

ORDNANCE

# Army Service Rifle May be Replaced by Semi-Automatic

## Two Models Now Undergoing Strenuous Government Test; Survivor is Expected to Improve Recruit's Marksmanship

**W**ITHIN a few months the present U. S. Army service rifle, which has been standard for 28 years, may be abandoned. Along with it, a part of the manual of arms, that phase of army life holding great terror for the new recruit, will pass out of existence.

But there will be a new gun, and a new manual of arms. The new gun, if it satisfactorily passes tests to which it is now being put, will be a semi-automatic rifle, the development of which has seemed imminent for half a century. In spite of the fact that the invention of a satisfactory semi-automatic rifle has for years been thought to be just around the corner, one that fully measures up to the Army's high standards has never been made—unless it be one of the two guns now being given a gruelling final test of severe usage. It is expected that reports on these tests will be issued during the next few months, which, if satisfactory, will result in the adoption of a new army rifle and along with it a somewhat changed manual of arms to take care of the gun's new features.

### Chosen from Dozen

One of the two types now being tested was developed by J. D. Pedersen, inventor of the Remington pump shotgun and a number of important arms devices, while the other was made by John C. Garand, who has designed models of great promise for the government. From nearly a dozen models submitted, these two guns were chosen for final tests and twenty of each were sent different branches of the service to be tried out along with the present rifle so that the officers could determine exactly how they would operate and stand up under stress.

If one of these guns is not adopted in its present form, it is likely that it will be returned to the inventor with suggestions for improvements. Whatever their fate, officers generally consider the Garand and Pedersen rifles to

be superior to any semi-automatic pieces they have seen enter tests.

Advantages of the semi-automatic rifle are explained by Major Julian S. Hatcher, of the Ordnance Department, in a report to the American Society of Mechanical Engineering. Major Hatcher first describes the gun now in use.

"The present army rifle," he says, "is what is known as a magazine or repeating rifle. The gun has a magazine in which five cartridges are placed. After one cartridge is fired the mechanism of the rifle is operated by hand, and this manual operation results in ejecting the old cartridge and feeding five live cartridges into the chamber ready to fire.

"The mechanical operation of the gun cannot be performed without considerable muscular effort on the part of the soldier, with resulting motion which is very likely to appraise the enemy of his position. At the very best, the result of this muscular effort is that it causes the soldier to lose his line of sight.

"The self-loading automatic rifle is one that uses part of the energy in the

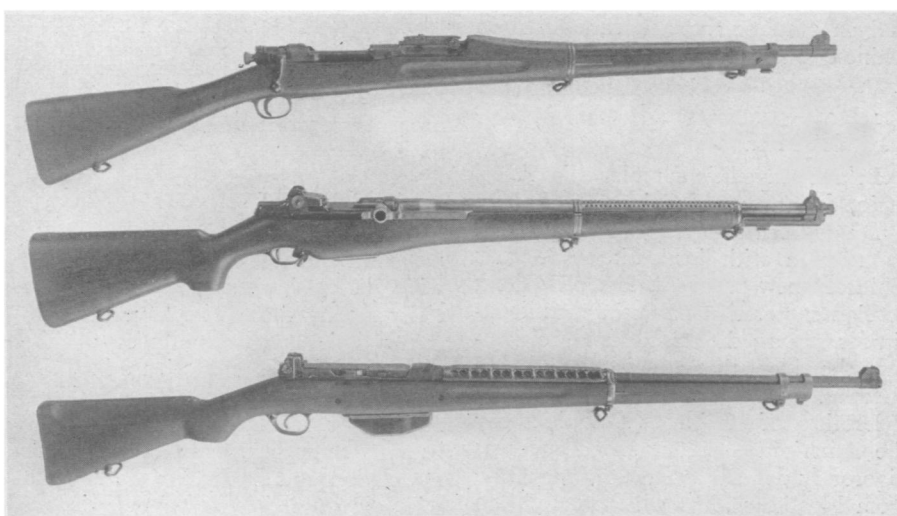
cartridge to perform these mechanical operations as soon as the trigger is pulled.

"One of the greatest difficulties in training raw recruits to handle a rifle properly is teaching them to smoothly and rapidly execute the motions necessary to throw out the empty cartridge case and put the new cartridge in. If part of the surplus power of the gun is utilized to do this job automatically, it simplifies the training problem; moreover, it renders the user of the rifle more effective because, once having located a point to aim at, all he has to do is press the trigger and if he sees that the shot goes to the right or left he merely corrects his aim and fires again without entirely losing sight of the object as he would if he had to turn up and pull back the bolt of the Springfield rifle to eject the old cartridge case, and then shove the bolt forward and turn it down, to put in the new cartridge.

### Against Air Attacks

"The likelihood of aircraft attack on columns of troops in future warfare furnishes a very strong reason for arming our soldiers with a semi-automatic rifle. It is particularly hard to fire several shots in succession at rapidly moving objects, such as aircraft, with accuracy of aim when using a magazine rifle where the bolt has to be operated by hand before every shot."

The self-loading principle has been applied to the machine gun for many years, Major Hatcher points out, but in the machine gun, (*Please turn page*)



### OLD AND NEW

*The weapon at the top of the picture is Army service rifle now in use. In the middle is the Garand semi-automatic type being tested, and at the bottom is the Pedersen model, the other semi-automatic under consideration by Uncle Sam.*

weight is not an important factor. The difficulty lies in making a semi-automatic rifle that will weigh only eight and one-half pounds—the weight of the present army rifle. There are some semi-automatic hunting rifles, but these are

of relatively small power compared with the army rifle.

Semi-automatic rifles have been used to a limited extent by Mexico and Germany.

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## EXPLORATION

## Scientist Protests Ban on Foreign Exploration in China

**A** VIGOROUS protest and warning that Chinese prohibition of British, French, Swedish and American paleontologic and archaeologic work in Central Asia is a "very serious setback to the cause of science and civilization" is issued by Dr. Henry Fairfield Osborn, president of the American Museum of Natural History, in a statement in *Science*.

### Andrews Refused

In announcing that the Chinese Commission for the Preservation of Antiquities has just refused Dr. Roy Chapman Andrews' request for permission to make explorations next year in Mongolia, Dr. Osborn made public the letter of refusal which suggests that the American scientists content themselves with scientific work on specimens that are brought to Peiping by Chinese expeditions.

In addition to bringing to a stop the ten years' work by his museum, Dr. Osborn lists the following expeditions that have been prohibited or hampered:

Sven Hedin's Swedish expedition in Chinese Turkestan.

French Trans-Asiatic Expedition under Dr. Georges Haardt and P. Teilhard de Chardin.

British expedition under Sir Aurel Stein, driven out of Chinese Turkestan.

Dr. Osborn also charges the Chinese commission with instigating erroneous Chinese newspaper statements about foreign explorations, arousing hostile attitudes among the people and cultivating the idea that all foreigners are enemies.

Looting of Chinese antiquities by the American Museum expedition was vigorously denied by Dr. Osborn. Aside from Neolithic flints which are still to be found strewn over the surface of the Gobi desert in millions, not a single specimen of any historical or archaeological value has ever been

taken from China or Mongolia by the expedition. The great majority of the fossils obtained have come from Outer Mongolia over which China relinquished control before the Museum's explorations began. Dr. Osborn contends that the Central Asiatic Expedition "has always paid its way," spending much money in China, in addition to benefiting the country culturally.

"The matter would not be so serious if there were any possibility or prospect of the present ability of the Chinese to carry out this work themselves," said Dr. Osborn. "They have neither the scholarship nor the financial means of doing so beyond the confines of old China.

"The American Museum geologic, paleontologic and stratigraphic and topographic work in Mongolia and the great publications issuing therefrom have been possible only because the party was composed of a body of field experts such as has never been brought together before in the history of these branches of science, under a leader who has shown unprecedented ability to organize a series of expeditions into an absolutely unknown desert where all previous explorers had failed either to make discoveries or obtain substantial results.

### Backward Nation

"This arrest of Central Asiatic exploration and research will cause worldwide disappointment and regret, especially among those who have been sincerely desirous of soundly establishing these great branches of science in China. The Commission for the Preservation of Antiquities must, therefore, bear a heavy weight of responsibility for the retardation and finally for the arrest of scientific researches and explorations in Central Asia, whereby China is placed in the column of backward, reactionary and non-progressive nations."

*Science News Letter, August 22, 1931*



### CHEERFUL?

*If you're not you ought to be when you look at this little two-inch high perfume pot of the seventh century B. C. At least that is what Dr. Edith H. Dohan, of the Museum of the University of Pennsylvania, says. Reactions to art objects have been observed in the feelings of visitors toward two recent acquisitions of the University Museum. One object is the snug helmet-headed vase pictured above; it evokes a light-hearted and cheerful mood. The other, about nine inches high and made two centuries later, has a much less gay effect than that of the little Rhodian pot. The difference in size may account for the reactions; the smaller object is more "cozy in the hand."*

## ENTOMOLOGY

## Sod Web-Worms Menace Golf Courses In Ohio

**L**ARGE brown patches of dead grass on Ohio golf courses and lawns are not due to the extremely hot weather but a heavy attack by the sod web-worm, entomologists of the Ohio Agricultural Experiment Station have discovered.

Not a new insect, the half-inch long black worm has been encouraged by this year's good insect weather. It lays its eggs in lawn or turf grasses and the larvae hatch in two weeks.

The insect keeps away from clover and fresh green clover plants in the dead grass is a sign of its presence.

Arsenate of lead powder dusted on the grass and soaked in with water will control the pest.

*Science News Letter, August 22, 1931*

In the search for oil and gas, more than 20,000 wells are drilled annually.