillery regimental net.

In addition to the airplanes noted in c above, one airplane may work with each artillery brigade ground station on missions of general nature.

More than one airplane can work on a single frequency provided the observers are extremely careful in spacing their transmissions. Based on this, two or more airplanes could work with each artillery brigade on surveillance missions.

*Conclusion*.

Based on a corps of three divisions, twelve airplanes could be employed simultaneously with the Field Artillery battalions.

In addition, four airplanes could be employed simultaneously with the artillery brigade ground stations.

Further, in an emergency, from four to eight additional airplanes might be employed in the same manner as the four above.

Total number of airplanes possible to be employed simultaneously with the Field Artillery: sixteen to twenty-four.

# GENERAL SUMMERALL'S ARTICLES

SHORTLY before his retirement from active military service on November 20, 1930, General Summerall wrote articles for the Cavalry, Infantry and FIELD ARTILLERY JOURNALS which contained farewell messages to these arms. They also contained statements, based on his vast experience as a leader in battle, about the best use of these arms in combat and their future development. His article, "Field Artillery Progress," was published in the November-December, 1930, number of the FIELD ARTILLERY JOURNAL. His articles, "Cavalry in Modern Combat" and "Infantry Fire," were published in the October 1930 *Cavalry Journal* and the December 1930 *Infantry Journal*. Although these last two articles were written primarly for the Cavalry and the Infantry, still they contain points of interest to Field Artillerymen. Similar statements were published in *The Coast Artillery Journal* of July, 1930, in General Summerall's address to the graduating class of the Coast Artillery School. Therefore the following extracts are quoted:

## CAVALRY IN MODERN COMBAT

The presence of a Cavalry corps with the American troops on the Western Front would have enabled it to expedite decisions and change the course of battles.

There is no doubt that after the fourth day of battle at Soissons it could have penetrated the disorganized enemy's lines and by attacking him in rear might have saved great losses in the advance which followed.

A large Cavalry force well led could easily have penetrated the enemy's reorganized positions on the second day of St.. Mihiel.

In the last phase of the Meuse-Argonne campaign Cavalry could have crossed the Meuse River and forced a decision, even had the Armistice not intervened.

Any campaign along our borders or in Continental United States would peculiarly favor the extensive use of Cavalry. The great area of territory to be covered, the general absence of roads in any theatre of operations, and the necessity to cover the organization and deployment of any considerable force of the other

arms would call for the immediate advance of mounted troops in mobile warfare.

Its mission of seizing important advanced positions, maintaining contact with the enemy, screening the movements of our forces, executing enveloping or turning operations or constituting a highly mobile reserve would constantly be required.

Modern inventions and new arms have the same value to the Cavalry as to the other combat branches.

Motor transportation can insure its supply along axial roads, thus prolonging its independent existence.

Machine guns have immensely increased its fire power and combined with armored cars and tanks give it approximately the power of Infantry in dismounted action.

The accompanying Horse Artillery affords it the support which it requires in offensive and defensive operations.

Should aviation be available, Cavalry combat however distant from the main forces, will have substantially the power of the normal Infantry action.

The Cavalry should be subjected to as few detached details as possible, and its entire strength should be available for employment in large units and for mass action.

The power of Cavalry to operate independently and at considerable distance from the main mass is its most valuable characteristic.

Skill in horsemanship undoubtedly surpasses any standard heretofore known in our service. At no time has the efficiency of the arm been higher than it is at present.

## INFANTRY FIRE

The Army must be indoctrinated with the principle that combat consists not in movement and fire but in movement and *superiority* of fire.

The magazine rifle did not permit the Infantry to neutralize the enemy in the World War.

Machine guns became the Infantry weapon for obtaining superiority of fire.

Machine guns were not sufficient in numbers to dominate the entire front.

Result—our Infantry suffered appalling losses in spite of the unprecedented fire that was skillfully delivered by the Artillery.

A semi-automatic rifle might fill the bill, but its procurement in quantity can not be expected until after the next war ends or is well advanced.

There are on hand large supplies of machine guns and automatic rifles. They should be utilized to give the Infantry the maximum fire power consistent with mobility and vulnerability.

So little Infantry ammunition was fired in the late war that its supply was never a serious problem.

Tests at Benning have shown desired results may be obtained in great measure by increase in automatic rifles and machine guns without detriment to mobility or vulnerability.

In trench warfare, hostile troops do not expose themselves. In open warfare, the battlefield is empty.

The best protection to troops is their own fire and it must be employed against airplanes.

If for no other reason, aviation would make increased fire power necessary.

A semi-automatic rifle is indispensable and its supply within the annual budget at least to the regular regiments at an early date should be intensified.

When the assault is delivered, fire comes from unlocated places and the attackers are either stopped or suffer staggering losses. Therefore a superior volume of controlled fire must be delivered by each squad, each machine gun and automatic rifle at points where the enemy may be.

## ADDRESS TO THE GRADUATES OF THE COAST ARTILLERY SCHOOL

Coast defense has been a part of our country's development from the earliest days.

The old Dutch fort on lower Broadway was the beginning of New York City.

Never has there been a more humiliating spectacle than the helplessness of Mr. Jefferson when for two years the President's Non-intercourse Proclamation and the Embargo Acts of Congress were held in contempt by foreign countries and British

ships sailed defiantly in and out of New York Harbor impressing our citizens and taking our supplies.

When the War of 1812 began, the merchants and professional men of New York City worked with their own hands on Governors Island to establish a temporary earthwork.

A sound system of harbor or coast defense to meet modern conditions was developed by the Endicott Board in 1885, and it was subsequently revised to meet our insular demands by the Taft Board in 1905.

Any account of the Gallipoli Campaign will tell how a few hastily mounted and mediocre guns in connection with some crude mines denied the Dardanelles to the British fleet. The repeated attacks of the ships resulted only in loss, and even the Queen Elizabeth, with the most powerful guns afloat, was held so far from the shore batteries that her fire was ineffective.

For four years the German fleet rode safely at anchor behind the guns at Heligoland and the defenses of the Kiel Canal when its destruction would have changed the war.

The submarine hornet's nest at Zeebrugge gave the Germans an inestimable advantage in the operations of their submarines in the Channel. Yet the guns in improvised shore batteries defied the most daring and spectacular raids of the British Navy to destroy it.

Our fortifications have cost $250,000,000 and they could not be replaced today for $400,000,000. They would not fail to perform a determining part in a war involving our extensive coasts and our insular territories.

While an antiaircraft program should have been a necessary corollary to the Air Corps program, such a procedure has not been adopted.

Antiaircraft armament constitutes one of our most urgent needs and stands as our first priority in the development and rearmament program.

Every officer and soldier of the Regular Coast Artillery would be required as commanders or instructors for a war-time army.

Orders have been issued requiring all Coast Artillery to be trained normally in the use of antiaircraft guns and equipment in addition to the fixed defenses.

# THE REFRESHER COURSE

BY LIEUTENANT-COLONEL D. C. McDONALD, F.A.

FOR many years the Refresher Course at the Field Artillery School has suffered through lack of proper advertising. The impression was widespread throughout the Field Artillery arm that the course was, more than anything else, an opportunity for the highly specialized and comparatively junior officers on duty as instructors at the School to impress upon their unfortunate victims a proper sense of the latters' ignorance, with consequent detriment to prestige and lowering of morale. The natural result has been that senior officers of Field Artillery, even though realizing their need of some refresher course after long periods of duty away from troops of their arm, have been loath to subject themselves to what they erroneously believed would be likely to prove a modified form of hazing.

Also, coming as the course does during the late spring, when preparations for the coming summer training are at their busiest, Corps Area and other commanders needed very little urging to decide that its duration of three months was too long a period for the services of busy officers to be spared.

Effort has been made to meet the latter objection, to the exent possible, by shortening the course to two months. Due to the nature of the Refresher Course—it being largely a supervised observation of appropriate parts of the work of the other classes at the School—it cannot be given nearly so well at any other period of the year as at the time it is now given, *i. e.,* during the months of April and May.

It should be needless to assure officers contemplating taking this course that there will be nothing found there savoring of hazing in the slightest degree, nothing tending to loss of prestige, nor reflection on professional attainments. Indeed, quite the contrary is true. Officers taking the Refresher Course, coming as they do from important positions of trust and responsibility, are looked upon with respect and consulted with deference by instructors and students of all classes. It is realized by all that General Staff and other duties, no matter how important and responsible they may be, are not such as to fit a field officer to

call out his firing commands as glibly as does a young lieutenant, who has had months of practice in just that simple and fundamental kind of work.

Having persistently encountered the hazing complex on the part of officers who, it was hoped, might ask to be permitted to take the Refresher Course, the undersigned, with the active approval of the then Chief of Field Artillery, Major General Fred T. Austin, applied to be sent to the course, with a view of ascertaining at first hand whether the ideas current thereon were well founded. As Chief of the Training Section in the Office of the Chief of Field Artillery, I felt it my duty not to be inviting my fellow Field Artillerymen to sample the wares which we were displaying so temptingly before them, without having partaken of those wares myself. Six other field officers of Field Artillery were also designated to take the course in 1930; one successfully proved that his services could not be spared—and he is the loser thereby—while another applied for retirement rather than go, and the Service is in that case the loser.

Although no student of any other class is housed on the post of Fort Sill, special arrangements are now made in the case of the Refresher Class, and all are comfortably and conveniently cared for. Breakfasts and lunches (except Sundays) are taken at the Academic grill, while dinners, as well as all Sunday meals, are served them at the Officers' Club. Meals are good and prices reasonable.

The instruction is both theoretical and practical, and covers work in all the departments of the School. Texts, which are principally training regulations and Field Artillery School Notes, are furnished by the School. Where appropriate, the Refresher Class accompanies, as observers, the other classes and learns much from the critiques.

The Gunnery Course covers Preparation of Fire, both theoretical and practical, Conduct of Fire of all types, Prepared Fires, including High Burst Ranging, and Service Practice. For all this work in gunnery the Class is assigned an instructor, particularly selected on account of his special qualifications, who remains with the Class throughout its stay at the School,

explaining all doubtful matters both in the classroom and on the firing range, and available at all times for conference, assistance, or additional instruction of any kind.

The Tactics Course, almost all of which consists of observation of the work of other classes on their problems, covers Organization, Reconnaissance, Selection and Occupation of Positions, Terrain Exercises, Artillery Staff Duties and Field Exercises. Aside from several conferences, it is entirely outdoors and practical.

While all Refresher students are given matériel instruction on guns and carriages, ammunition, and instruments, those officers assigned to horse-drawn units need not take instruction in motors, and vice-versa. The time so gained is then spent, as the officer may elect, in additional instruction along other lines.

The Animal Transport Department gives a brief review of the principles of Harnessing, Draft, Care of Animals and Equitation. Separate mounts are specifically assigned, by name, to officers of the Refresher Course. They ride these animals when going out mounted on regular scheduled instruction as well as for recreation. The Field Artillery Hunt maintains a large and well trained pack and the Sunday morning drag hunts call out an enthusiastic field of riders of both sexes.

The course is essentially a review, although the numerous changes in methods caused by the revision of so many Field Artillery training regulations make much of its material new to many officers. For this reason it is all the more valuable, and all the more necessary for the field officer returning to duty where such knowledge will be necessary after a long period of other kind of work.

The period covered by the course carries over from winter, through spring, to summer. For that reason light clothing, as well as heavy, should be taken. The short overcoat is almost a necessity, although the regulation overcoat will do. Both woolen and khaki shirts are necessary in addition to a blouse; a campaign hat, as well as a cap. A good raincoat will come in handy on almost every field exercise. Since on many exercises the night is spent in the field, a bedding roll is a necessity and should be taken. Civilian clothing, except a tuxedo, is very little used;

tennis or golf clothes will be wanted. Practically all the above articles of uniform can be obtained from the Quartermaster or the Post Exchange at Fort Sill.

Coming as it does at the finest time of year at Fort Sill, affording the opportunity for enjoyable outdoor exercise while obtaining what, to many, is a much needed professional review, with hospitable and congenial company at hand in comfortable surroundings, this new Refresher Course at the Field Artillery School offers an exceptional opportunity to again get abreast of Field Artillery development. It is hoped by this article to bring its advantages to the attention of all Field Artillerymen.

# BATTERY "E" GOES TO WAR

BEING EXTRACTS FROM THE WARTIME DIARY OF
FIRST SERGEANT ANTHONY D. CONE,
*Battery E, 15th F. A., Second Division*
**SECOND INSTALLMENT**

THE evening of July 14th, the firing battery withdrew from its position near Bezu and joined the echelon at 1:00 A. M., July 15th, when the entire battery took the road through Lizysur-Ourcq, without breakfast, and hiked to Mayen-Multain, where we halted for dinner which consisted of rotten monkey meat. We hit the road again at 11:30 and halted beside the road at 2:00 P. M., and were waiting orders to proceed or return. We halted directly beside a number of French 10″ mortars. The weather was extremely hot, our socks were in no condition to be worn any longer. We needed a change of clothes. Most of us were in rags, but it was impossible to get any new clothes.*

The cooties certainly played hell with us, and at every opportunity we had our clothes off, and waged a war upon the little pests. We ate supper at 5:00 P. M., monkey meat, warm for once, and proceeded on our hike. We hiked all night of July 15th, and halted at 5:00 A. M., of July 16th, in woods north of Villers Cotterets. The last few miles we hiked through a heavily shelled area. We were so tired by this time that we lay in the wet grass off the road and we were soon asleep. We were on the road at 12:15 P. M. again and arrived and stationed our echelon two kilometers south of Tallefontaine at 7:15 P. M., July 16th. This hike was all through the Villers Cotterets Forest. There were thousands of troops placed all through these woods. They were concentrated here for the attack which was soon to begin. There were French, Algerians, Moroccans, Scotch and American troops. The firing battery received orders to be ready to leave our echelon at 9:00 P. M. We remained in readiness all night and did not leave till 9:30 A. M., July 17th, and took up positions at 1:30 P. M., in the edge of the Forest of Villers Cotterets, near Long Pont.

*"Everyone was disgustingly infested with lice and had been for months. The clothes of the men were worn to rags; knees and seats worn out of breeches, buttons held on shirt and blouses by wire from fuze boxes, blouses worn and stained with rust and grease from shells and with mud. Many of the men were nearly barefooted, few of them having more than one pair of socks and their shoes were worn out. No one thought of a bath; it was difficult enough to get sufficient water to make coffee and wash mess kits."—From "History of E. Battery," by Verne H. Torrance.

The hike to our positions will be long remembered. There were dead horses every couple of hundred feet. Some were blown almost apart. Ambulances, trucks and wagons of all descriptions were scattered all along the road, most of them nothing but scrap heaps. The road was blocked for miles with artillery and ammunition trucks moving forward to take up positions. We would move up a hundred yards and then we would stop for ten or twenty minutes. There was no room on the road for the dismounted troops so they took through the woods. As we got close to our positions we found many of the larger caliber guns already in position. The trees in the woods were mostly all from thirty-five to one hundred feet high and from two to three yards apart and you could not find one that was not hit by a fragment of shell. The engineers were kept busy taking the fallen trees off the road. They kept up a continuous fire on this road and we could hear the whistling and bursting of the shells which fell quite close. As we got near our positions the shell holes became more numerous. The ground was so full of shell holes it looked like a checker board. This place was shelled heavily with gas. It was still quite strong and most of us had a headache from the effects of it.

We at last arrived and after placing our guns in position, we began to carry ammunition to the guns, which were in a large opening in the forest. We were but a hundred yards behind our infantry and had to be careful not to expose ourselves to the numerous airplanes which were flying over the forest. After everything was in readiness for the attack, we were sent about 200 meters to the rear in a small trench to await the hour of the attack. It rained all night and everyone was drenched to the skin, and at 4:00 A. M. July 18th, we ran to our positions by order of the B. C. and immediately began to lay our guns, for the attack was soon to begin.

At 4:28 A. M., the attack started. It is impossible to describe how terrible the artillery fire was. At the same time we started a rolling barrage. There were a few trees about one yard in diameter and about fifty meters high, directly in line with our fire. They were not long in our way for they were blown off by our own projectiles. The guns were very hot by the time the

order came to cease firing. During the barrage, Corporal Gunner Kelley of the fourth piece fell over exhausted. The reason for this was that for forty hours we had not a bite to eat, and everyone was about ready to drop. The attack was successful and by this time there were thousands of prisoners in our hands, and the enemy was on the run.

About 10:00 A. M. the forward echelon reached us. Had some slum, hard biscuits and monkey meat and sure did eat. There were wounded lying all around our positions, waiting for the ambulance to take them to the rear. The German prisoners were carrying our wounded soldiers back to the rear on stretchers made from their overcoats and two sticks. There was a scarcity of stretchers and ambulances, and the wounded were taken back part of the way by the ammunition trucks. While the enemy was on the run hundreds of our planes chased them.

At 11:00 A. M. we received orders to advance and started immediately. The enemy had the roads barricaded with the largest trees that were to be found, in great numbers. This was done to delay our artillery. The 2nd Engineers were on the job and had it soon cleared. We went through on a gallop. The road was strewn with the dead. Mostly all were German, with a few khaki figures here and there.

After we got clear of the forest it was all open country and here we could see the effect of our barrage. It seemed impossible for anything to live through it. The ground was torn up like newly plowed ground and it was a hard job for a driver to keep up the gallop and dodge the shell holes. The men were all happy and everyone had a smile on his face; for it was plain to be seen it was a badly beaten enemy. We took up positions just outside the wall of Beau Repaire Farm at 11:30 A. M. We fired a barrage immediately. This was a rapid-fire barrage; we were firing just as fast as we could fire. We could see the effect through field glasses. There were hundreds of French tanks of all sizes, moving up at great speed. There were also eighteen regiments of cavalry, French lancers, and they sure made a pretty sight. We could see them form their line and give chase to the enemy. The horses they had were of the best and the men looked neat and well trained. The fields near our position were covered with dead.

We left this position at 9:00 P. M. the same day and continued forward, taking up a position about a hundred meters south of the cross-road at Vaux Castile. Early the next morning we had a reception from the enemy in the form of gas shell. They landed almost on top of our guns. We took shelter in the shell holes which were to be found close by. Some of the shell holes were big enough to bury a whole house in them.

We were shelled heavily all day by a battery of Austrian 88's. The shape of an 88 projectile is like an ice-cream cone and it comes with such velocity that it bursts before you can hear the whistle. Our infantry captured a regiment of 77's and their guns were about a hundred meters in front of our position. We turned the 77's around and gave the enemy some of their own shell. The first rounds fired from the 77's were fired by Sergeant Long and Sergeant Cone. The enemy had thousands of rounds of ammunition of all calibers stacked up for their attack they had intended to deliver, but we beat them to it. The dead were laying all around: Moroccans, Americans and Germans. The fields were covered with rifles, machine guns, equipment of all kinds, and supplies. There was a dressing station just to the left of our position. It was crowded with wounded. These wounded suffered greatly due to the lack of doctors. Our doctor, Captain Schaffer, worked so hard the perspiration was rolling off him. He had his sleeves rolled up and worked with all his might. At noontime we were attacked by a flock of enemy battle planes. They turned their machine guns on us, and also dropped thousands of steel needles. These needles are about six inches long and will penetrate through any part of the body. We had no protection overhead except our guns, which would only give protection for about one man and we opened fire with our .45 pistols without effect. Our machine guns were popping continuously, but without effect. We had many casualties in our regiment from aeroplane machine-gun fire and H. E. shell. We saw many air battles here, and quite a few planes came down in flames. There were many observation balloons burned up by the enemy, and the anti-aircraft batteries were kept busy day and night.

It was a clear day and we could see quite plainly a number

of French tanks battling with the enemy. The bigger tanks were mounted with 75's and we could see them firing. We could also see the smoke from their machine guns. They were firing direct at the enemy and we could see the bursts. The enemy counter-attacked and the tanks were forced to retreat, but they again advanced under shell fire, till they cleared a way for the infantry. The cavalry were attacking all day and night. We had no sleep and very little to eat and we were almost exhausted.

At 3:30 A. M., July 19th, the firing battery was relieved by the French artillery, and withdrew to Verte Feuille Farm, part of our hike through heavy shell fire. We arrived at 6:00 A. M., and got our breakfast here, and after resting up we took a look around. The woods were covered with dead Germans—some bayoneted, others killed from shell, rifle, and machine-gun fire. It was an awful sight. It was a hot day and the smell from the dead was nearly more than we could stand. We left here at noon for our rear echelon and arrived at 5:30 P. M.

We just had time for supper and were preparing for a good night's rest, when we received orders to return to the front and support an attack for the French. Our own infantry had been relieved. Their numbers had been reduced to almost nothing and it was impossible to keep them any longer. We left the echelon July 21st. It was a long hike and it was all through rain. Our horses were about all in and were hardly able to drag the carriages after them so the men were forced to hike. In a small valley east of Vierzy shortly before daybreak July 21st the attack had been in progress by the French for over an hour when the battery started forward. As we moved out of the valley at the head of the ravine the road came under heavy enemy shell fire. At the head of the ravine we had to wait about twenty minutes before we could go into position. The shells were bursting all around and it was the hottest hole one would want to be in. There was a cemetery close by and the graves were all torn up. The French had a dressing station in a small dugout at the head of the ravine, where there were many wounded, and they were coming in large numbers. We received orders to move forward and take up our positions previously planned in the line of attack. We started off at the gallop and passed over the front

line into No Man's Land. The road was under heavy enemy barrage. The French infantry were fifty feet to the right of the road, which for about fifty yards was soaked with blood. In some places there were pools of blood. It was all from the French soldiers and horses who were lying dead in large numbers.

We galloped for ten minutes and started down hill. Our B. C. received orders to return to the ravine because the infantry had not advanced, having met a strong enemy counter-attack at the moment of advancing.* The battery wheeled at the gallop and returned to the ravine near Vierzy, again passing through a heavy shelled area. Several horses and a caisson lost. We returned to the ravine near Beau Repaire Farm and had our dinner. Our meals were at long intervals.

The afternoon of July 21st, we took up positions northwest of Vierzy and while passing through were shelled with gas and H. E. shells. The gas was terribly strong. There were many dead lying along the road and horses were lying around. We

*"On the brow of a bluff just ahead, the Battery saw shells beginning to explode among a French battery; saw the cannoneers vainly trying to serve their guns, only to be cut down by the enemy's savagely accurate fire. Again the Battery advanced at a gallop. It was moving picture stuff of the most far-fetched type; a battery of field artillery charging an enemy in the open in modern war. It was a reversion to Gettysburg and Chancellorsville. Drivers doubled halter shanks around their right arms and used them as whips; cannoneers stood on limber steps, pounding wheel pairs with pick handles, shovels, clubs, anything that could be used to push the horses to more speed. In the second section, Henry Hanners was driving what had been a lovely pair of sorrels in the wheel of the gun team. Mickey O'Driscoll was stimulating the activities of Hanners' pets with the flat surface of a short handled shovel while Hanners, who thought more of that half-starved pair of horses than he did of his life moaned, "Don't hurt my babies! Don't hurt my babies."

"To hell with your babies," roared O'Driscoll, "Get in the collars, you red buzzard baits." On first one, then on the other, landed the shovel.

Every man in the battery wore a contented smile and their eyes gleamed with happy excitement. Great stuff, that! Suddenly, the Battery was surprised to see the first section come to an abrupt halt and the second section swing out and pass the erstwhile leaders. A shell had burst just in front of the first section gun team, knocking the lead pair down. Almost at once the driver, Carol Burris, had the animals on their feet again but before the section had gone far it was necessary to stop again as a swing horse had leaped over the traces when the leaders went down.

Barely had the first section gotten under way the second time when Captain Waters commanded counter-march, and he might have added that classic line from Shakespeare's Macbeth, "Stand not upon the order of your going." Already under an intense shell fire, the Battery had ridden into No-Man's Land and a few minutes more would have taken them—or what was left—into the German lines. The French Infantry, holding the front lay about 50 meters to the right of the road and French tanks were coming up behind the battery, firing as they came. In one place, for about 50 feet, the metalized road was almost slippery with blood and in many little hollows blood lay in pools. Right at the point where the battery counter-marched lay a dead Marine, his bayoneted rifle pointed out in front of him and held in his death-stiff hand as though, while dead he were still carrying on, pointing the way his surviving comrades should go."—From "The History of E. Battery," by Verne H. Torrence.

were exposed to heavy machine-gun fire. While crossing the road we found the dead more numerous, for it was here that the enemy had offered strong resistance. We arrived at the position and we did not have a minute's rest, night and day. The first day, July 21st, we fired a couple of barrages and then looked around our position. About 200 meters to our rear, on the crest of a hill, we found the dead more numerous than at any time we were at the front. The 9th and 23rd and the Marines were advancing and they ran into a machine-gun nest. The enemy sure did play hell, but they were soon done away with and our infantry went ahead. Quite a number of the dead were gassed and their gas masks were still over their faces. That night our positions were attacked by planes. They took advantage of a moonlight night and opened up with heavy machine-gun fire and at short intervals dropped large bombs. The only place we had to take cover was under our own guns and a German battery of 105's which were only a few yards behind our positions. We fired continuously, all night and day of July 22nd. The enemy planes were active all day and our truck train was on its way to our position when they ran into a heavy enemy barrage. From our positions we could see the effect of the barrage. A few of our trucks were blown to pieces, the enemy making direct hits on quite a number. We fired all night at different ranges with no rest and our stomachs were empty.

July 23rd we were shelled heavily. Private Linderman and Private Lee were wounded. The enemy were active with their planes again and set a couple of our observation balloons in flames and brought down one of our planes. They discovered our positions and began to shell our zone heavily. The First Battalion of the 15th, about 200 meters in front of us, were forced to leave their guns and take cover behind our guns and positions. While this shelling was going on, our infantry called for a barrage and the Second Battalion had to take up the fire for the First and Second. This meant some fast firing and all the time under shell fire. A French battalion on our left had one of their guns blown up. The whole gun was blown to pieces and it caused many casualties. Our artillery was strung along the field for miles and but a short interval between guns. When the

artillery was firing it was a regular hell. The noise was so great that data was given on paper to the chiefs of sections, for it would be impossible to give a command. We fired continuously all night, no sleep and empty stomachs.

July 24th we got a little to eat and felt much stronger. We also got a little rest. It was the only day we got a few hours' rest on this front. At 2:00 A. M. we began to fire on different zones. This was rapid fire. It lasted until daybreak when we began a rolling barrage. The enemy felt it heavily. The French infantry went over the top and met strong resistance, the enemy counter attacked and we were called on for a counter barrage which we fired. Immediately after we started a rapid zone fire and kept up zone fire till 3:00 P. M. We had a short interval to cool and clean our guns and at 4:30 P. M. we started a rolling barrage which lasted till after 6:00 P. M., and then kept up a standing barrage till the French infantry had dug themselves in their new holes and positions they had taken from the enemy. It was a hot day and we were wringing wet with sweat. Most of the gun crews were working in their undershirts. The guns were so hot we could not touch them with our hands. The sponge we used to swab the gun was burned up. There was not a bristle left on it. Our guns had fired from 2:00 A. M., July 25th, till 8:00 P. M., that night, and our battery fired 4108 rounds of H. E. shell.

The number of rounds fired by our battery on the Soissons front exceeded 12,500 rounds, mostly H. E. shell with a very few shrapnel, gas and semisteel shell. We were relieved by French artillery July 25th, at 10:00 P. M. and returned to our echelon, which had moved up to the edge of the forest near Long Pont, arriving at 12:30 A. M., July 26th. July 27th the entire battery left the echelon at 5:15 A. M., and hiked twenty and one-half kilometers to a temporary camp in a small village two kilometers west of Bitz. We arrived at 2:00 P. M. At 8:00 A. M., July 28th, we were again on the road and arrived at Forfry at 1:45 P. M., hiking fifteen kilometers that day. We immediately set in to destroy the cooties, every man was full of them and they were all fattened up on the good meals they had on our flesh. The clothes (our whole possession of clothes was on our back) we wore were dirty, crummy and torn almost to shreds. We

were issued new clothes and had a chance to take a bath in a small creek close by and a clean change of underwear and socks, the first change in many weeks. We received a number of replacements who had just come from the States.

July 31st at 4:30 P. M. we left Forfry and hiked eighty kilometers to Le Plessis Belleville, where we entrained immediately after our arrival at 7:15 P. M., August 1st. We again passed through the eastern outskirts of Paris and detrained at 3:45 A. M., August 3rd, at Jarville, the suburbs of Nancy, and began at 5:45 A. M., on a march, and arrived at Ludres at 4:00 P. M. There were twenty-five passes given to the men in the battery in Nancy and they had a great time. Quite a few went without a pass and you could not blame them, for these were the first passes given out to us since we went to the front with the exception of Sergeant Long and Sergeant Cone, who had a pass to Paris the 4th of July while on the Chateau Thierry front to participate in the parade with the Victors of the Marne.

We left Ludres at 1:30 P. M., August 5th, and hiked to French barracks two kilometers east of Toul, arriving at 8:30 P. M., and putting up there for the night. August 6th at 8:15 A. M., we left the barracks and hiked to Sanzey, and here we established our echelon. The first platoon of the firing battery left at 6:00 P. M., the same day and arrived at positions one kilometer south of Raulicourt at 8:45 P. M., marching twenty kilometers. Our battery was in a reserve position in the woods. The wildcat was the fourth piece and was further advanced. While in these positions we had the time of our lives; not a thing to do but eat and sleep. The French had some 90 mm. guns in this position. They must have been built in the time of Napoleon. They had no recoil mechanism and when a shot was fired the whole carriage would fly back about two yards. They were very slow, but they were accurate. We fired a number of shots from the 90's for adjustment and we got good results. While here we saw a couple of companies of infantry of the 82nd Division going into the lines for the first time. We never saw such a scared bunch in our lives. They were afraid to talk even while passing our positions which were five kilometers from the enemy lines.

For the first time we met the Salvation Army and we must say they put more cheer into a soldier than any other organization we met during our entire stay at the front. They were in the town of Rauleicourt, only four kilometers from the front-line trenches, and they were exposed to shell fire. The shell fire did not bother them, for the girls said the pies and doughnuts had to be made for the boys and they kept on with their work. When we moved into this sector the Y. M. C. A. was there, but during the night they moved out for they were nowhere to be found in the days that followed. Captain McClean was with the battery in Toul. For the first time we ran across a delousing station put up by the Red Cross. It was about four kilometers in the rear of our positions and it was quite a walk to get deloused. We received new clothes here and also got rid of the pest, cooties.

The 89th Division Artillery relieved us at this position August 21st. This was the first time for them to take up a position and they were sure excited. They acted as though they were under shell fire. It was a moonlight night we joined the echelon at Sanzy. Number of rounds fired at Toul was 650 H. E. shell. August 22nd the entire battery left the Toul front at 9:30 A. M., and stopped one kilometer south of the city of Toul for dinner, after which they proceeded to Bicquelay, arriving at 3:30 P. M. and passed the night there. We resumed the march the following morning at 6:30 A. M., and arrived at Viterne at 10:00 A. M., marching 8 miles or about 12 kilometers. We established a camp here. It was a fairly good town, in fact, it was better than we had been getting. We were able to buy hot bread, eggs, etc., and also plenty of good beer. We were entertained by the women from the Y. M. C. A., and were also paid in this town. We had some fairly good weather and most of the boys had a swim in the Mosselle River. We left Viterne at 9:45 P. M., the night of the third day of September and hiked twenty-one kilometers. Arrived at 4:50 A. M., in the Bois La Gondreville where we camped for the day with the entire division.

We derived great pleasure in watching the Marines and Infantrymen practice bayonet charging and yelling at the top of their voices just the same as they do at the front. September 4th,

at 8:28 P. M., the battery moved from the woods and reached the Bois Ville sector at 5:45 A. M. September 5th we hiked thirteen kilometers. Left Bois Le Sector at 6:30 P. M., the same day and arrived in a stretch of woods near Royameix at 1:45 A. M., September 6th; we hiked sixteen kilometers. The roads were very muddy and it rained almost continually. September 7th, at 9:15 P. M., the firing battery left this camp and arrived at the selected gun positions at 2:00 A. M. On September 8th we hiked fifteen kilometers. We traveled mostly through a very dense wood. There was only one small road, and it was so dark we could not see a foot in front of us. We finally had to stop as the horses were very weak after a hard ride and pull and neither men or horses had anything to eat since early morning. We laid down on the grass after giving the horses what shelter we could and went to sleep with the Boche shells singing over us. The battery position was called Bois De Hoquemont; it was about a half kilometer from Liny. We could not work in the daytime because our position was under close observation from the Boche balloons, so we did all our work at night. It was quite a hard job digging gun pits, but hauling the ammunition was manual labor. We first had to march about three kilometers to the ammunition dump and load the shells on small flat cars that were operated by hand. We handled and hauled the ammunition on these cars up a steep grade for about two kilometers and from there had to carry it by hand the rest of the distance. The woods were so dark and we were not very familiar with the surroundings, that many of the boys took quite a few falls, tripping over stumps, brush, etc. The roads were muddy and the horses so weak that it was impossible for our caissons to get up, and all of our ammunition was carried in this manner.

The night of September 11th our caissons managed to arrive at the position so we had quite a supply of ammunition on hand. On the morning of September 12th the reduction of the St. Mihiel salient began. At 1:00 A. M. the big guns began firing and every time the shells passed over us, it sounded like a freight train. The Germans and our own infantry were throwing up star shells, which lighted up the place for miles around. We could see the Germans signaling frantically for a barrage, but

the big guns had their artillery so well covered that the German gunners could not work the guns without meeting certain death. At 5:00 A. M. sharp, our 75's began to pour out a rolling barrage in rear of which the infantry advanced. The barrage was so heavy and accurate that the infantry met very little opposition. The Germans turned loose a little machine gun fire and then, seeing it did not have any effect, started to retreat. Our battery left this position at 6:30 A. M., and advanced under a supporting barrage following the infantry. We took a position 500 meters north of Remonville arriving at 11:00 A. M., having advanced seven kilometers. While making this advance, we were obliged to stop several times in order to build roads over the trenches which our barrage had completely destroyed. Directly over us there was an air battle going on. The German aviators were trying to drop hand grenades on us and our own aviators were fighting to prevent them. We saw three planes fall, one of them landing nose first in the soft ground. Just ahead of us we saw Marines and Infantry going across the field with fixed bayonets and the sun shining on them made a pretty picture. To our left, there were about a dozen tanks going over to help the Infantry. The Germans had by this time organized a few gun crews and they were shelling the tanks. They put two of them out of the battle. About this time our Infantry were coming with plenty of prisoners, some of them carrying wounded soldiers, both American and German. They were immediately put to work repairing the roads and taking up the barbed wire which made it very difficult for us to pass through with our guns. We got quite a few souvenirs from the prisoners, such as rings, watches, German money, etc. Just in the rear of us was a battalion of Infantry and, as we were just about to continue our march, a German airplane came over and dropped a few hand grenades on them. We were unable to tell if any of them were killed or wounded.

About a kilometer ahead of us, there was the smoking ruins of what had once been two fairly large towns. They were the most destroyed towns we have ever seen on any front. We finally got our guns laid and opened up with our second barrage which was also a rolling barrage. We continued with zone

firing after the barrage, until the ammunition ran out. It was very difficult for the ammunition trains to reach us because they had to travel the same roads and meet the same obstacles that we did. We were at a standstill for a half hour after which the ammunition arrived. Taking everything into consideration, they had made very good time. There were quite a few American boys dead alongside of our position, who were duly buried. It got pretty cold towards evening, and as the Germans had some very good overcoats, we collected most of them and put them on. At about 8:00 P. M. on the same date, we again advanced and took up a position two kilometers southeast of Thiacourt near the Southern edge of the Bois De Heiche. We arrived at this position at 1:00 A. M., on September 13th making an advance of four kilometers. On leaving our second position we came across three tanks. One of them was in the middle of the road and camouflaged to look natural. The roads were very muddy, the wheels of the guns sinking clear to the hubs, which made it very hard traveling. We had considerable trouble at first in laying the guns at night as our lighting devices had seen such hard service that they were no longer serviceable. However, we scouted around some old German gun pits and positions and found some German lighting devices without which we would have been seriously handicapped.

On the left of our new position about one hundred meters there was a trench in which some of the German infantry took cover and were caught in our 75's barrage. It was here that we saw the effects of our firing, as the trench was filled with German dead. We were very short on rations these days, but some of the boys found a German kitchen and a detail was sent out to bring back anything they could find to feed the battery. There were quite a few old German gun positions in the woods close to this position. We found potatoes and a few other articles in the kitchen and it helped a great deal to feed the men who had gone quite sometime without anything to eat.

All along the road and fields were gas masks which our Infantry had thrown away, filling the cases with ammunition. The firing battery again moved forward on the 14th of September at 9:15 P. M., and took up a new position in a large ravine one

kilometer southeast of Thiacourt. We arrived at 11:30 P. M., having advanced three kilometers. The roads were pretty fair, but there was much traffic. We made very slow progress. We passed two large German dugouts which were used as store rooms. They were dug in the side of a steep bank and were full of supplies, such as helmets, gas masks, rifles, etc. Outside the dugouts was a German wagon with the horses all harnessed up. There were two Germans lying in it, both dead as were the horses. It was the result of a direct hit from one of the guns, just as they were about to drive off. There were also many others lying along the road with legs and arms blown off.

It was a bright moonlight night and just as we reached the position, an enemy airplane came over us dropping flare lights and turning machine guns loose all along the column. We got into position and found that the ground sloped downward which made it necessary to dig about two feet to make the ground level. We then had to dig about three and a half feet deeper in order to attain our elevation. It was an all night job as there were many stumps and roots to dig up. It tired all the men out as they had been working without any thing to eat since noon the day before. We also had to put up a camouflage screen which was a slow, hard job and took quite a little time. We rested up the next day and after sleeping a few hours, we started to explore our new location, which was a German supply base and also the best German camp we had run across. There was a large storehouse there, which was well stocked with axes, lanterns, telephones, candles, twine, shovels, etc. One of the boys, Private Herzog, picked up a small fuse about the size of a cigar, and while looking at it, it exploded and he suffered the loss of a hand. There were quite a few houses built there which had been occupied by German officers. They were fitted out with all the comforts of home, such as furniture, baths, reading lamps and everything a man would want. There was also a café with a large sitting room, plenty of beer and some fancy mugs. In their retreat, the Germans did not have time to take anything with them, so left it there.

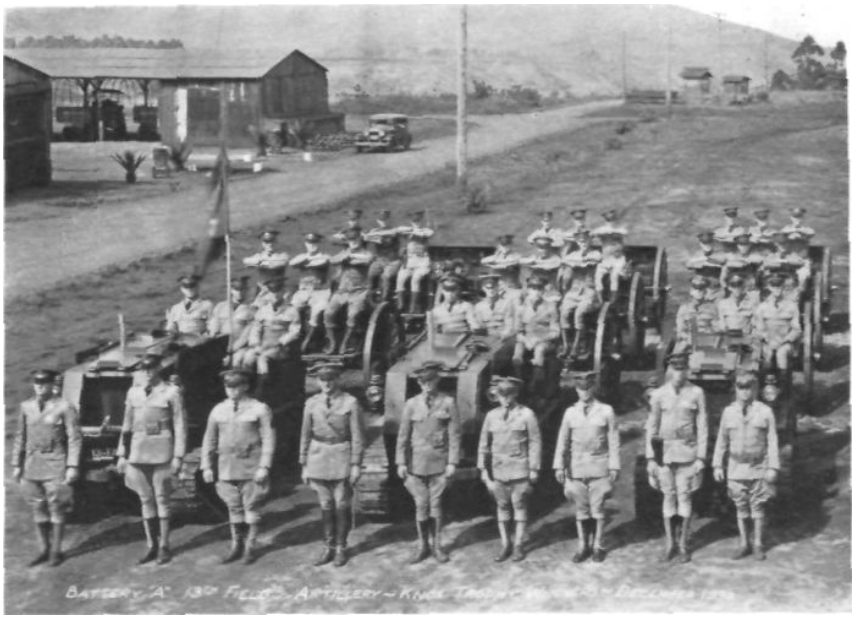
Our artillery had destroyed the railroad which was connected with this camp, and the infantry captured a whole train load of

big guns which the Germans were trying to move out. The capture of Thiacourt released a number of French civilians who had been held prisoners for four years. They were all smiles and offered us sugar, which they seemed to have plenty of. Some of the boys who had money, distributed it to the people whom they thought needed it the most. We took great pleasure in speaking to them as we had not heard a woman's voice in quite some time.

On the morning of September 16th we began a rapid zone fire. Our cook, Jerry Lynch, will long be remembered by the firing battery as he scouted around and found enough German supplies to give us three square meals that day, being the only cook who had ever performed such a feat. On the morning of the 17th we fired a couple of barrages and zone fire. On the night of the 17th the Germans sent over a few gas shells, but we sent back ten to their one which quieted them down. On the same night the battery withdrew from this position and joined the echelon, the entire 2nd Division being relieved from the front by the 5th Division. We proceeded to Bois De Ursaras, arriving at 4:30 A. M., September 18th, after having hiked fifteen kilometers. The woods were very damp and we had to sleep in the mud and water, which caused quite a few of the men to contract Spanish influenza. September 20th, the battery left the Bois De Ursaras; number of rounds fired at St. Mihiel front is 3,124 H. E. and a number of gas shells. The Bois De Ursaras is three kilometers North of Manonville. We left here at 6:30 P. M., and arrived at Bois De Boucq, two kilometers East of Sanzey at 3:00 A. M.

E BATTERY CONCEALED IN WOODS AWAITING ORDERS TO GO INTO POSITION FOR ST. MIHIEL DRIVE

# THE 1930 KNOX



HEARTY congratulations to Battery "A", 13th Field Artillery! The Chief of Field Artillery has announced that the Knox Trophy this year was won by that battery. It is stationed at Schofield Barracks and is commanded by Captain Le Count H. Slocum, 13th Field Artillery. Battery "A", 18th Field Artillery stationed at Fort Sill, Oklahoma, Captain Louis Fortier, 18th Field Artillery, commanding, was a close second.

The Knox Trophy is presented annually by the Society of the Sons of the Revolution in the Commonwealth of Massachusetts to that battery of the Regular Army Field Artillery which shall have the highest efficiency rating, this rating to be based on firing efficiency, tactical mobility, proficiency in the use of Field Artillery means of communications, and on interior economy. The rules for the Knox Trophy Test are promulgated by the Chief of Field Artillery, and this year they were made considerably more difficult by shortening the time allowed to the officers

# TROPHY BATTERY

conducting the fire. Another new feature was the requirement that, in at least one of the firing problems, the initial data had to be figured by the enlisted specialists of the battery.

The final test, as well as the preliminary eliminations, make for a wholesome competitive spirit throughout the arm. The rules are prepared in such a manner as to eliminate to the utmost any advantages which one battery might have over another in such matters as kind of materiel, draft, geographical location or officer and enlisted assignments. Criticisms on the rules are invited and, if after consideration they prove to be well founded, they are incorporated in the test for the ensuing year.

The batteries selected to represent the commands of which they form part and to take the competitive test for the Knox Trophy in 1930 were:

1st Corps Area—Fort Ethan Allen, Vermont—Battery B, 7th Field Artillery.

2nd Corps Area—Madison Barracks, New York—Battery D, 7th Field Artillery.

3rd Corps Area—Fort Hoyle, Maryland—Battery F, 6th Field Artillery.

3rd Corps Area—Fort Myer, Virginia—Battery B, 16th Field Artillery.

4th Corps Area—Fort Bragg, North Carolina—Battery B, 17th Field Artillery.

4th Corps Area—Fort Benning, Georgia—Battery B, 83rd Field Artillery.

5th Corps Area—Fort Benjamin Harrison, Indiana—Battery A, 3rd Field Artillery.

6th Corps Area—Fort Sheridan, Illinois—Battery D, 3rd Field Artillery.

7th Corps Area—Fort Robinson, Nebraska—Battery E, 4th Field Artillery.

The Field Artillery School—Fort Sill, Oklahoma—Battery A, 18th Field Artillery.

8th Corps Area—Fort Sam Houston, Texas—Battery E, 12th Field Artillery.

8th Corps Area—Fort Bliss, Texas—Battery C, 82nd Field Artillery.

8th Corps Area—Fort Francis E. Warren, Wyoming—Battery B, 76th Field Artillery.

9th Corps Area—Presidio of Monterey, California—Battery D, 76th Field Artillery.

9th Corps Area—Fort Lewis, Washington—Battery B, 10th Field Artillery.

Hawaiian Department. Schofield Barracks, Territory of Hawaii—Battery A, 13th Field Artillery.

Panama Canal Department, Fort William D. Davis, Canal Zone—Battery B, 2nd Field Artillery.

The Knox Medal, awarded also by Sons of the Revolution in the Commonwealth of Massachusetts, for excellence as an enlisted student at the Field Artillery School, was won this year by Corporal Harvey R. Griffith, Headquarters Battery, 1st Field Artillery.

## A FEW WORDS FROM THE WINNING, B. C.

Battery "A," 13th Field Artillery, started its first effort to win the Knox Trophy in the fall of 1929. It succeeded against all competition in the Hawaiian Division and was awarded the right to represent the 11th Field Artillery Brigade in the Army test. A serious bid was made for the highest honor, but our best was not good enough. When the results were published we found ourselves in third place.

With added experience behind us we were ready to try again this year. First, however, we had to win in the elimination

contests, which starting within the battalion, went through inter-battalion and finally through inter-regimental tests. In these competitions the Knox Trophy tests of 1928 and 1929 were used. The opposition was so strong, and the competitive spirit so keen, that at no time until the last test was over could we be sure of representing the brigade for the second time. The battery became used to working surrounded by field officers with note books in the alert position and so started the Army Test in a more or less matter of fact state of mind.

In the test itself we were surprised only by the time requirements in the firing; otherwise the tests were much the same as those of last year. When we had finished we realized that we had made a creditable showing, but since we had probably not equalled our point score of 1929, we hardly expected to win out.

1st Lieutenant Daniel F. Healy, Jr., the executive officer, and 2nd Lieutenant Frank Q. Goodell, the motor officer, did splendid work within their departments and fired well in the test problems. From 1st Sergeant Raymond VanHam to the newest private in the battery there was such willingness and unity of purpose that the test was as nearly a pleasure as such work ever can be. Without this spirit the success of the battery would not have been possible.

There were no particular difficulties to overcome. We had adequate personnel, excellent weather conditions, and no failures by personnel or materiel that could be laid to bad luck. The battery is proud of its accomplishment and particularly proud that it was able to make a showing creditable to the 13th Field Artillery of which it is but a representative organization.

# SCENES FROM SILL

## HARNESS INSTRUCTION IN BATTERY OFFICERS' COURSE

CAPT. L. McC. ("BIFF") JONES IN A HARD SCRIMMAGE

LIEUT. E. C. FERGUSON, U. S. MARINE CORPS, USES HIS HEAD IN ASSEMBLING A BRIDLE

# POLO AT UNIVERSITY OF OKLAHOMA


Defeating the New Mexico Military Institute quartet for the first time in history, and winning two-thirds of all their games this autumn, all six of which were played away from home, the Sooner polo four, coached by Capt. Jerome J. Waters, assistant professor of military science, can rightfully call the 1930 fall season their best in the history of the school.

The Sooner four first conquered Missouri at Columbia by scores of 11 to 4 and 13 to 4. Then they journeyed to Roswell, N. M., and defeated the crack New Mexico Military Institute team by scores of 8 to 5, and 7 to 5. The only games they lost all fall were their two contests with the strong University of Arizona team at Tueson, Arizona winning 15 to 3 and 9 to 4.

Oklahoma's victory over New Mexico Military Institute marked the first time the Sooners had ever trimmed the hard-riding cadets. Last year the New Mexico outfit trounced Coach Waters' Sooners 11 to 1 and 5 to 4. However Sooner polo enthusiasts vow that domination has ended.

Next spring the Sooners will get a return crack at the Arizona riders whom they led 2 to 0 at one point of the final match and had tied at half time.

Coach Waters will keep his squad in condition by practice games this winter with the Nichols Hill team of Oklahoma City, the Fort Reno quartet and perhaps the Anadarko Polo club which has sued for a game.

# OKLAHOMA UNIVERSITY R.O.T.C. PISTOL TEAM

TEAM LEFT TO RIGHT: LIEUT. IVAN D. YEATON, F.A., (COACH); WILLIAM L. VOGT, DENNIS H. PETTY, JACK LOUTHAN (APT. CAL. .45 TEAM). LUCIEN B. WRIGHT, JOHN B. BENDER, JOHN E. COOK (CAPT., CAL. .22 TEAM).
CUPS, LEFT TO RIGHT : NATIONAL .45 CAL. R. O. T. C. CHALLENGE CUP; HOTEL ARDMORE TROPHY (OKLAHOMA RIFLE ASSOCIATION, BOBBING TARGET); OKMULGEE TIMES DEMOCRAT (OKLAHOMA RIFLE ASSOCIATION, SMALL BORE, PALMA MATCH); OKLAHOMA UNIVERSITY R.O.T.C. PRIZE PISTOL SHOT.

# PISTOL TRAINING AT THE UNIVERSITY OF OKLAHOMA

BY 1ST LIEUT. IVAN D. YEATON, F.A., PISTOL COACH

LAST year, for the first time in the history of Oklahoma University, the pistol team won first place in the National R.O.T.C. Meet, and important recognition in the National Rifle Association. It also participated successfully in several state matches.

As in all cases where competitive organizations strive for supremacy over each other, the winning combination is always faced with the same question, "What were the contributary causes to these victorious attainments?" And always the answer, provided the one questioned be truthful, is the same old trite group of reasons that have been handed out for years, namely, competent guidance, intelligent and enthusiastic material with which to work, and the rest, just plain, hard work. Occasionally the so-called "breaks" seem to upset this system, but in the long run, all things being equal, they are so evenly divided that they fail to be a really important factor.

The purpose of this article is to outline the course of procedure followed by the O.U. team during the 1929-30 season, in the hope that it may be of some use to those interested in the same line of endeavor.

Much of the credit for the success of the team is due to the zealous support given it by Major E. P. Parker, Jr., the P. M. S. & T., who had constructed an indoor .22 calibre range and a new .45 calibre outdoor range, so that the men could practice inside or out, day or night. Also, he purchased new .22 and .45 calibre pistols, plenty of targets, and an abundant supply of ammunition.

Before discussing the system of training we are using at present, I wish to preface it by stating that there are no recommendations for changes in the regulations on pistol marksmanship, since they are complete in every detail.

During the first week of the school year, a meeting was called for all those interested in pistol firing. Eighty men turned out for it. In order to weed out those who were only mildly interested, I deemed it advisable to explain all the unpleasant features

of the necessarily rigid training and to leave it to the individual to decide for himself whether or not the small reward, in case they turned out a winning team, would be worth their time and trouble.

Practice hours were set at 8:00 A. M. daily; 4:00 P. M. Monday, Wednesday, and Friday, and from 8:00 to 12:00 A. M. Saturday. Once a week, each man was allowed to fire a score and in three eliminations, covering one month each, the squad was reduced from eighty men to twelve. With the team decided upon, at least one match was fired every Tuesday night for several months. We shot weekly telegraphic meets with the two best civilian teams in the state and shoulder to shoulder matches with local police forces. At first we lost consistently, but our score began to mount steadily, ten to fifteen points a week, and by the time we were forced to devote all our attention to the .45 calibre pistol, the squad was equal to the best in the state.

Two winning teams had been our hope, but out of that vast amount of material, only six consistent shots could be mustered, and some of these were late arrivals from the junior class. The .22 calibre team was then sent off by itself to finish the year without help from any one. They were fortunately held up to second place by the expertness of two men, one of whom, strangely enough, could not shoot a .45 without endangering the lives of the bystanders.

Having been successful in the National R.O.T.C. Meet, permission was granted and funds secured by Major Parker, for the team to attend the N.R.A. Southwestern Pistol and Small Bore Rifle Tournament at Dallas, Texas. We attended this meet armed with the .45 and found that we were to compete against .38 calibre revolvers with two pound triggers. The courage and stamina of the boys were proven when they agreed "to sleep on the ground and eat hot dogs for two days" in order to purchase one .38 calibre revolver and the necessary ammunition to enter the team captain, Jack Louthan, in all events. He more than justified the sacrifice because he won (with a .38 officers' target model) one first place, three second places, and two third places, losing the Southwestern Individual Pistol championship by only three points, and this due to a hang fire. All men, except the substitute, qualified as N.R.A. experts.

Later in the summer, the captain of the team was sent to the Oklahoma state meet after a month's additional training at the R.O.T.C. camp. Out of three events entered, he managed to win two first places and one fourth. He was awarded a silver cup by Major Parker for being the best pistol shot in the University. The seven high men of the squad received a letter consisting of red crossed pistols on a black and white bull's-eye set inside a white O.U. on a red background.

The following paragraphs will be an attempt to explain the method of training used during the past year, and which is to be repeated during the 1930-31 season.

At the beginning of each practice hour, each member of the team draws his pistol and, standing in the proper position, extends his arm for five minutes. Thereafter he may shoot one round on the N.R.A. 50-foot target, whenever he desires. Any shot landing within the black rings is considered a hit, anything outside the black is called a miss, and a man is allowed to continue shooting just as long as he remains within the black. Whenever he misses, he must stop firing, go back and hold his .45 extended for three minutes more. Then he is permitted to fire again. Since credit is given only for so many consecutive rounds fired within the black, it makes every contestant extremely careful of each round fired.

No one is allowed to practice or fire except under supervision. Sighting and squeezing are checked daily in order to prevent development of bad habits.

The longer rapid fire can be delayed, the better will be the result. Only enough time to assure proper timing should be spent on this phase. A man will shoot his best score after holding his arm extended with a pistol in his hand for five or six minutes, then resting a few moments. An occasional round fired while resting the wrist on the coaches arm will often help diagnose troubles which crop up from time to time.

Our program for the coming season will include shoulder-to-shoulder matches with local police forces, entrance in the N. R.A. pistol meets, Field Artillery R.O.T.C. meets and state matches in the spring. In order to compete on an even basis we are purchasing five .38 calibre revolvers, one .22 calibre revolver on a .38 frame, and one .22 calibre pistol on a .45 frame.

# THE UNITED STATES FIELD ARTILLERY ASSOCIATION

IN accordance with the call of the Executive Council, the twentieth annual meeting of The U. S. Field Artillery Association was held at the Army and Navy Club in Washington, on December 17, 1930, with Major General Harry G. Bishop, President of the Association, in the chair. The Secretary-Treasurer read the call for the meeting, which he stated had been sent by mail to every active member of the Association. He reported that a quorum for the transaction of business was present in person or by written proxy.

The Secretary-Treasurer presented and read his annual report and financial statements, appended hereto and made a part of these minutes.

The President announced that he had appointed a committee consisting of Major J. L. Devers, F. A., and Captain A. F. Kibler, F. A., to audit the financial statements of the Treasurer. Major Devers then read the report of the committee which stated that the auditing had been performed and the financial statements had been found to be correct. A motion was then made, seconded, and adopted, approving the report of the committee.

The chair stated that there was a vacancy in the Executive Council due to the expiration of the term of office of Lieut. Col. William Bryden, one of the representatives of the Regular Army. Lieut. Col. Bryden was nominated for re-election and the nomination was seconded. Thereupon a motion was adopted directing the Secretary to cast the unanimous ballot of the Association for him. The ballot was so cast, and he was declared re-elected.

The chair then announced that Major H. S. Clarkson had tendered his resignation as a member of the Executive Council, because of his station having been recently changed from Washington to San Antonio, which resignation left another vacancy in the representation from the Regular Army. Nominations to fill the vacancy were called for. Lieut. Col. Thomas D. Osborne was nominated, the nomination was seconded, and a motion was

adopted directing the Secretary to cast the unanimous ballot of the Association for him. The ballot was so cast, and Lieut. Col. Osborne was declared elected a member of the Executive Council.

ANNUAL REPORT OF THE SECRETARY-TREASURER

| | | |
|---|---|---|
| Assets—November 30, 1929 | | |
| Cash on hand | $ 5,271.53 | |
| Securities on hand | 22,000.00 | |
| | | $27,271.53 |
| Assets—November 30, 1930 | | |
| Cash on hand | 5,457.82 | |
| Securities on hand | 23,000.00 | |
| | | 28,457.82 |
| | | $ 1,186.29 |

A detailed statement of the receipts and expenditures during the last fiscal year is as follows:

RECEIPTS

| | | |
|---|---|---|
| Membership dues | $ 6,244.53 | |
| Advertising | 3,373.62 | |
| Interest | 1,529.97 | |
| Books and Binders | 752.11 | |
| Miscellaneous | 232.84 | |
| | 12,133.07 | |
| Note Sold | 1,000.00 | |
| Cash on hand November 30, 1929 | 5,271.53 | |
| | | $18,404.60 |

EXPENDITURES

| | | |
|---|---|---|
| Printing and mailing the F. A. Journal | $ 5,473.29 | |
| Office supplies | 78.00 | |
| Postage and express | 305.93 | |
| Rent, telephone and telegrams | 542.60 | |
| Services | 2,555.02 | |
| Authors, engravers, photographers, draftsmen | 1,297.34 | |
| Books and binders | 436.01 | |
| Awards (trophies, etc.) | 192.50 | |
| Insurance | 11.00 | |
| Miscellaneous | 120.57 | |
| | 11,012.26 | |
| Bonds purchased | 1,934.52 | |
| Cash on hand November 30, 1930 | 5,457.82 | |
| | | $18,404.60 |
| Total receipts for the year ending Nov. 30, 1930 were | | $12,133.07 |
| Total expenditures for the year ending No. 30, 1930, were | | 11,012.26 |
| or a gain of | | 1,120.81 |
| Discount on securities purchased | | 65.48 |
| | | $ 1,186.29 |

Outstanding obligations and amounts receivable are approximately the same as on November 30, 1929. the only outstanding obligation of any importance is the printer's bill for the November-December, 1930, number of the JOURNAL, which had not been received. This same obligation was also outstanding on November 30, 1929. Small amounts are receivable consisting of current advertising, dues and book department bills.

As regards membership, there has been a gain of 37 in active members, the National Guard and Reserves showing an increase of 50 members while the Regular Army showed a drop of 13. This is due to the fact that efforts to increase membership were concentrated on the National Guard and Reserves last year.

At the last annual meeting a resolution was adopted directing the Executive Council to prepare suitable resolutions expressing the sentiments of the Association on the retirement of Major General Fred T. Austin, President of the Association. The Executive Council prepared and adopted such resolutions and directed that they be published in the FIELD ARTILLERY JOURNAL. This has been done. The Council further directed that a copy of the resolutions be presented to General Austin. A handsome engrossed copy of the resolutions was prepared, and after being sent around and signed by the Officers and members of the Executive Council of the Association was presented to General Austin.

J. M. EAGER,
*Major F. A., U. S. Army,*
*Secretary-Treasurer*.

After an informal discussion of the affairs of the Association and the policies of THE FIELD ARTILLERY JOURNAL, the meeting adjourned.

# NATIONAL GUARD DUTIES IN AID OF THE CIVIL AUTHORITIES

BY BRIGADIER GENERAL H. M. BUSH, 62D F. A. BRIGADE

THE following notes, rules and suggestions were prepared, primarily, for Ohio National Guardsmen for their better information and instruction in a form of military duty wherein the responsibility of the individual for satisfactory results is very great. For further detailed study, which is urged upon all officers, see: "The Laws of Riot Duty," Bargar; "Military Protection," W. D. Doc. No. 882, 1918; "Riot Duty for National Guard," Bellows, M. B. Publication.

In Ohio and other states the National Guard or any part of it can only be ordered out into domestic service by direct command of the Governor. No sheriff, judge or mayor is authorized to request or order any unit commander to assemble or parade his command or any part of it at any time.

When called into service by the Governor the National Guard uniformly acts "In Aid of the Civil Authorities." Only under the very exceptional circumstances of Martial Law (and in some cases "Qualified Martial Law") being proclaimed, does it act independently of the Civil Authorities as represented by Sheriff or Mayor.

Except as noted above the Guard acts under the direction of a Sheriff or Mayor who are limited to directing the troops commander, in writing, what is to be done. They are not permitted to direct *how* the military force is to be employed to accomplish the desired results. From this condition it naturally follows that no one in civil authority, the Governor excepted, can issue or give any order, either verbal or in writing, to any officer or enlisted man directing him how to act. All orders must originate with and come through the chain of military command. The Governor's authority comes as the Commander-in-Chief and his orders of execution come down through the chain of command. The responsibility, in its final analysis, rests with the troops commander on the spot.

Duty "In Aid of the Civil Authorities" may be divided into four general classes:

Riot Duty: When the troops are called out to suppress disorder, guard a jail from mob attack from without or suppress insurrection from within.

Duty under this head involves the facing of angry men and women with armed force and, where mobs have actually formed, the possible necessity of using that force to the limit. Much of what follows concerns this phase.

Intervention in Industrial Disputes: In this phase there is seldom any occasion for the use of force. The Guard comes on the scene more in the nature of arbitrators, compelling peace and order between two opposing groups, protecting each from the violence of the other. At the outset the troops will be likely to be subjected to considerable verbal abuse from one side and considerable courtesy and consideration from the other. The sole objective in all such cases is to exhibit an absolutely fair and impartial attitude toward both sides. To make friends and not enemies. Only the most soldierly conduct, both off and on duty, can be permitted. The troops as a whole and the soldiers individually must use the *official* relation with both sides and absolutely eliminate any and all personal feeling, action or evidences of fraternization. Impartial arbiters in the maintenance of Law and Order is their one and only job. No pains should be spared to demonstrate to all citizens that such is the case.

Relief Duty: When troops are called out to render service in case of disaster from wind, fire, flood, or other cause. Such work entails the guarding of the stricken areas, sanitation, administering of relief measures, clearing away of debris, searching for the dead, traffic regulations, etc.

Supplemental Police Duty: These calls require principally guard duty on the streets and traffic control, with danger of trouble strictly limited to individuals.

These duties involve so many things that it is not wise to attempt to enumerate them. Suffice it to say that every evidence of a high state of discipline and morale must animate each and every officer and soldier both on and off duty. The maintenance of the soldier's proper attitude at all times, with such modifications of procedure as will be later indicated are the principal requirements.

When an order is received by a Guard commander from the Governor to assemble and report with his command at a certain point and to a certain civil officer, that order prescribes either in words or effects "to act in Aid of the Civil Authorities." In those cases where a commander is ordered out the orders to subordinates will direct them to report to him. The commander or senior officer alone reports to the civil authority. When the commander reports with his command at the place and to the official (civil) designated he must ask for directions in writing as to what is desired. If the writing out of the order or request will take up valuable time the officer receiving it should be accompanied by another officer or even an orderly who will take written notes of what is said. The formal written instructions should come later. The responsibility now devolves directly and entirely on the commander of troops on the spot. The junior officers and enlisted men have no interest or concern in *why,* their job is to carry out the orders of their military superior with the utmost of intelligence, self-control, attention to duty, speed of execution, and, above all, the maintenance of the highest possible standard of discipline, utilizing every element of active, unhesitating, aggressive military conduct. Nine-tenths of the battle and the chances of winning are in the personal conduct and high esprit of each individual soldier, his active, unhesitating team work and the snap with which every little detail is conducted.

The regular equipment of the Field Artillery or Cavalry is not adapted to work of the nature under discussion. The horses are not trained for the work and should not be used. Furthermore they require special arrangements to house them. They are of great help in disaster work for patrol duty and traffic control. The field guns are hardly likely to be needed as the trench mortars and howitzers of the Infantry can do any ordinary job with less general destruction of property. Should the guns be required the work would be little different from target practice with direct laying. Our machine guns are not provided with suitable mounts for all around use. The personal arms (pistols) are not meant for aggressive use. It is therefore advisable to arm the Field Artillerymen with riot clubs in addition to their

pistols. These are very effective and can be used for either striking or thrusting. Single stick practice with one or two of the thrusts with the bayonet will greatly assist in training. As the moral effect of well disciplined troops is invaluable in this sort of work the standard of our ordinary requirements should enable any of the batteries to render valuable service.

When on duty in aid of the civil authorities the soldier's friendly contacts, instead of being with others working and thinking along the same general military lines, are now with civilians, to the majority of whom anything of a military nature is unfamiliar and very often distasteful. These contacts come most often between the individual soldier on guard or patrol duty and peaceful, if not always friendly, citizens. They must be handled by the individual soldier in such a way as to least discommode the civilian in the prosecution of his daily business. The soldier must, therefore, use his tact and intelligence in such departures from ordinary Guard Duty routine and custom as the individual case may require. He may have to explain to a business man seeking to enter his place of business after dark and without a pass, that in halting him and requiring him to identify himself he is protecting that business man's property and possibly his life. If he confines himself to the curt military forms and says *No,* the business man's anger will be aroused and he will have a grievance against the entire Guard that will last for years. It is almost impossible to give any general guide for such cases; except that the soldier should be trained and instructed to use his best individual judgment, if need be reinforced by the Corporal of the Guard, in each and every case. It is obvious that a hard and fast adherence to the usual and proper military forms of procedure prescribed for guards and sentinels is very likely to give considerable trouble.

*Passes*: Here we get a complete reversal of the Manual of Guard Duty procedure. Failure to adopt simple methods and a blind sticking to the Manual routine has caused endless unnecessary friction. The following points should be remembered:

There are certain persons, other than military and civil officers, who have important work to do in connection with any

service the Guard may be called upon to perform. These are the newspaper men whose work is, when properly appreciated and handled by the troops' commander and his subordinates, of great importance to the cause of law and order. These men all carry identification badges or cards; they may or may not have had a chance to obtain a formal pass or the Press arm band. Their identifying themselves to any sentinel should usually be sufficient to allow them passage through almost any post. This recognition may sometimes be extended to a person personally vouched for by one carrying credentials, but the names of both should be taken and turned in at the Guard House. Special orders would cover any exception or special posts. Information to the Press or others will not be given out, except through duly authorized officers.

It is always necessary to issue passes to friendly civilians, and officials to enable them to go about their regular business with the least amount of trouble and delay. When such a person receives a pass from either the troops' commander or some one of the civil authorities he has a right to expect and believe that it will be recognized and honored by all guards and sentinels. It is a great shock and annoyance to him to be told that he will have to go some distance to the Guard House or wait until the Corporal can come before he can pass into his house. Such procedure is absolutely unnecessary in the majority of cases and, unless *special orders* are issued to a cerain post to the contrary all sentinels should recognize and pass holders of passes as a matter of course.

It will often happen that a citizen seeking to enter his home or place of business will know nothing of pass requirements which may have been set up during his absence or during the night. His personal identification of himself by means of cards and letters, together with his name on the building or the building directory should be sufficient to secure his passage. Of course, it may be necessary to call the Corporal of the Guard to inspect the directory; but even this delay could be avoided if the lists of building occupants were taken from the various directories by the Corporal during the night or early morning and given the sentinels to use. In every case, pass or no pass, anger or good

nature on the part of the citizen, be polite, calm as well as soldierly and use your authority with intelligence and tact.

By far the most difficult situation for the military comes on those occasions when called upon to act as "Supplemental Police." On such occasions passes are issued to all public officials as well as prominent citizens. As a rule the bigger or more important the man the less trouble he will cause. Certain restrictions have to be made covering certain points at which only a few special passes will be honored. The man with a general pass swells up with anger and his indignation knows no bounds when he is told that his pass is good anywhere else except at that particular point, and it is no small job to handle him. Such cases cannot be handled in a bull-headed way nor will the plea of military necessity or orders mollify the self-important individual seeking "Special Privilege."

In general the military must conform in matters where they come in direct official contact with the law-abiding citizenry to Police procedure of the more enlightened kind and to which the mass of the people are more or less accustomed. The reliance of the officers must be placed on the careful training in the fundamentals of their men and then, when the emergency comes, on the intelligence, initiative and tact of the individual soldier. Just as it is impossible to foresee and provide against every little emergency or occurrence, so it is wrong and very short sighted to insist on a drastic observance of rules and regulations provided for entirely different conditions.

Fraternization: In those particular and special cases such as came up in connection with the work at the Ohio Penitentiary in 1930*, there is a danger, quite noticeable at times, of the tendency of the soldiers to fraternize with the more orderly element of the convicts. This tendency is dangerous in the extreme and must be broken up and avoided by every means. There is every chance that if it is allowed to continue and grow the results will be disastrous to the military control. As stated before the only safe and proper course for the soldier to pursue is the rigid maintenance of the *official* attitude.

Whatever the emergency the following general rules are imperative:

*See pages 371-386 of the FIELD ARTILLERY JOURNAL for July-August, 1930.

In the handling of any crowd or mob, discipline is nine-tenths of the problem. No matter how large or unruly a crowd is, the sight of men in uniform with arms in their hands, well set up, neatly dressed and paying strict attention to business without fear, hesitation or favor has tremendous moral effect. The average man has no desire to "mix it up" with a group that looks as though it "meant business."

The conduct of the individual soldiers must, in every case, absolutely bear out and continue the impression of "being on the job" and knowing their business. Slouchy, talkative sentinels or men off duty are a positive danger, not only to themselves but to their fellows, and, above all, to the community they are under arms to protect or assist.

It is generally necessary to hold the troops in their quarters or camp and not permit them to appear on the streets unless on duty. This is a necessary precaution:

a. To conceal the size of the force and the state of its morale.
b. To have the entire force ready at all times for any emergency.
c. To prevent individual soldiers from being waylaid and perhaps seriously injured.
d. To prevent the evilly inclined from obtaining the impression that discipline is lax and thus encouraging them to further disorder.
e. To compel the men to take as much rest as possible, as they must wear their clothes day and night possibly for several days at a stretch.

When the men are allowed outside they should be carefully inspected before leaving to insure the smartness and neatness of their appearance.

Never make a bluff toward a crowd or a group unless you are able to make it good if they take you up.

Never allow yourself to be drawn into a conversation or an argument with either an individual, a group or a crowd.

Never allow individuals or groups to loiter or congregate near your post. Keep everybody moving.

Maintain the *offensive* always, but "without truculence, bullying

or insolence." "The offensive spirit in troops is a notable life saver: it not only saves them from casualties, but in dealing with a riot it breaks the spirit of resistance before a blow has been struck."—Bellows.

Remember *always* that you are in an *official* position, acting under orders which must be obeyed and that you have no *personal* feeling one way or another in the matter.

Underlying all military success is team-play. The soldier's strength lies in the fact that he is part of a team with all of the authority of the State behind him, and with the power of life and death to others in his hands. Do not permit your consciousness of that power to impel you to act the fool or the bully.

The mere size and boisterousness of a crowd or a mob is no indication of its ability to cope with a steady, well disciplined body of troops even if the odds are a hundred to one. Play your part of the game to the limit and keep the team intact.

You will hear all kinds of talk and rumors as you approach the scenes of riot or disaster. Pay no attention to them, the chances are very considerable that there is little or no truth in any of them. Have every confidence in your officers that they will be able to handle any emergency if the team they lead is a good one and you do your part. There will be those who will show great nervousness as the contact approaches. It very frequently happens that these fellows turn out to be the dependable men while the blusterers go to pieces.

If you are walking a post or are acting as part of a patrol the men should keep away from the inside (house side) of the sidewalk. On approaching alleys, street intersections, open lots in which there are bill boards or piles or refuse or building material, redouble your vigilance and guard against surprise.

If you are ordered to fire, *Shoot to Kill*. Never run the chance of hitting some one not engaged in the trouble.

There are only four concrete cases where fire can be opened on rioters or evil doers; they are:

1. To prevent the perpetration of a felony if it cannot be stopped otherwise.
2. To arrest one who has committed a felony if he or she cannot be arrested otherwise.

3. In case an individual fires upon you, the troops or the police he may be shot down. (Self defense).
4. In case the individual throws missiles at you, the troops or the police he may be shot down. (Self defense).

In making an arrest, necessary force is justifiable but killing a man for committing a misdemeanor (penalty a fine or imprisonment in a county jail or workhouse) is not, unless, of course, he assaults you and makes an attempt to kill you, then it comes under (1) above. If, however, you have seen the person commit a felony or have an order or a warrant for his or her arrest for the commission of a felony and the person resists you will be justified in using any necessary force in effecting the arrest.

Except in the heat of actual conflict or in the actual presence of the commission of crime arrests had better be made by the civil authorities, backed up by the military. This is particularly the case where the arrests are to be made on warrants and probably involving the entry of houses. The making of arrests is primarily a police function and they have been trained in the nicer points involved in the legal aspects while the military is not. Furthermore the subsequent trials may be prolonged for indefinite periods making it a serious matter for both officers and men who may have to attend the trials as witnesses.

The following extracts are from W. D. Document No. 882. Pars. 159 and 160.

"159. A soldier who sees a felony or breach of the peace committed, may arrest, without a warrant, the person or persons committing the act. Also a soldier who knows positively that a felony has been committed and has reasonable ground to believe that a certain person or persons committed the act, may arrest that person or persons without a warrant."

"160. If a person who has committed a felony takes refuge in a building, a soldier who has seen the felony committed may pursue the felon into such building for the purpose of making an arrest. Should admittance be refused, an entrance may be forced."

Under no circumstances should a soldier carry any form of a personal weapon such as a pocket revolver, dirk or hunting knife, brass knuckles, etc. In addition to the risk of accidental

self injury or injury to comrades, there is a legal risk. The carrying of weapons is in itself a felony. If the weapon were used by the soldier and a rioter or bystander injured or killed with it there would be great difficulty in protecting the soldier from criminal proceedings. There is no personal risk involved for the individual soldier when he fires a service weapon and kills or wounds in obedience to order or under the conditions stated above. The officer commanding on the spot or in general command is responsible for all firing done by members of his command.

If, when acting as a sentinel or member of a patrol one or more hostile or suspicious persons approaches or are met with, it is first necessary that they be ordered to halt. The command should be given firmly and clearly and loud enough to be heard at a considerable distance (say to the next post). If the suspicious persons turn and run and you have seen no overt act on their part (felony) you have no legal justification for firing at them. If, however, you have seen them commit or attempt to commit a felony you are justified in firing. The point here is a fine one and the very best judgment must be used. Generally it is better to be safe than sorry. Specific Special Orders of a certain post or posts may, on occasion, authorize you to open fire at once, but this will seldom be the case. (Looters, etc.) On the other hand, if the suspicious person or persons refuse to halt and continues to advance, repeat the command to *halt* and add "or I will fire." Accompany this command with as obvious (noisy) act of preparation as possible. If there is time before firing, call "Corporal of the Guard" or "The Guard," etc., but it is not necessary to wait until help arrives. If the individuals halt, do not advance them if their actions have been suspicious but await the arrival of the Corporal, in the meanwhile keep them covered. After the Corporal arrives do not relax your vigilance an instant.

Under other than the very exceptional conditions of Martial Law and Military Government, the Civil Authorities have charge of and are responsible for all prisoners, whether arrested by the military or not. Soldiers may be detailed to guard or assist in guarding prisoners. Under such circumstances they will

be guided exactly according to the procedure laid down in the Manual of Guard Duty, bearing in mind that persons convicted or accused of felonies are to be treated as "general prisoners;" while the others will be handled after the rules laid down for "garrison prisoners." Where both classes are mixed in the jail they should be segregated. Persons convicted of felonies are often confined in county jails or workhouses instead of penitentiaries.

If detailed to approach or attack a house in which rioters or felons have taken refuge, do so from the right hand of the windows. The reason for this being, that if the occupants intend to resist they will be compelled to lean further out of windows and doors and expose more of their bodies than if they had to fire to the left. Never attempt to approach a house or other shelter alone; see to it that your approach is covered by one or more men ready to fire at the least sign of hostile action on the part of the occupants. If the house is one of a row, it should be attacked through the roof or through the party wall in the top story or attic. In progressing through a house work from the top down if at all possible and do not separate; work in pairs at least so that one man may cover the other in entering rooms, passageways, etc.

Looters and Prowlers: In cases of disaster there is sometimes considerable trouble arising from reports of prowlers and looters. In such cases it is usual for the commander of troops, or the highest civil authority in the area to issue an order giving publicity to the fact that looters will be shot on sight. When such an order has been issued it is your duty to carry it out. However, the procedure outlined above is always advisable. From experience it is believed that stories and reports of looting are generally greatly exaggerated and great care must be taken to avoid distressing incidents. As a general rule there will be always parts of buildings, broken trees, curtains and other things hanging and swaying in the wind. At night, with a disabled lighting system, the shadows cast by these swaying objects often give the impression of persons moving about. It is better to investigate first and only fire when you are sure you have spotted a looter.

Drinking on duty is a military offense as well as a serious breach of existing laws. No matter what the temptation, avoid anything of the kind as though it were poison. Particularly to be avoided are proffered drinks from strangers or supposedly friendly people in the neighborhood.

A mob is no braver than its most cowardly member until that crucial moment when, under some mad impulse or the leadership of some fire-brand individual, it suddenly loses its fears and rushes headlong towards its objective or its victim. Usually such a condition has been reached before the arrival of troops and the vengeance has been wreaked and the damage done; but when troops are on the scene before the crowd has become a mob, and through bad handling, inadequate numbers, conflicting orders or cowardice of the Civil Authorities the situation has gotten out of hand, then the peril is great and only the most perfect discipline and the sternest measures, resolutely enforced and aggressively followed up, can the situation be mastered. Under such conditions the most extreme measures (firing) are justified and each and every man must "play the game." There must be no hanging back and every weapon and every muscle must work in unison with the will and orders of the Commander on the spot, be he officer, non-com. or private.

A crowd lashes itself into fury with its own shouts and cries as well as the urgings of its would-be leaders. It cannot, as a rule, be turned from its purpose by mere talk. Only the display of determined men backed up by the threat of an active, well disciplined force, no matter how small, can overawe it and quiet it.

Sometimes, in the early stages, it can be quieted and its would-be leaders discredited by some quick sharp ridicule, particularly if the would-be leader is the butt. Once a laugh is started the tension relaxes and dispersion commences. Some times a concerted sudden drive and the capture of the mouthiest individual will work wonders, particularly if the captive can be smothered by jerking his coat up over his head or jamming a box or basket on it. Such an attempt would not be made without planning and the organization of a reserve.

In those cases where a riot is threatened in a community where a battery is stationed it is the duty of every member of

that battery to get to the armory as quickly as possible and remain there. If there is no call or order there will be no pay; but the duty is there and very often the presence of the men at the armory will cause calmer counsels to prevail. The result will be better for the community than if the command had paraded and there had been a fight.

In those cases where the assembly does not have the above described effect, the Civil Authorities will have to call on the Governor for orders to the local troops commander. This means that other units will also be given warning orders and, if the situation warrants it, be sent to help as fast as possible. (Note. It is the established policy of the State of Ohio to always send an ample number of troops to cope with any emergency and to accomplish by force of numbers the desired result.) In the meantime it is vitally necessary that the local unit maintain a bold and determined front, with perfect discipline and self control animating every member thereof.

Should the bold, steadfast stand of your battery result in the dispersal of the crowd without a clash or the necessity of calling in outside help, the resulting respect of your community will raise local opinion of your battery to a high degree of esteem among the law abiding citizens thereof.

If, on the other hand, you and your comrades do not exhibit the proper and necessary courage and discipline and give way to the mob, your position in the community will be impaired and possibly destroyed, while the community itself will suffer from the effects of the triumph of lawlessness.

The following hints are added for the use of Battery Commanders:

Automobiles: Where the territory to be covered is considerable, the automobile should be used for the transportation of patrols. The following suggestions are the result of actual experience: Use only open cars, light trucks, etc. Where a car is used, remove all doors except the driver's. Practice rapid and simultaneous unloading at the instant that the machine stops, the driver alone remaining in the car. Use the formations of the gun squad (front, rear or sides) if a formation is desirable; otherwise spread out from the car on all sides to an agreed upon distance.

Make all formations on the run as at Standing Gun Drill. Assume the aggressive on the instant of arrival and as the crowd falls back enlarge the circle or advance the line, but do not get too far away from the car. When using the circle a good interval to use may be gained by that indicated when the club is swung at arm's length. The driver should act as an observer for the officer who should remain fairly close to the car. Use the whistle and adopt a code for the same. As the patrol approaches the point where the crowd is congregated, open up the siren or horn. Dependent, of course, on the situation and general temper of the crowd, there is a considerable advantage in driving right into the crowd and "exploding" (forming the circle). Under other conditions, where the crowd is compact and threatening the formation in front of the car, a steady remorseless advance with the threat or use of the clubs in the thrust will be better. If a machine gun is mounted on the car, its operation is in charge of the driver or the officer. The personnel in the are of fire should be trained to throw themselves flat on the ground at the signal that the gun is to be used.

If the commander's job has been well done and the conduct and attitude of the men is as has been inculcated, the chances that there will be any firing are very remote. It is doubtful if 1000 rounds of ammunition have been necessarily fired in all the riot and disaster experience the Ohio Guard has had in the past forty years.

Clubs: Clubs should be of hard wood, not less than thirty inches long and from an inch and a quarter to two inches in diameter. Sawed off pick handles, playground ball bats or similar forms will do. There should be a small hole through the handle and through which should be passed a sixteen-inch thong to make a loop. In handling the club the loop should be wrapped around the hand, not the wrist. In striking with the club, the head is the usual target, but surprising and less bloody results can be obtained with a sharp blow on the arms just above the biceps. In striking, keep the hand below the height of the shoulder and let the weight of the club, assisted by the flexing of the wrist, complete the blow. Stunning and not killing is desired. The thrust is effective as an active threat on the morale

of the crowd and when used in close quarters it is very effective. To get the result: Lower the right hand to the hip, carry the left hand across the body, palm up, and allow the club to rest in the cupped hand. When making the thrust slide the club through the left hand propelled by the right. Advance the left foot and throwing the body forward bring up the right foot as the blow is completed. Practice this with both a long and a short thrust.

Very good moral effect can be produced by drilling the men in the use of the clubs where the public can see them. Encourage the individual soldiers to practice the movements. Encourage the "bayonet face" when drilling.

When attacking in line the men should be at normal intervals if there are enough to form the line clear across the street from house line to house line. The wedge formation (W.D. No. 882) may be used if desired. The rear rank, if any should be used to fill gaps or reinforce points where difficulty is experienced in the advance. A small reserve is advisable.

Remember that a false move, an ill considered, careless act, careless or slovenly dress and carriage on the part of either officers or men will be instantly reflected in the attitude of the crowd or mob you are attempting to control, with a resulting peril to you and your command as well as the community it is your duty to protect. In no military work does so much rest on the individual soldier, his morale and discipline, both on and off DUTY.

# YE RYME OF YE TYME-RAYNGE BOARDE★

BY MAJ. FRED M. GREEN, C. A. C.

EDITOR'S NOTE: *Although primarily of interest to the Coast Artillery, it is believed that the plight of this "dismalle soldiere" will also amuse* FIELD ARTILLERY *readers. The poem is published here through courtesy of the Coast Artillery Journal.*

AUTHOR'S NOTE: *Seacoast gun batteries formerly plotted at fifteen-second intervals. No predictions were made on the plotting board; the correction for range-change during the time of flight was computed on the Pratt range board, and combined with the ballistic correction.*

*In 1913 it was required that set-forward points be plotted on the plotting board, a graphic time-range relation be maintained on a blackboard at one side of the emplacement, and a T-square and a stop watch be used to determine the proper corrected range for the instant of fire. At the command "Trip," this range was predicted a suitable number of seconds.*

*These requirements were heartily disliked by most officers. Under this system the inherent errors of prediction were made manifest, and the system was unjustly blamed for their existence. The emplacement pattern of time-range board was difficult to operate, and many delays and personnel errors resulted from its use. Also, the earliest boards were built without any protection from rain, and became inoperative in wet weather due to blurring of the chalk lines and figures.*

*To penalize unnecessary exposure of the piece to hostile observation and fire, a percentage deduction was made from the final figure of merit for each second the piece remained in battery after the lapse of a maximum allowable period—say ten seconds. I cannot now guarantee the accuracy of these figures but I can vouch for the possibility of the result indicated below.*

*Each practice was supervised by an umpire detailed for that purpose.*

| *Argumente* | *Fytte ye Fyrst* |
|---|---|
| | Upon ye seashore, sadde and graye—<br>Upon ye sandburred strande—<br>There stood a dismalle soldiere<br>With a peece of chalke in hande. |
| A soldiere ben mournyng by ye sea-beache, | |
| | This saddened, weary cosmoline,<br>Hee hove a mournfulle sighe<br>And reachyng oute a skinnie clawe<br>Y-grabbed a passer-bye. |
| and seizeth another, a passyng soldiere, to whom hee purposeth to relayte hys tayle. | |
| | Ye passer-bye he waxed fulle wode;<br>"Holde offe your hande," quoted he,<br>"By thy oily, greasy denim pants<br>Now wherefore stopp'st thou me? |
| | "First call hath sounded for parade—<br>I've changed into blue;<br>I wot I needs must runne lyke hel—<br>Do you not stande it too?" |
| Ye bye-passer pleadeth a previous engagement, | |
| | Hee holds hym with hys greasy hand:<br>"Our batterye fyred—" quothe hee;<br>"Hands offe—leggoe my dresse-coate sleeve,"<br>Eftsoons hys hande drops hee. |
| but cannot escaype | |

*Not recommended for ladies and children.

# YE RYME OF YE TYME—RAYNGE BOARDE

and so runneth an absence.

Ye aged cosmoline commencethe his recital,

noteth ye tyme-raynge board, and showeth ye confusion engendered therebye,

and ye difficulties of interpolaytion, to which ye operator succumbed.

He showeth further howe hys valiant captaine, doubtless a wiley manne in ye wayes of warre, avoideth ye need for interpolaytyng.

*Argumente*

He relaytheth how ye raynge section laboured lugubriouslie

and were dyscomfytted by ye requirement of predyction when ye course was sinuous,

and of ye lamentable res gestae of ye plotter atte this circumstance,

and how he was again baffled by each chaynge in course of ye shyppe.

*Argumente*

And how sorrows multy-plyed.

Hee holds hym with hys glytterying eye—
Hys vyctym must stande stille,
While loe.. assemble for parade
Ryngs clearlie from ye hille.

"Ye targette spedd acrosse ye baye—
Ye Umpyre hee was there,
Oure survisse practys for to see,
To judge just whatte was fayre.

"Our captaine gayzed with deepe dysguste
Upon ye time-raynge boarde;
Ye wyghte who posted raynges there
Showed playnely hee wasy ffloored.

"Ye curve ranne uppe—ye curve ranne down—
Ye curve ranne all arounde—
Ye raynge-boarde manne he beete hys bresste
And rolled upon ye grownde.

"Our captaine was a hardy soul:
Quothe hee, 'Now what ye hel?
'Goddame these syllie lynes of chalke—
We'll fyre on ye bel!'

*Fytte ye Second*

"Alofte, behynde ye batterie,
Ye gunne-shye braine-squadde satte—
They soughte to trakke ye targette
And to gesse where itte was atte;

"And when they could locayte ye thyng—
Ye orderes they were strykt—
Ye plotter cryed, 'Now cleare awaye,
I'm going to predykt..'

"But when hee studied o'er yts trak
Hee thoughte itte was bewytched;
Loudlie hee rayved, and cursed, and swore,
And eke he sonofa—.

"At lengthe ye course was straytened out—
Its wriggles he was learnyng—
Anon cryed one from uppe above,
'Ye goddamdtargette's turnyng!'

*Fytte ye Thurd*

"Anon upon ye tyme-raynge boarde
Wee see a course once more,
But—marke how yon deflekshuns jump
From two-pointe-fyve to foure!

and how ye captaine, doubtless constrayned by ye curnell and other senylle warriors,

was dryven to extreame measures; and how, just as ye gunne ben y-tripped into batterye,

ye whole system ben typed uppe by failure of ye tyme-raynge board,

thus leavyng ye gunne in batterye without data, so yt ye penaltie runneth.

Yet further delays are caused by a chanse shower of rayne, thus making ye board alle

*wette in every sense, and ye* practysse is irretrievably ruined before a syngel shotte

ben fyred.

*Despyte all interruption, ye* cosmoline will shryve hymself, for yt hee ben fulle

to bustynn of griffe and wo. He recounteth ye hardd-shyppes and pryvations inseparable

from myliterry servisse, and ye shocks to hys fynnickyng sensiblylities atte seeing

a Model 1912 belte over a blew unforme.

"Ye afternoone is wayning faste, Ye
captaine he is tyring—
'Oh, damme ye data!' loude he yelles;
'Attention! Commence fyring!'

"Ye shell was seeted from ye trukke, Ye
powdurr home was rammed,
Ye breache was closed, ye peece was trypped—
And then ye T-square jammed!

"Ye stoppe-watche stopt! He can't predyct!
When dyd ye laste bel ryng?
Ye T-square's stucke—he droppes hys chalke—
'To hel with thys damthynge!'

"Above ye lofty parapet
Ye muzzel comes in syghte;
Above yon parapet it stays
'Tyll raynges shalle come ryghte.

"Yet lo! upon yt fatalle boarde Straynge
characters apeare;
A 'reeding loste,' 'corrected raynge'; Ye
chalke begins to smeare

"As rayne-droppes smalle runne down ye
walle—And also down our lynes—
Ye figewers blurre upon ye arme—
We can't telle sevens from nynes—

"So consequentlie we have loste,
Before our fyrste shotte wente,
All of our figewer of meryt
With a penaltie hundred purrsente!"

*Fitte ye Forth and Lasste*

"Passe in review"—parade is o'er—
Ye menn will soone bee inne;
"Stande faste," commandes yt cosmoline,
"I muste confesse my sinne!

"For yeares I've patientlie endured A
gun-mount weirde and straynge;
"I've used all sortes of godamwayes
Ffor ffyndynge outee ye raynge;

"I've cutte ye grasse; I've trymmed ye sodde;
I've shyned electryk lytes;
I've taken visitors 'round, begodde,
And showed them all ye syghtes;

"Wyth gaudie full dresse uyforme
Of scarlet, golde, and blew,
I've worn a woven pea-greene belte
Of an appalling hue;

## YE RYME OF YE TYME—RAYNGE BOARDE

And how ye patiente soldiere

"I've peeled ye spuds; I've scrubbed ye floore;
I've gladlie shyned my gunne;
I've dusted oute behinde ye doore;
I've ryssen ere ye sunne;

finally loste his patience

"Alle these—and more—have I endured
Wythoute a syngle growle,
But of contentement I am cured—
I'm going to make Rome howle!

over ye tyme-raynge boards,

"I'm dammed if I will goe to warre,
And joyne in battle's hel,
Armed with some chalke, some cotton wayste,
And a nickel-playted bel!

and dyd scoffe and flear vilaynouslie thereatte.

"Itte makes me sore to drille with them—
"Itte fylls my pants with payne
To thnyke how chalke-lyne sistems fayle
If it should chanse to rayne.

He showeth hys erudition by quoting ye equation of an inclyned straighte lyne

"And when I fayce my maker
And the Perly Gaytes I see,
I wante some better laste wordes than,
'y is mx plus b';

not passing through ye orygen, as set forthe in divers Godlye workes on Analytique Goemetrie.

"Predyction is uncertaine
In thys worlde, I always fynde;
Perhaps they'll sayle in a strait lyne—
Perhaps they ain't that kynde.

He philosophyses byterlye, and, despayrynge of bettyre thynges, consyderethe putting inne

"A T-square's not my weapon,
And a doughboy bunch I'll fynde;
Insteade of chalke lynes, I prefer
Ye good olde skyrmishe lyne.

for a transfer to ye doughs, as dyd many a poore wyte in that sadde tyme.

"Where they don't fyte with erasers
And a little tynklyng bel;
May ye deville snatche Erasmus' boarde
And burne it uppe in hel!"

# AN EXAMPLE OF CO-OPERATION BETWEEN NATIONAL GUARD AND ORGANIZED RESERVES

BY CAPT. W. F. KERNAN, F. A.

THE 103rd Field Artillery of the Rhode Island National Guard and the 302nd Field Artillery of the Organized Reserve are both stationed in Providence. The 103rd is quartered in the armory of Mounted Commands and is fully equipped with 75 mm. guns, materiel and horses in accordance with existing tables of allowances for divisional Field Artillery. In theory the 302nd is also armed with the French 75, but its armament is on paper only and is likely to remain on paper until the advent of "M" Day.

The 302nd Field Artillery was reconstituted in the Organized Reserves in January, 1922, under the command of Colonel Harold R. Barker, who had served in the World War as Captain and Major in the 103rd. Colonel Barker brought with him into the 302nd a number of other officers who had served overseas with the 103rd, and due to this and other causes, the relations between the two organizations from the time that the 302nd started its training under the National Defense Act were very cordial. A basis for contact had been established and it was only natural that the 103rd and the 302nd should co-operate with each other in every way possible.

As has already been pointed out, the Reserve regiment had neither materiel nor horses and whenever the 302nd needed a gun, a field telephone or an aiming circle for demonstration or practical use it was cheerfully furnished by the 103rd. During the autumn and spring the Sunday field problems held by the National Guard were attended by officers of the 302nd and hardly a year passed that the Reserve regiment did not stage at least one week-end terrain exercise and tactical ride mounted on the horses of the 103rd. During the summer of 1925 the entire 302nd was attached for active duty to the 103rd and both units took the field together for two weeks. Several years passed in this way and the 302nd studied equitation and draft on the horses of the 103rd, acquired fire discipline behind its guns, held target practice with its pistols and conducted itself in general as an

active and enthusiastic younger brother does when invited to make free use of the property of his wealthier senior.

The 302nd had been accustomed to hold its conferences in the Marine Corps Arsenal on Benefit street, but in October, 1929, upon the invitation of the 103rd, it began to assemble regularly in the Armory of Mounted Commands and the periodical use of horses and guns of the National Guard was included in its training schedules. In this way the practical instruction of the 302nd became continuous throughout the inactive training season; materiel and instruments that had been available only on request or at scattered intervals were now regularly reserved for its use two nights out of each month and the results in increased attendance and morale were immediately manifest.

During all this time a skeptical observer might have been tempted to wonder what conceivable advantage the 103rd expected to derive from this particular experiment in co-operation, nor can it be denied that up to March, 1930, the benefits accruing from the close association of the two organizations appeared to be all flowing in one direction—namely, from the National Guard towards the Reserves.

In March, 1930, the 103rd Field Artillery which had been reorganized after the war as a separate battalion was expanded to a regiment and officers trained in the handling of light horsed artillery were urgently needed to fill the vacancies caused by the expansion. The 302nd was the only Field Artillery reserve regiment in the State armed with the French 75mm. gun; its commissioned personnel was of the type required; moreover, the officers of the 302nd, due to the close association between the two units, were well known to the 103rd and it was easy to decide what particular Reserve officer was best fitted for a given assignment. As a natural consequence the 302nd was called on to furnish officers for the 103rd.

Colonel Barker who had commanded the 302nd since its reorganization in 1922, and who, more than any other had been responsible for maintaining contact with the Guard, went to the 103rd as Regimental Commander. In addition to Colonel Barker, five other officers of the 302nd, two Captains, two First Lieutenants and one Second Lieutenant, were offered and accepted

National Guard commissions. In this way, a part at least, of a long-standing obligation was settled to the complete satisfaction of both regiments. As far as the 103rd and the 302nd are concerned the theory of co-operation between the National Guard and the Organized Reserve has received its final and most conclusive test—it works.

# FOREIGN MILITARY JOURNALS: A CURRENT RESUME

## England—Journal of the Royal Artilery, October, 1930

**"The Mechanized Field Battery,"** by Major (Bt. Lt.-Col.) A. W. Purser, O.B.E., M.C., R.A., is a discussion of the best types of motor vehicles and organization for such a battery which is capable of functioning as Division Artillery. After considering the advantages and disadvantages of the whole-track prime mover as opposed to the 6-wheel or half-track vehicles, Major Purser decides that the whole track vehicle has the best chance of approaching the ideal. Among other reasons he says that the well-known objection to whole-track machines that the tracks wear out too fast has been to a great extent overcome in the latest types of track. He allots 18 tractors to a battery and emphasizes the importance of cutting down the number of different types of vehicles. In discussing the vehicles for battery staffs he enunciates the following principle:

"The smallest number of vehicles of as few types as possible which will permit of a flexibility of the staff of a mechanized battery approximating that of a horsed battery."

He also says: "In all vehicles issued up to date an attempt has been made to provide all-weather protection. Anything in the nature of side curtains or a permanent top would be a disadvantage because of the consequent increased height of the vehicle. It is suggested that beyond some form of windscreen the man in a car needs no more protection than a man on a horse or limber."

As regards types of vehicles for the battery staff, Major Purser claims that three types would be sufficient. He gives the battery five small Austin 2-man cars, four large vehicles to transport 4 or 5 men each and two 2-stroke motorcycles for individually mounted men.

Major F. H. N. Davidson, D.S.O., M.C., R.A., p.s.c., in his article **"Survey and Brigade Concentrations,"*** states that "The development of brigade concentrations has caused a break in the deep rooted tradition that the battery is the proper, and in fact

*In the British Army an artillery battalion is called a brigade.

the only efficient fire unit. The fact that brigade concentrations, to be efficient, must be based on survey, further rouses the opposition of the reactionary, to whom survey is anathema.

"In mobile operations the available artillery will normally permit only sufficient density of fire on a limited front. If this fire can come as a surprise it will add to the effect. The key words of artillery support are, in fact, concentration, accuracy and surprise.

"Without survey (including airplane strip or other 1/20,000 maps) will accuracy and surprise be possible? If each battery has to register its own part of the target surprise will be lost. Each battery O.P. may not be able to see the target really well, so accuracy must thereby suffer."

As regards economy of ammunition in brigade concentrations, Major Davidson brings up the following points:

"Only such batteries and ammunition need be employed as are demanded by the tactical situation. Consider the case of a target 300 yards broad and under 100 yards in depth which has to be engaged for ten minutes. Let us assume that one round per ten seconds is required on each 25 yards of front. If engaged by one battery for ten minutes, fire would have to be at 12 rounds per gun per minute and 120 rounds per gun would thus have to be expended. Apart from the likelihood of damage to the guns, it is surely better to ease the strain on gun detachments and ammunition by using two batteries, providing always the time factor permits a second battery being used. In any case the amount of ammunition required is fixed by the nature of the target and the time during which the concentration is needed."

As regards communications Major Davidson states: "The critics stress the fact that brigade fire control necessitates complicated and numerous communications, which, they say, are more liable to interruption than when each battery has the straightforward task of maintaining its one line to its O.P.

"Batteries will not normally be very far apart in mobile offensive operations, when much distribution in depth is not essential."

"Although all batteries should have their O.P.—Gun position lines, still the brigade O.P-C.P. is of paramount importance and

the principle of concentration on the main signal lines should apply to it."

"Surely the problem of keeping four batteries through to their O.P.s really does present great difficulties. With four such lines it will not be possible to divert mechanized vehicles from crossing one or more of them. It will happen too, that one or more battery's O.P. line may be cut so often that the battery will be unable to range in the short time available before the concentration has to be fired. A battery finding itself out of touch with its O.P. might try to get another battery to range it, but unless the inter-battery communications are working on the system demanded for brigade concentrations, this battery cannot hope to get onto another O.P. and range in time. With the brigade O.P. control telephone system, the control officer will know if one battery is "*dis*" and if time is short he can order the necessary distribution of fire to other batteries or fill the gap with a superimposed battery. Thus the great risk of a gap in the concentration is avoided. Admittedly if communication with the control O.P. is continually broken a serious state of affairs may arise, as the Brigade Commander has put "all his eggs into one basket." On the other hand by concentrating on this one O.P. line by means of duplicate lines, laddering, and an alternative visual line, communication should be amply secure."

"Officers who point to the wonderful results of battery controlled fire during 1914 might be described as the crude participators in the vulgar artillery brawls in which easy targets of great depth and breadth were mown down. With the advent of masses of machine guns and light automatics such simple Infantry targets may seldom again be presented."

The great thing to realize is that these systems (brigade control) are still in their infancy in mobile operations, and are capable of great development, and that their sole object is to assist and improve the production of fire effect.

In his article **"Guns or Howitzers?",** Captain C. A. P. Murison, M.C., p.s.c., p.a.c., R.A., brings out the advantages and disadvantages of each, but he apparently favors the guns. He asks "Why this popularity of the Howitzer? Is it based on unfortunate

experiences at practice camp with 18 pdr. shrapnel? On wartime recollections of the Howitzer battery tucked away in a ravine while its brother gun battery remained immodestly exposed because of some intractable crest? Or is it based on an appreciation of the needs of the other arms? In short, does the case for the Howitzer rest on technical or tactical arguments?

"Certainly with equal mobility and handiness in action, the Howitzer is superior to the gun in shell power, life and ease of concealment. The gun has the advantage in range and rapidity of fire, and there is little to choose between them as regards accuracy. The gun can fire both shapnel and high explosive; the 4.5" Howitzer, on the other hand, is unsuitable for firing shrapnel. The ultimate decision as to choice of weapons must rest, however, not on technical advantages but on tactical requirements.

"From a tactical point of view a consideration of shell power cannot be divorced from the purpose for which the shell is intended. If the shell is to be used for the destruction of cover or for the formation of smoke screens obviously the big shell will give better results than the small; if on the other hand the shell is to be used to support or repulse an infantry attack there are other factors to be considered.

"The danger area is one of them: so long as infantry is the principal assault arm, some form of timed artillery programme will be necessary to neutralize the fire of the large number of concealed machine guns and light automatics to which they will inevitably be exposed. The effectiveness of this timed programme will largely depend on how close the infantry can approach to the artillery fire. Consequently a shell having a small danger area, so far as our own troops are concerned, is essential. Through this condition can be met by the 18 pdr. firing shrapnel, it cannot be satisfied by the Howitzer firing high explosive.

"Another factor is stopping power: in spite of its large danger area from the point of view of our own troops, the effect on advancing enemy infantry of the Howitzer shell filled with high explosive is comparatively local. Though quite capable of killing one man several times over, it is unsuitable for killing a large number of scattered men at once—the main requirement of a

shell when used against an infantry attack. In fact, the 18 pdr. with its higher rate of fire is, whether firing shrapnel or high explosive, better suited to stopping infantry in the open than the Howitzer.

As regards screening effect: "No one will dispute that the screening effect of the bigger shell is better than that of the small; and, in the case of smoke, the 4.5" shell is incomparably better than the 18 pdr. So much so, in fact, that under suitable conditions for smoke one Howitzer battery is quite capable of screening the frontage normally allotted to an artillery brigade (battalion) in the attack. The use of smoke however raises another question. In supporting an attack is it better to subdue enemy fire by destroying or driving off the personnel producing it, or merely to rely on concealing their target? The answer must be that it depends on the target. Without in any way denying the advantages of smoke, it must be remembered that smoke does not prevent the enemy firing his weapons, and if his fire plan has been well co-ordinated there is no reason why he should not be able to inflict heavy loss on advancing infantry in spite of smoke screens, if left free to use his weapons. On the other hand, if the attack is being carried out by tanks, which, by virtue of their armour, have nothing to fear from small-arm fire, smoke screens may provide all the support necessary, since tanks are mostly in danger from a few well-concealed anti-tank weapons depending for their effect on being able to bring direct aimed fire on to specific targets. Its value as a smoke-producing weapon might settle the argument in favour of the Howitzer if tanks are to be the main assault arm, but this is still a question for the future."

"Another advantage of the Howitzer—ease of concealment—has reference of course to concealment from ground observation. Whatever benefits this confers during the very mobile phase of warfare disappear as soon as a pause in the operations affords the enemy an opportunity of developing his counter-battery organization. In these days of air photography, sound-ranging and flash-spotting only an ostrich would be really convinced of the Howitzer's greater security from discovery."

"The next point to be considered is rapidity of fire. It can be

argued that the rate of fire of the Howitzer is sufficient to meet all normal demands for artillery support—but this is not enough. If the artillery is to give effective support to the other arms, it must be capable of meeting the abnormal demands of critical situations. It is then that the high rate of fire of the 18 pdr. is of inestimable value, providing, as it does, an ever-ready reserve of fire power."

"Owing to the heavier projectile fired, the tonnage of ammunition expended will be considerably increased, more transport will be required for its conveyance, and the already over-burdened roads behind the front will be subjected to an additional load. This may prove the last straw. If it does, then instead of mobility, there will be congestion, immobility and chaos."

In discussing the possibilities of a new gun-Howitzer, Captain Morrison says:

"At the present moment a discussion of the merits and demerits of this weapon must be largely academic, for though it is permissible to hope that it may replace the present Howitzer it is difficult to imagine an event more improbable, under existing conditions, than the complete re-arming of the divisional artillery."

In his article, **"Changes in Field Service Regulations,"** Captain (Bt. Major) J. N. Kennedy, M.C., R.A., states:

"Another very general criticism of the old Field Service Regulations was that they were not definite enough. The seeker after truth would read one sentence and think he had got a definite line from it, only to find that the next might begin "On the other hand, however, . . ." and proceed almost to contradict what had gone before. Or he would discover, on looking up a knotty point, that 'the action to be taken depended on the factors involved,' which did not help him much. It is to be noted that a very great deal has been done in the 1929 edition to give more definite guidance wherever possible, and very many if not all of the old platitudes have been cut out. In reading the new regulations it is to be borne in mind, however, that although it is possible to be definite about many things in war, a great many more cannot be reduced to rule of thumb. As someone has very aptly said 'Manuals are meant to be a handrail and not a handcuff.'

"In the five chapters which deal with the various phases of the battle, the gunners have the advantage of having been ahead of the old Field Service Regulations, Vol. II. Practically all the references in these chapters to the action of artillery in battle have been reproduced from the 1928 edition of Artillery Training, Vol. III, which of course had just been published when the revision of Field Service Regulations, Vol. II was taken in hand. It is, however, necessary to study Field Service Regulations in order to obtain a complete picture and to understand the action of all arms in co-operation.

"In Sections 23 and 40 the influence of the artillery in the approach march and in advance guard actions is emphasized more heavily than before. If opposition is encountered during an advance, the correct action is not to deploy more infantry but to bring up artillery and tanks. In Section 40 it is now stated that the whole of the divisional artillery may sometimes be brought into action to support a small advanced guard. If the main columns are not to be delayed in an action of this kind, the artillery must therefore be well forward in the line of march and must be able to put down co-ordinated fire quickly."

**France—Revue D'Artillerie, August, 1930**

General Faugeron's study of **the effect of long range artillery fire on tanks** brings out several interesting points. He makes a detailed study of the fatal and vulnerable areas on a tank and then calculates the probabilities of, first, destroying the tank, second, neutralizing the tank (putting it out of action temporarily). With ranges of 3,000 meters for the 75's, 4,200 meters for the 105 guns and 155 howitzers and 4,600 meters for 155 guns, with barrages lasting five or six minutes and a rate of fire of seven rounds per minute for the 75's, five rounds per minute for the 105's, and one and one-half rounds per minute for the 155's, and assuming that the tanks would make an attack on a 900 meter front through: (a) a barrage of the three battalions of 75's; (b) through a barrage of 75's augmented by the 105's and 155's organically assigned to the division. The probability that under conditions (a) a tank moving at the rate of *two* kilometers per hour will be hit is 18%, and under conditions (b) the

chances are 32.75%; or if it is moving at *three* kilometers the probability that it will be hit by the 75's alone is 12%, but if the 75's are re-enforced by the superimposed fires of the divisional 105's and 155 howitzers the probability is 22.785%.

Attacking in line with 50 meters interval, these probabilities would mean that six or seven tanks would be immobilized if they were attacking at a speed of two kilometers per hour, or four or five tanks would be immobilized if they were attacking at a speed of three kilometers per hour. Furthermore, if the usual corps fires were superimposed on these division artillery fires, nine or ten tanks would be immobilized if moving at two kilometers per hour and six or seven if moving at three kilometers per hour.

As regards ammunition expenditure, assuming that each of the three battalions of 75's fire 500 rounds and each battalion of 105's and 155's fire 360 and 108 rounds respectively, if the tanks were moving at two kilometers per hour we find that an estimated expenditure of ammunition to immobilize one tank would be 500 rounds for the 75's, 120 rounds for the 105's and 72 rounds for the 155's. However if these three calibers were fired simultaneously the average expenditure would be 200 rounds for the 75's, 40 rounds for the 105's and 45 rounds for the 155's. General Faugeron does not consider these expenditures in the least excessive in view of the cost of a tank and the necessity of immobilizing it.

General Faugeron's study and calculations are based on very slow rates of travel of tanks. The efficiency of offensive barrages against tanks drops off very fast as the speed of the tanks increases as witnessed by the probability of hits which General Faugeron gives for tanks moving at three kilometers per hour as compared with two kilometers per hour. General Faugeron's reference to the valiant tank attack made by Major Bossut which failed so disastrously in April, 1917, brings out the fact that with the speed of tanks at that time and with the heavy defensive barrages they had to traverse, it was quite natural that the hostile artillery was able to inflict devastating losses by means of normal defensive barrages.

**Revue Militare Francaise, August, September and October**

In **"Present Day Problems of Aerial Bombing,"** Colonel Aubé remarks that the material damage inflicted by bombing planes during the World War was frequently very slight. As an outstanding example he chooses the railroad station of Metz-Sablons. The Allies frequently bombarded this target during the war, but found it practically intact when they marched through Metz after the armistice.

Colonel Aubé continues: "It is questionable if the introduction of powerful fleets of bombers into battle would seriously modify the art of war."

In discussing the possibilities of present-day matériel, he presents the following facts: "In the present technical state of aviation, it is wrong to use bombing planes against narrow targets such as marching columns, railroad tracks, bridges, etc. . . .

Bombs, released without initial velocity, from the highest altitudes, strike the ground at a velocity of not over 300 meters a second. As a result, the capacity for penetration of the bomb is inferior to that of the artillery projectile. This is a very important point. Because of this, bombing planes are very ineffective against well protected targets, such as dugouts. On the other hand, since the metal shell of the bomb is much thinner than the shell of the artillery projectile, there is a greater proportion of explosive material in the bomb. For this reason the bomb is the best weapon against targets which offer little resistance: houses, barracks, hangars, etc."

In trying to arrive at a somewhat approximate conception of the probable error of bombs, as compared to artillery projectiles, the author states: "Bombing executed in time of war, with a large number of bombs, with present matériel, under normal conditions (training of personnel, state of atmosphere, altitude, calibre of bombs, enemy defense, etc. . . .) should give 50 per cent hits on a clearly visible objective, 400 meters long and 200 meters wide. The other 50 per cent of the bombs should be grouped around this rectangle following a law somewhat similar to that governing the dispersion of artillery projectiles. We see by this that aerial bombardment is not yet very accurate

and that the destruction of any type of objective will always require a relatively large amount of munitions."

Another picture of the relative effect of bombs and artillery projectiles may be found in a study by General F. Marie. He states that the dispersion of bombs is comparable to the dispersion of artillery firing on a target at a range of 15 kilometers. At shorter distances artillery is more accurate.

"The above statistics authorize us to conclude that aviation in its present state is not suitable for precision fire. Also, to avoid useless loss of personnel and matériel, its action should be limited to targets whose dimensions are at least several hundred meters."

As another comparison, we may remember that a battery of 155 mm. guns fires two rounds per minute, and if we allow two hours for the flight of a bombing expedition, we arrive at the conclusion that the destruction caused by a regiment of aviation is comparable to that caused by two batteries of 155 mm. guns.

As a result of these statistics, Colonel Aubé concludes that "The rôle of aviation is not to superimpose its fire on that of the artillery and the infantry, but to prolong their action.

"However there should be an exception to this rule: in the case of pursuit of an enemy in retreat, aviation can contribute greatly to decisive success in augmenting the panic of an enemy already in flight. However, this is an exceptional task for aviation and it is only rarely that it should intervene in the zone alloted to the artillery.

"Nevertheless, many numerous and appropriate objectives remain for aviation bombers: troop concentrations, unprotected supply depots, cantonments and bivouacs, aviation fields, large railroad stations, and factories."

In the August number, Commandant Peyronnet and Captain Jousse conclude the article, **A Study of Mountain Warfare in North Africa,** by comparing modern methods of mountain warfare in the present campaign with those employed in the Moroccan campaign of 1840:

"As in the days of Berwick, the form of maneuver remains the same: Multiply the columns by using all possible roads, each

column progressing as much as practicable by the crests and assuring the protection of its flanks. Each column is given, not only an objective and a direction, but also a mission, in order that the subordinate commander, often left to himself, may use his initiative.

"Each column must push on vigorously without thought of alignment. In this way the advances made by some columns assist the movements of the neighboring columns and permit the expedition as a whole to advance."

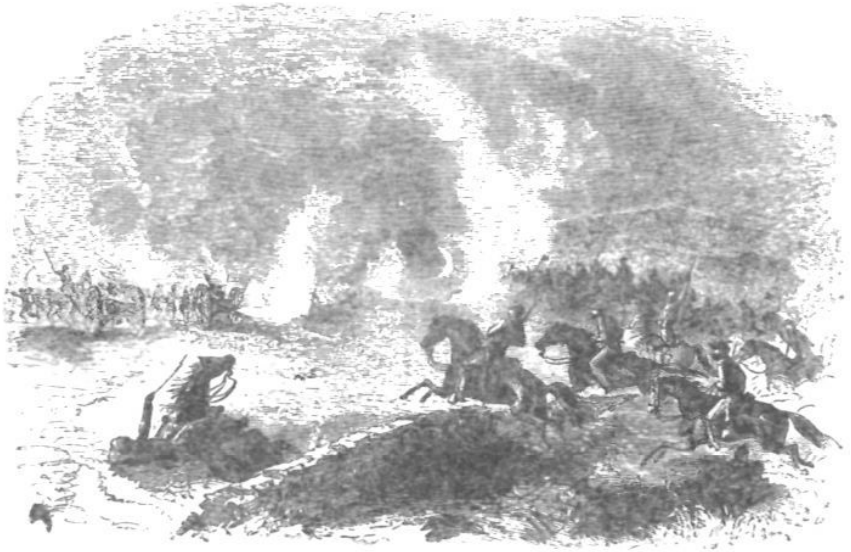
The present methods differ from those of 1840 in that:

"The variety and power of fire and the long range of modern artillery permit attacks on larger fronts, making possible reciprocal flanking actions, favorable to the general advance.

"However, modern features cause certain unfavorable conditions:

"Necessity of preliminary arrangement of complex organizations (communications, improvement of roads, supplies and munitions).

"The necessity of taking more precautions, at greater distances, against enemy fire."



# CURRENT FIELD ARTILLERY NOTES

## Fort Sill to Be Permanent Home of the Field Artillery School

The Secretary of War, Hon. Patrick J. Hurley, on December 10, 1930, approved a recommendation to have the Field Artillery School at Fort Sill, Okla., permanently.

A board of officers consisting of Brig. Gen. Wm. M. Cruikshank, Brig. Gen. L. H. Bash, Q. M. C., and Lieut.-Col. Wm. Bryden, F. A., was appointed in January, 1930, to examine and report upon the most suitable permanent location for the Field Artillery School. Fort Bragg, N. C., and Fort Sill, Okla., were the outstanding possibilities, both having extensive ranges and considerable permanent construction. Camp Knox, Ky., although good from the point of view of geographical location, would have required a tremendous amount of construction of a permanent nature and furthermore the reservation is much to small—only about 33,100 acres. The same applies to other army reservations such as Camp McCoy and Tobyhanna as well as to other places where Field Artillery firing is conducted. Other locations suggested were Jordan Narrows, Utah, and Brady, Texas.

Although Fort Bragg has a very large reservation (120,454 acres), the terrain is mostly covered with scrub oak, pine and sand and is not sufficiently varied for extensive Field Artillery training. Furthermore hard roads are lacking to a great extent and range facilities are practically non-existent. To install range facilities similar to those already at Fort Sill would cost $135,558. The location of the post at Bragg is at the smaller end of the pear-shaped reservation and most of the firing has to be done in an area about twelve miles from the post. The visibility is often poor on account of fogs.

The principal objection to Fort Sill as a permanent home for the Field Artillery School has been that the firing ranges were not large enough. The Sill reservation is about 14 by 6 miles, comprising 51,292 acres. However, the Wichita National Forest and Game Preserve (61,640 acres), adjacent to the military reservatio, is available and forms an excellent training ground for Field Artillery troops, except for firing. Arrangements are being

made to increase the size of the Fort Sill reservation by expending about $100,000 to acquire two new pieces of land: the first, a triangle of about 944 acres east and south of the Frisco railroad, contains the old Indian cemetery; the second piece contains about 1,817 acres and runs along the north of the Sill reservation to the west from the Rock Island railroad, past Apache gate, includes the whole of Rabbit Hill and extends as far west as Medicine Creek in the neighborhood of the Fish Hatchery just below Medicine Park.

At the same time that these new areas are being acquired, arrangements will be made to sell a triangular area of the present reservation to the west and north of the Frisco railroad tracks, usually called Frisco Pasture. It was of little use to the School because service practice could not be done there on account of having to shoot across the railroad.

The Chamber of Commerce at Lawton has been of considerable assistance in helping the government to acquire new plots of land, and altogether there are some twenty to twenty-five land owners involved in the purchase of these areas.

Although the matter of acquiring still more land west and south of the reservation has received careful consideration it has been decided that no action to obtain areas other than those referred to above will be taken at this time.

The total comparative cost of installing the school permanently at Bragg would be approximately $1,813,000 greater than at Sill and it has been figured that the maintenance of the School at either of the two posts would be about the same.

**Brigadier General Wm. S. McNair**

The President, upon the recommendation of the Secretary of War, on December 18, 1930, forwarded to the Senate the nomination of Col. Wm. S. McNair, F.A., to be Brig. Gen. vice Brig. Gen. G. C. Barnhardt, deceased. General McNair has been in the Artillery Corps and Field Artillery ever since his graduation from the Military Academy in 1890, and served in China, the Philippines, on the Mexican border and in France. He was in command of the 1st Division F.A. Brigade and the 151st F.A. Brigade as Brigadier General. As a Major General

he became Chief of Artillery, I Corps, and later Chief of Artillery, First Army. Since January, 1929, he has been in command of the 6th F.A. at Fort Hoyle, Md., and is a member of the Executive Council of the Field Artillery Association.

**No Changes in the Uniform**

It was stated informally at the War Department recently that those who have approached General MacArthur, the new Chief of Staff, with various recommendations looking to changes in the uniform, have been told that there will be no changes during his tour as Chief of Staff; that he feels that the younger officers especially, who are struggling along with very modest pay, should be relieved of any anxiety which comes from the thought that they may be called upon to fit themselves out with blue uniforms or further changes in the olive drab uniform.

**Cotton Uniforms of New Cloth to Be Manufactured**

For some time past, the Army has been endeavoring to develop an olive drab dye which would be permanent in the manufacturing of cotton cloth for enlisted men's uniforms, and in this effort the leading chemists of the country have been cooperating with the Quartermaster Corps. The solving of this problem would result in all such uniforms conforming to the prescribed standard color and without variation in shade as between individual uniforms or among groups of clothing worn by troops. After experiments and tests continuing over several years, it was found to be impracticable to obtain an olive darb dye that would meet requirements and be satisfactory. In the thorough study of the matter, however, a khaki colored cloth has been developed, which achieves the object. The process of manufacture of this kind of cloth has been worked out by the Philadelphia Quartermaster Depot in consultation with the authorities of the Philadelphia Textile School. It is made of a two-ply yarn for both warp and filling, as a result of which the cloth will retain the dye better than a one-ply yarn, and will keep its shape without being starched, while shrinkage is reduced to a minimum. Before being subjected to the dye, the cloth is mercerized, which adds greatly to its appearance. The cost of this cloth is less than similar cloth of the olive drab color.

With a view of making an extended and practical service test of this khaki cloth before its final standardization for the Army, the Secretary of War approved of the manufacture of the necessary quantity of uniforms made of this cloth to distribute a number to the field for actual test. This test was made and reports have been received from which it has been determined that the test demonstrated the superiority of this cloth, and the recommendation of the Quartermaster General that the new cotton khaki cloth be adopted as the standard for the Army has been approved by the Secretary of War. Under this authority, the Quartermaster General, Major General John L. DeWitt, has taken steps to procure the material and manufacture 165,000 uniforms for which funds are available and which will be utilized at once as part of the policy of the Government to apply such expenditure in the interest of unemployment. These uniforms, which will have coats of the roll collar style, will, it is contemplated, be worn by men on pass, at ceremonies, and on special occasions only. The details of the distribution of these uniforms have not yet been determined.

**Collection of Field Artillery Coats of Arms**

On the walls of the Chief of Field Artillery's office, Munitions Building, Washington, D. C., there is a collection of coats of arms of Field Artillery units. The collection contains all Regular Army Field Artillery coats of arms, but so far there is only one from a National Guard regiment and three from Organized Reserve regiments. It is desired eventually to get the coats of arms of all Field Artillery units. The twenty-nine coats of arms that have already been received are brightly colored, in frames about 10¼″ × 12¾″ and present a most pleasing effect.

The latest coat of arms to be received was from the 331st Field Artillery. It was sent in by Lieut.-Col. Edward N. Wentworth of that regiment. The 331st Field Artillery was organized at Camp Grant, Ill., in 1917 as a unit of the 86th Division and served overseas with it. After the war the 331st Field Artillery was disbanded, but in February, 1922, it was reconstituted as a part of the 86th Division, Organized Reserves, with headquarters in Chicago. The motto of the 331st Field Artillery

is *Fecimus et Facimus* (we have achieved, we do achieve). The field is red for Artillery, the pairle is taken from the arms of Chicago and represents the Chicago River and its two branches, but is reversed, because the Chicago River at present flows backwards because of the operation of the Drainage Canal. There is also a gold badger to indicate that most of the war-time personnel came from the state of Wisconsin, a gold lion's face from the arms of the Province of Guienne and a fleur-de-lys, both in commemoration of service in France.

### Japanese Officer to Be Attached to F. A. Unit

Captain Kenryo Sato, Field Artillery, Imperial Japanese Army, has been in this country for several months as a Language Officer. He will be attached to the 2nd Field Artillery Brigade, Fort Sam Houston, Texas, for six months, beginning January 1, 1931. He will leave Washington on December 9th and motor to Texas to join this organization.

### Churching the Colors

On Sunday, November 9th, preceding Armistice Day, the ceremony of "Churching the Colors" was held at the Church of the Redemption, in Philadelphia, Under the leadership of Capt. Oliver R. Parry, 304th Engineers, 79th Division. Approximately 150 men and women in uniform participated in this impressive ceremony. This ceremony is an ancient custom, particularly in France and England, and to the best of our knowledge is rarely celebrated in the United States. The following organizations were represented at this service:

108th Field Arty., 28th Div.
79th Division Headquarters
154th Field Arty. Brigade
304th Engineers, 79th Div.
305th Cavalry Reserve
315th Infantry, 79th Div.
Military Order of Foreign Wars
Military Order of World War
McCall Post, American Legion
Ben. Franklin Post, Amer. Legion
Yeowomen & Nurses Post, Amer. Legion.

### Selection of Students for Command and General Staff School

The Secretary of War has approved the policy for the selection of the students for the 1931-1933 Course at Fort Leavenworth, Kansas.

Numbers are apportioned as follows:

| | |
|---|---|
| Infantry | 51 |
| Cavalry | 11 |
| Field Artillery | 17 |
| Coast Artillery | 10 |
| Engineers | 5 |
| Air Corps | 10 |
| Signal Corps | 3 |
| Adjutant General's Department | 1 |
| Quartermaster Corps | 3 |
| Judge Advocate General's Department | 1 |
| Medical Corps | 2 |
| Ordnance Department | 2 |
| Chemical Warfare Service | 1 |
| To be selected by the Secretary of War | 10 |
| Total | 127 |

Officers are to be selected from those with a general efficiency rating of at least "excellent," must be above the grade of First Lieutenant, and less than 50 years of age. No officer less than 42 years of age will be selected who has not graduated from the special service school of his arm.

Graduates of special service schools will normally be required to serve at least two years after graduation before being eligible for the Command and General Staff School.

Chiefs of Arms and Services will submit names of officers selected not later than February 1, 1931.

In addition to the Army, three officers of the Marine Corps are usually detailed to take the course.

**Selection of Students for Army War College**

The Secretary of War has approved the policy for the selection of the students for the 1931-1932 Course at the Army War College.

Numbers are apportioned as follows:

| | |
|---|---|
| Infantry | 22 |
| Cavalry | 8 |
| Field Artillery | 8 |

| | |
|---|---|
| Coast Artillery | 8 |
| Air Corps | 4 |
| Engineers | 4 |
| Signal Corps | 1 |
| Adjutant General's Department | 1 |
| Quartermaster Corps | 2 |
| Judge Advocate General's Department | 1 |
| Finance Department | 1 |
| Medical Corps | 2 |
| Ordnance Department | 2 |
| Chemical Warfare Service | 1 |
| To be selected by the Secretary of War | 10 |
| Total | 75 |

Qualifications for selection are as follows:

Efficiency rating of at least "Excellent";

On General Staff Corps Eligible List or graduate of Army Industrial College;

Less than 54 years of age;

Above grade of Captain.

Graduates of the Command and General Staff School will normally be required to serve at least two years after graduation before being eligible for the War College.

Chiefs of Arms and Services will submit names of officers selected not later than January 15, 1931.

In addition to Army officers, the Navy and Marine Corps send several officers each year to the War College.

**New Uniforms for R. O. T. C. Units.**

The difficulty of properly equipping the twenty Field Artillery R.O.T.C. units with suitable uniforms has been considerably lessened this year by the issue of the new type roll collar uniforms made by the Quartermaster Depot at Philadelphia. Until this year the basic course students were issued left-over uniforms from the World War which caused unfavorable comment on account of the old type standing collar, rough material and poor fit.

In some R.O.T.C. units the advanced course (usually juniors and seniors) students draw commutation money which they use for uniforms instead of drawing uniforms from the Government. Some R.O.T.C. units have gray uniforms, and others like Virginia Military Institute have their own types. The advanced course students have more costly uniforms than the basic course students, who are usually freshmen and sophomores, the former wearing Sam Brown belts, boots and other equipment similar to officers. The advanced course students, however, are given an additional allowance for the purchase of their uniforms.

## Organization of the Office of the Chief of F. A.

| | |
|---|---|
| Chief of Field Artillery | Maj. Gen. H. G. Bishop |
| Executive | Lieut. Col. Wm. Bryden |
| Personnel | Lieut. Col. T. D. Osborne |
| | Capt. B. M. Sawbridge |
| Intelligence | Maj. J. M. Eager |
| Training | Lieut. Col. D. C. McDonald |
| | Maj. M. Magruder |
| | Maj. J. L. Devers |
| Materiel-Finance | Maj. A. W. Waldron |
| | Capt. A. F. Kibler |
| | Capt. Wm. C. Dunckel |
| Operations—War Plans | Maj. J. K. Boles |
| Chief Clerk | Master Sergeant Fred T. Lind. |

# THE FIELD ARTILLERY HORSE SHOW TEAM

BY 1ST LIEUTENANT R. L. TAYLOR, F. A.

THE Field Artillery Horse Show Team since the first of July, 1930, has been a section of the Department of Animal Transport of the Field Artillery School. The team was originally organized in 1927 under Major C. P. George, F. A., for the primary purpose of training officers and men of the Field Artillery to supply a Field Artillery quota to the Army Horse Show Team, particularly for the Olympic Games to be held at Los Angeles, California, in 1932.

The following-named officers are on duty with the team: 1st Lieut. Edwin Y. Argo (team captain), Capt. Hugh B. Hester, Capt. Horace Harding, 1st Lieut. James M. Collicutt, 1st Lieut. LeRoy J. Stewart, 1st Lieut. Robert L. Taylor.

The Fall season of horse shows supplied the team with a heavy schedule. The team was reorganized at Fort Sill, Oklahoma, on July 1st, 1930, under the captaincy of 1st Lieut. Edwin Y. Argo, who then had just completed a year's detail as a student at the Italian Cavalry School. The other members of the team have joined since that date. With the assistance of the organization previously built up by the former team captain, Major C. P. George, Lieutenant Argo immediately began preparations to participate in the Fall horse shows.

The problem of finding a sufficient number of horses capable of the performances required was not easily solved. Many "promising" horses assigned to The Field Artillery School and to School Troops were tried out and those found to be the best were given the maximum schooling that time would permit. Private mounts generously loaned to the team, particularly the two hunters owned by Mrs. D. S. Rumbough, were invaluable.

The first horse show in which the team participated was that of the Oklahoma State Fair and Exposition at Oklahoma City, September 22d to 26th, 1930. This show did a great deal to season mounts and riders for the more strenuous tests of later shows. Competition was not particularly keen, but it was sufficient to require hard riding. In five hunter and jumper classes only two

# SOME OLYMPIC PROSPECTS

**"TIMBER CRUISER"**
LIEUT. J. M. CALLICUTT, UP

**"THE WOP"**
LIEUT. E. Y. ARGO, UP

**"CHANDLER"**
(MRS. D. S. RUMBOUGH, OWNER)
LIEUT E. Y. ARGO, UP

**"THE WOP"**
AND LIEUT. E. Y. ARGO

**"INDIGO"**
CAPT. HORACE HARDING, UP

**"LUCIUS II"**
LIEUT. R. L. TAYLOR, RIDING

places were lost to competitors, fourth in the light weight hunter class and third in one open jumping class. The officers riding hunters and jumpers were Lieutenants Argo, Callicutt and Taylor. The only spectacular performance occurred on the last night of the show when The Wop and Triangle were tied for first place in an open jumping class of six jumps at four feet four inches. Merely as a sporting proposition the jumps were raised to four feet nine inches for a jump-off. Both horses went clean again, and by mutual agreement Triangle was awarded the blue.

Five polo ponies were taken to Oklahoma City. Capt. G. D. Wahl rode his two private mounts and Lieutenant Stewart showed the three government ponies.

The horses taken to the Oklahoma City horse show were as follows: Ali Baba, Barrage, Beachlight (polo pony), Chandler (owned by Mrs. D. S. Rumbough), Drummer Boy, Jack (Battery "B," 18th F. A.), Johnnie Walker, Murray Wilson (Service Battery, 1st F. A.), My Mistake (polo pony of Capt. G. D. Wahl), Nigger (Battery "B," 18th F. A.), Pappy Weeks (owned by Major G. M. Peek), Rose Bank (polo pony of Capt. G. D. Wahl), Southern Gold (owned by Mrs. D. S. Rumbough), Tiffany (polo pony), Timber Cruiser (owned by Lieutenant Argo), The Wop (owned by Lieutenant Argo), Triangle, Verdict (polo pony and light weight hunter).

After the Oklahoma City show the team returned to Fort Sill and continued preparations for the Ak-Sar-Ben (Omaha, Nebraska, November 1st to 7th), the Kansas National (Wichita, Kansas, November 10th to 13th) and the American Royal (Kansas City, Missouri, November 15th to 22d).

Heavy competition was expected and found. Six horses, including Boomerang and Rollo Reed of the Sunset Farm Stables, belonging to Mrs. Mary C. Llewellyn of River Forest, Illinois, were outstanding among the civilian competitors at Omaha and Wichita. The Harry Gorham stables, with The Niece as an outstanding performer, added to the competition at the Kansas National and were consistently in the money at the American Royal. The Sifton horses from Toronto, Canada, and the Augustus A. Busch hunters and jumpers from St. Louis, Mo., were

easy winners of blues particularly in conformation classes at the American Royal, and army officers from Fort Leavenworth were strong competitors in the jumping classes.

The members of the team who participated in these shows were Captain Harding and Lieutenants Argo, Callicutt and Taylor. The horses which were taken on the trip were: Barrage, Chandler, Drummer Boy, Indigo, John Lucas, Johnnie Walker, Murray Wilson, Peat Moss, Skyrocket, Southern Gold, Timber Cruiser, The Wop, Triangle.

Chandler and Southern Gold were consistent winners in hunter classes. Their conformation and increasingly brilliant performances make them outstanding hunters in any show. Peat Moss, a young horse, sired by K of K, and foaled at Fort Robinson, Nebraska, in 1925, did exceptionally well in the hunter classes.

The Wop was the big money winner. With a very spectacular performance over four post and rail jumps, four feet six inches high, twice around, he won the Thousand Dollar Hunter and Jumper Stake at Omaha. Over a similar course in the Thousand Dollar Stake for Jumpers at the American Royal he was tied for first place with The Niece, owned by Mr. Harry Gorham, and with two other horses. The jumps were raised to five feet. The Niece won first place with one hind tip; The Wop, getting a very light hind knock down, took second.

John Lucas was ahead with total number of places won: four firsts, one second, and four fourths (two fourths were ties for second place without jump offs). A first and second were good for thirty-five per cent of the Touch and Out Stake at Omaha.

Drummer Boy covered himself with glory at Kansas City by winning the triple-bar jump which ended at four feet six inches high with twelve feet spread. He was a remount for the Battery Officers' Class last year.

Practically all arrangements for the team at Omaha were made by Major M. G. Randol, Field Artillery, on duty at Headquarters Seventh Corps Area. Due to his influence ten extra hunter and jumper classes were added to the program of the Ak-Sar-Ben Horse Show. This alone contributed a great deal towards the financial success of the trip.

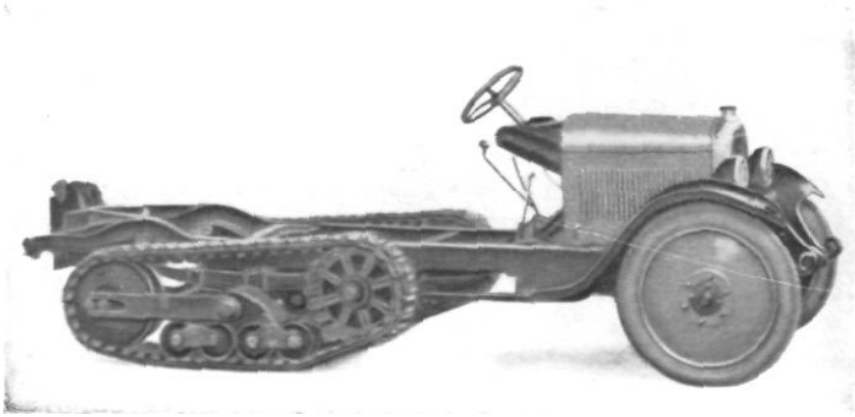
The team is now preparing sixteen horses for the Military Championship and fourteen for the Prix des Nations events. It is hoped that they will give a good account of themselves when the time comes for the selection of horses and riders for the 1932 Olympic Games.

"BONNIE GREY," MAJOR JOHN A. CRANE, DIRECTOR OF DEPARTMENT OF ANIMAL TRANSPORT, UP

# TESTS OF MECHANICAL PRIME MOVERS

THE trend of development toward the all-purpose gun carriage and the requirement for increased maneuvering speeds give added importance to the question of a suitable mechanical prime mover for each type of Field Artillery. An additional factor entering into the matter is the present rate of decrease in the number of horses in the United States.

Up to the present time, tests made of mechanical prime movers have resulted in the standardization of the Caterpillar Twenty, Thirty, and Sixty tractors as prime movers for light, medium, and heavy field artillery, respectively. There are also in commercial production today prime movers of varying types which are capable of speeds around

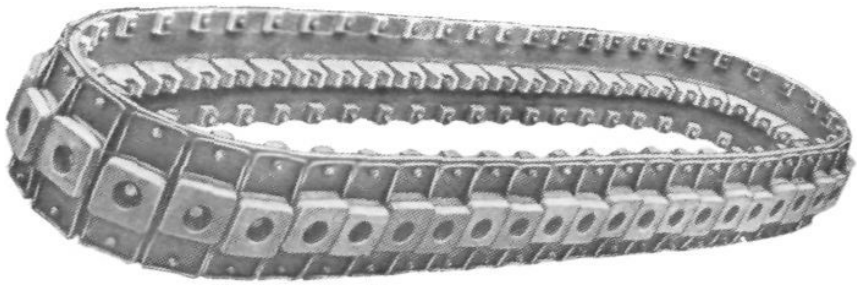


**CITROEN-KEGRESSE CHASSIS (HALF TRACK TRACTOR)**

25 miles an hour. These include wheeled vehicles, track laying vehicles, and vehicles of the convertible wheel-or-track laying type. Tests made by the Field Artillery have not embraced a sufficient variety of these modern prime movers to determine which type is best suited to our needs. Some officers believe the answer is to be found in the multi-wheel multidrive truck with a convertible half-track feature, while others think this type of vehicle is too large, lacks maneuverability, and does not have the necessary cross-country ability. There are those who believe that only a vehicle of the

full-track tractor type has sufficient tactical mobility. Some advocate the Christie type of convertible track laying or wheeled vehicle. The desirability of having a single type of prime mover which will meet the requirements for both tactical and strategic mobility, thus eliminating portée artillery is obvious.

The question of the most suitable type of prime mover can be determined only by a comprehensive program of tests, embracing all types of vehicles, and having due regard to questions of tactical and strategic mobility, ratio of pay load to total load, road space, and the difficulties of maintenance in service and of procurement in case of war. If the type of vehicle having the characteristics found to be necessary for the Field Artillery is not in commercial production, then such a vehicle should be developed, utilizing standard



**KEGRESSE TRACK WITH RUBBER TREADS**

commercial unit assemblies in so far as is practicable. When and if such a vehicle is developed it is believed there will be a commercial demand for it. The Government could well afford to spend some money in influencing the trend of commercial development toward the type of prime mover best suited to military uses, just as it has spent money in fostering the breeding of the best type of horses.

It is therefore proposed to carry out a program involving the test of the following types of prime movers by the Field Artillery Board:

1. Wheeled vehicles:
    a. Four wheel, four wheel drive truck.
    b. Six wheel, four and six wheel drive truck.

2. Vehicles of convertible track-or-wheel type:
   a. Six wheel, four wheel drive truck with convertible half-track feature. This is the truck used as prime mover with the T-3 mount.*
   b. The Christie type of convertible full-track tractor.
3. Vehicles of the track laying type:
   a. The Citroen-Kegresse half-track tractor.
   b. The full-track tractor under development by the Ordnance Department.

The Field Artillery Board now has under test vehicles of the type listed under 1, above, and one additional vehicle of each of these types will be supplied to the Board during the current fiscal year.

One vehicle of the type listed in 2-a, above, will go to the Board with the T-3 gun carriage and a second one will be sppplied to the battery with the Mechanized Force.

**ORDNANCE DEPARTMENT TRACK DEVELOPMENT CHASSIS**

A vehicle of the type listed in 2-b, above, is now being produced by the Ordnance Department as an Infantry machine gun carrier. This particular vehicle is much heavier and larger than is necessary for a prime mover for Field Artillery.

*See illustrations on page 251 of May-June, 1930, and pages 667, 668, 670 of November-December, 1930, FIELD ARTILLERY JOURNAL.

One vehicle of the type listed in 3-a is being purchased by the Ordnance Department and will be tested by the Field Artilery Board as a prime mover for the 75 mm. pack howitzer used as an accompanying gun, and for the 75 mm. gun, Model 1897.

Three vehicles of the type listed in 3-b are being supplied to the battery with the Mechanized Force. One of these, known as the Track Development Chassis, is used as a self-propelled mount for the 75 mm. pack howitzer. This vehicle is said to have the best type of track assembly that has ever been developed. One vehicle known as the Light Cargo Carrier T-1 E-1, is used as a wire vehicle, and a second one is used as an ammunition carrier. All three of these vehicles will be available later for test by the Field Artillery Board. In their present form they are believed to be much too heavy and too high. It is believed that this type of vehicle can be reduced to the approximate dimensions and weight of the Carden-Loyd tractor which is only about four feet high and weighs about 2½ tons.

The Ordnance Department has been requested to build a vehicle of the Christie type of convertible full-track tractor, and also a vehicle of the type of the Track Development Chassis, of suitable weight, size, and other characteristics for a prime mover for light Field Artillery.

The following specifications have been set for these vehicles:

Weight:—not over 3 tons.
Total load capacity:—3 tons on one axle.
Maximum speed with full load on good roads: 20 mph on tracks, 30 mph on wheels.
Mileage on full gasoline load:—100 miles.
Climbing angles on tracks:—without load, 45°; with full load, 20°.
Maximum dimensions:—Length overall—12 feet,
Width " — 5 feet,
Height " — 4 feet.
Depth of water that vehicle can ford:— 2½ feet.
Carrying capacity:—Driver and two men.

# KOLE KOLE AGAIN

The following letter from Capt. John C. Cook, 1st F.A., has just been received:

"Having read the articles in the last two issues of THE JOURNAL relative to the crossing of Kole Kole Pass by a Battery of Field Artillery, I became inquisitive, particularly after the suggestion that a Battery of the 1st Field Artillery might have been the first one to effect the crossing.

As Battery Commander of Battery "F," 1st Field Artillery, I searched the old records and found the pertinent information in an old history of Light Battery "D," 5th F.A., later the 9th Battery, F.A., and still later Battery "F," 1st Field Artillery (1907).

An extract from the history follows:

'During the months of January, February, March and April, 1911, the Battery performed the usual garrison duties. On May 27, 1911, the Battery marched to Ewa Plantation, via Kole Kole Pass, being the first Battery to march through said pass.'

A photostatic copy of this extract can be furnished if desired.

The Battery was then under the command of Capt. Albert U. Faulkner. 1st Lieut. Waldc C. Potter was also a member of the organization.

As the history indicates that Battery "F," 1st F.A., was the first regular field battery to be stationed on Oahu, arriving at Schofield Barracks on November 15, 1910, it hardly seems possible for an earlier claim to this distinction to be submitted.

Battery "F," 1st F.A., would be indeed glad to see their claim appear in print in THE JOURNAL, and if not authentically contradicted, to receive the proper recognition for this exploit."