

Prepare, Says Inventor of Famous Lewis Gun

Colonel Isaac Newton Lewis, U. S. A., Retired, Declares United States Should First Develop Air Service and Submarine Arm

THERE arrived in New York recently, after nearly three years in Europe, a retired officer of the United States Army who is reckoned as one of the big men of the great war. This man is Colonel Isaac Newton Lewis, inventor of the famous Lewis machine gun, the most effective weapon of its type in existence, according to Major Gen. Leonard Wood. Curiously enough the three newest war weapons—the aeroplane, submarine, and Lewis gun—are American inventions, though all have been developed to a large extent under the auspices of European Governments. Lewis guns are being turned out by the hundreds weekly in Great Britain and soon will be manufactured at the rate of a thousand a week. The British, French, Russians, and Belgians are using them on all fronts, and the Germans are known to be trying to duplicate them.

The writer of this article met Colonel Lewis a few days ago in the office of General Wood on Governors Island. The two men are old friends and there is no officer in the United States Army who appreciates Colonel Lewis more than does the senior officer of the active establishment. Colonel Lewis is the typical American army officer. A West Pointer, modest of speech and action, reluctant to talk for publication and impossible to interview to any extent on a certain subject, the subject being machine guns.

But Colonel Lewis did talk on another matter, one that President Wilson has characterized as of vital and supreme importance to the United States in these days of worldwide war—the subject of adequate national preparedness.

Colonel Lewis believes that the United States should have a big navy and a reasonably big army. He believes that two great lessons of the present war which America should take seriously and immediately to heart are those of the air and underwater, in other words, the aerial arm of offense and defense, and the submarine. These two arms have, he says, proved their effectiveness beyond all shadow of doubt. Furthermore, he calls attention to the fact that they are

The Lewis machine gun, which is acknowledged to be the most effective weapon of its type, is a comparatively recent American invention. In fact, it had been perfected only a short time before the war began. It is a handy, comparatively light weapon and has therefore been used largely on aeroplanes as well as in trench warfare. Unlike the Maxim, the Lewis gun is not fed by means of a long woven band but by a drum in which the cartridges are arranged with their noses pointing inward, as shown in the accompanying illustration, which reveals the detachable magazine without its top. There are two layers of cartridges inside the drum and they are fed rapidly into the breech of the gun. The rate of firing, including renewal of the magazine, is 73 shots per ten seconds, or 440 per minute for each man. Thus ten men, each armed with a Lewis gun, could fire 4,400 shots in one minute.

The ordinary machine gun is cooled by a water jacket, but the Lewis gun is cooled by an air blast method, which is operated by the force of the explosion which projects the bullet. The bulkiness of the barrel is due to the fact that the rifle tube is inclosed within an aluminium air jacket or cooling device. This is so ingeniously arranged that the force which heats the rifle tube also cools it. While the Lewis gun is exceedingly powerful and effective, it is comparatively simple in its design. Exhausted drums of cartridges can be replaced so quickly that the gun may be fired almost continuously. The Lewis gun has been supplied to the Entente Allies in large quantities, and it is said that the Germans, having captured some of the weapons, are trying to copy them.

means of defense and offense that can be quickly acquired and be kept in readiness for instant service, while the other great essentials in national preparedness—big ships, big guns, and adequate and properly equipped land forces—which take time to acquire and train, are being constructed and developed.

"The question before this country of ours at this time," said Colonel Lewis, "is how can we bring to our command the greatest and most efficient system of national defense in the shortest possible time? In my own opinion there is just one way in which we can solve this all-important problem quickly, and that is by the development of an adequate air service and the creation of an equally adequate submarine arm for our navy.

"The United States is a big country, a country rich in resources and in population, with big things to defend, and being big it deserves and should have a big navy and a reasonably large land organization to back it up. Big cities have big police forces, big railroad systems have big men at their head and efficient personnel to run their trains

and operate their shops, and so it is with a country, particularly one like ours, which is big in whole and in detail. Being big certainly makes it deserving of an army and navy in proper proportion to that bigness."

At this point it may not be amiss to go back into American history some sixteen years and take a peep, so to speak, into the files of the War Department in Washington. In 1900, Colonel Lewis, then a Captain of coast artillery, was the Recorder of the Board of Ordnance and Fortifications. Elihu Root was then the Secretary of War. Army officers will tell you that Mr. Root was perhaps the most far-seeing head the War Department has known since the civil war. As Secretary of War Mr. Root realized that Europe was getting the "jump on America" in the matter of adequate military preparedness, and in order to get first-hand data he ordered the Commanding General of the army to designate some capable officer to go to Europe and report on the situation.

The late General Henry C. Corbin was then Adjutant General of the army,

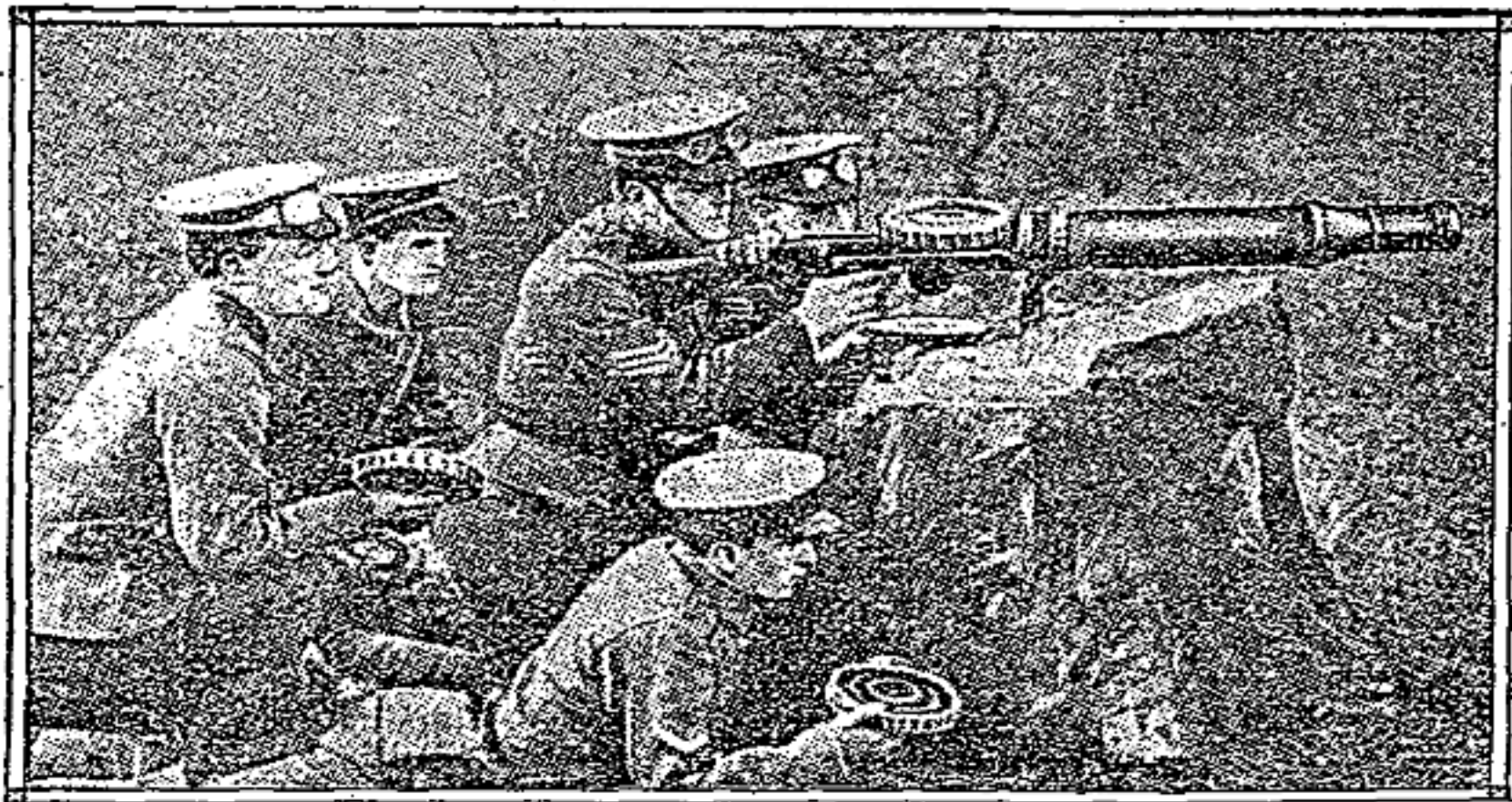
and on July 10, 1900, General Corbin issued an order to Captain Isaac N. Lewis of the Sixth United States Artillery (the separate company system did not then obtain in the coast artillery arm) to proceed to Europe "for study and observation of subjects upon which report is desired." On July 17 of that year Captain Lewis sailed for Europe, and in the three months that followed he journeyed all over England, France, and Germany, inspecting the principal ordnance manufacturing concerns in those countries and taking advantage, as he subsequently stated, "of every available source of military information, official, semi-official, and private." In those three months Captain Lewis inspected practically every great war munition making plant in the countries named above.

And in the report that he made on his return to America there occurred the following statement, which reads much like many others that have been made in this country since Europe's war brought home to the American people the need of adequate military preparedness:

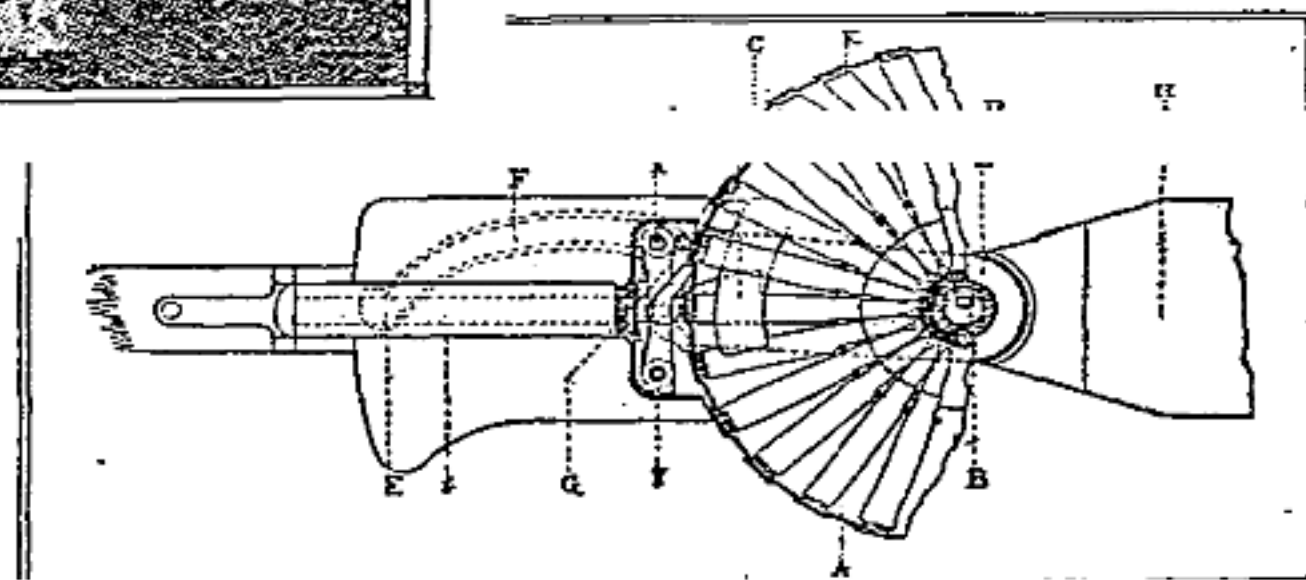
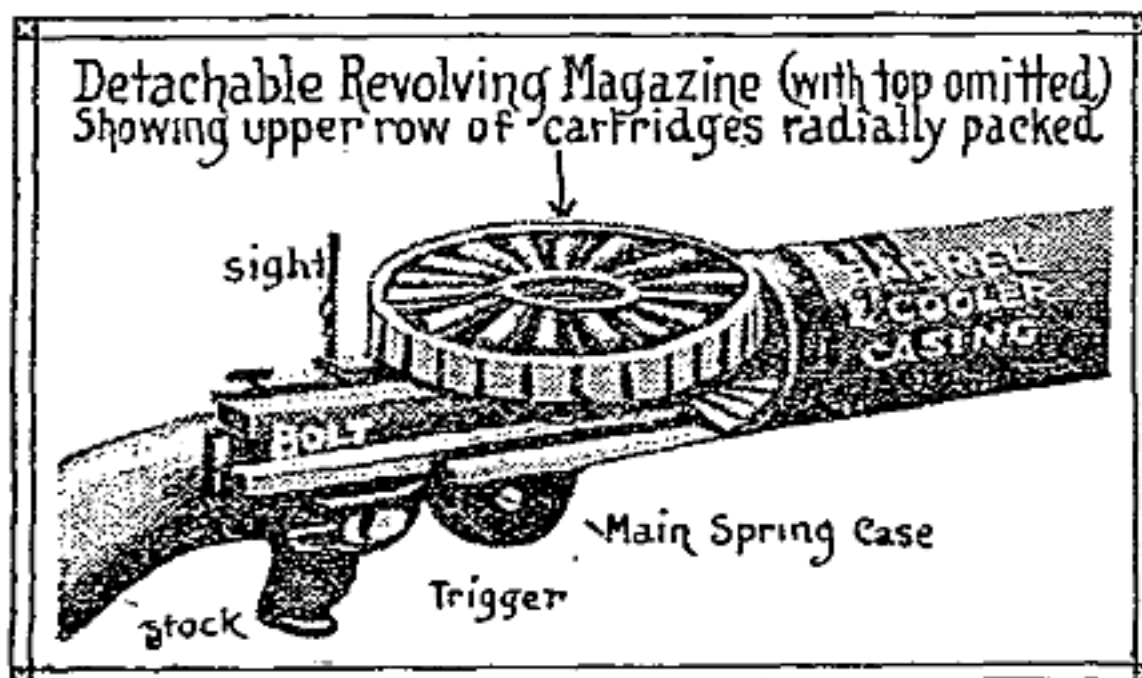
To one familiar with the actual condition of our own armament, offensive and defensive, a close inside view of the war preparations of Europe is a revelation and education. The fact is, we are nearly ten years behind the other great powers both in a proper appreciation of the need of modern weapons and in the development and construction of the weapons necessary to meet this need. Even Russia, Austria, and Japan, handicapped as they now are by their civil and commercial conditions and by the general lack of manufacturing facilities, are distinctly ahead of us.

Such a situation is the more humiliating when it is known that a very large proportion of the machinery and machine tools in daily use in the various ordnance factories of Europe are of American manufacture and design, and in some instances I saw them operated by American workmen under the superintendence of American engineers.

The United States possesses the cheapest raw material, the most perfect automatic and other machine tools, the best mechanical skill in the world, and the most intelligent and industrious workmen. With these advantages in his favor the American manufacturer in almost every line of manufactured product, except ordnance, is a success-



British soldiers working a Lewis gun



(From the London Sphere. (c) 1915, by the N.Y.H. Co.)

Sectional view of the Lewis Gun, showing the feeding mechanism.



ful competitor for the trade of the world. Why should he not succeed equally well in the manufacture of guns and their equipment? This question I believe worthy the serious consideration of the War Department.

When Captain Lewis wrote this report there were being installed in American forts new guns that were then obsolete so far as Europe was concerned. But few results followed his report, and not until the shock of Europe's tragedy brought home to the people the seriousness of the American position was the veiled warning of that report realized in all truthfulness.

Two years and nine months ago Colonel Lewis retired from the United States Army after thirty-three years of service. Then followed the actual development of the wonderful gun that now bears his name. The gun was offered to this Government, but the inventor received scant encouragement, and so, as in many other cases, it was left to foreign nations first to appreciate the accomplishment of American genius.

When the war came the Lewis gun

quickly proved itself one of the great military inventions. Its value has been demonstrated in Flanders, at Verdun, in the Argonne, and on all the other fronts, and at last there is reason to believe that the United States Army is also to be supplied with it.

But let Colonel Lewis resume.

"It seems to me," he said, in the course of conversation with the writer, "that what is perhaps the real basic question now before us in the matter of the preparation of our national defenses is to a great extent one of engineering efficiency. Therefore, I am convinced that the same efficient methods of organization, administration, and control that have made the United States the greatest nation on earth, industrially, financially, and commercially, should now be applied in co-ordinating, organizing, and controlling the many and complex elements that enter into a modern system of real defense."

Then Colonel Lewis talked of aeroplanes and dirigibles, of submarines, of high explosives and big guns, and of

the all-important part that mechanical devices plays in modern war.

"The submarine has arrived, there can no longer be any doubt about that," Colonel Lewis remarked. "Its effectiveness is now an admitted fact in every naval war office. It is one of the elements that control in the maintenance of sea power. Now, don't translate what I have to say as an argument against the need of other types of warships, for I do not mean to infer any such thing. Of course, we need the other types and we must have them, but the submarine is a weapon that can be acquired in a relatively short time, and that is why I emphasize it as one of the means of defense

that in Europe they are arming them with machine guns and with bomb-dropping devices, and that original faults in construction and equipment that limited the machine's usefulness as an offensive weapon are being overcome in every nation that is engaged in the war."

"How about the dirigible, especially the Zeppelin?" Colonel Lewis was asked.

"When the war started," he replied, "the Zeppelin was looked upon as an experiment by the officers of France and England, and they doubted its value as an instrument of warfare. However, on this point they have changed their viewpoint, and the value of the great rigid dirigible is now thoroughly appreciated, especially as a naval auxiliary. The naval value of the Zeppelin is, in my opinion, the greatest argument in its favor."

Another war lesson, in Colonel Lewis's opinion, is the necessity of proper and efficient organization of resources, so as to make them immediately available, at their maximum, in the event of war. He referred to the excellent work being done by the committee of the Naval Consulting Board, of which Howard Coffin is the Chairman, to mobilize for use in the event of an emergency all of the industrial organizations of the United States. The value of the work of Mr. Coffin and his associates could not, he said, be overestimated.

Colonel Lewis likewise called attention to the wonderful progress in the manufacture and use of high explosives. The big gun and its giant shell charged with the mightiest of explosives has come and its value as a destructive agent cannot be exaggerated. Cavalry and infantry, as utilized in previous wars, are being eliminated. Colonel Lewis pointed out, and today the cavalryman throughout Europe, with the exception of forces on the Russian front and in Turkey, is dismounted and fighting side by side with the infantryman in the trenches. The advent of the automatic machine gun, he added, has practically made of these arms nothing more or less than foot artillery.

"This war is a great object lesson to America," Colonel Lewis said in closing, "and it is a lesson that I hope and believe our people will take to heart. We should have the best air service, the best submarine service in the world, and we want these services backed up with an army such as a country of this size and importance and wealth is entitled to, and a fleet of other naval units in proper proportion. And I am optimistic enough to believe that the lesson will not go unlearned."