

Paris Letter

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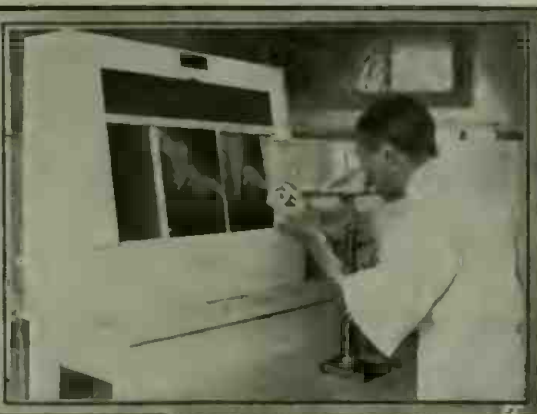
Paris Correspondent of the ELECTRICAL EXPERIMENTER

Airplane-Radio.

Paris, February, 1919.

THE war having ended thru the conclusion of the armistice, the military censor now allows the publication of information concerning various technical matters of the French Army. In this and in the following monthly

French airplane radio generator of the wind driven type and antenna employed. The dynamo is fitted with a small air blade which spins it rapidly. The antenna and weight are lowered from a reel on the cockpit. Similar schemes are in use on American Airplanes. Fig. 1.



The "Radio-stereoscope" is the latest in French X-ray apparatus. By its means it now becomes possible to rapidly locate bullets or fractures—owing to the perspective of vision thus afforded. The X-ray plates are illuminated from behind, while the physician views them thru the special combination instrument shown. Fig. 3.

letters, we will unfold thru the ELECTRICAL EXPERIMENTER the latest European technical developments as they come to our attention.

Particularly during the war, the censorship has been so rigid that many important inventions have never been mentioned in the technical press. We shall be glad to describe these monthly for the benefit of EXPERIMENTER readers.

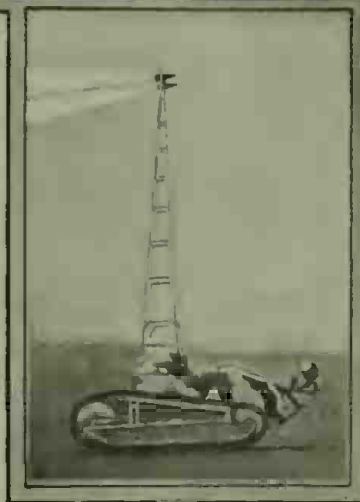
The accompanying photographs show the latest system of radio-telegraphy installed on French Airplanes during the war. Fig. 1 shows what is called the "radio-telegraph dynamo" on a Farman airplane.

All the French combat machines were equipt with this or similar apparatus. Between 25 and 150 kilometers could be covered by means of this apparatus weighing some thirty odd kilograms. For receiving the wireless waves the aviators of course used the audion, and by use of sound-proof helmets, it was possible to receive the orders clearly, notwithstanding the terrific noise of the airplane motor. The small dynamo shown in Fig. 1 is operated by means of a small air propeller, and this motor works entirely independent from the power plant of the airplane. As long as the airplane is in motion the propeller will turn due to the rush of the air, and thus even if the engine becomes stalled, the aviator can still use his wireless, for the plane while volplaning down furnishes enough energy to drive the small auxiliary dynamo. The wireless antenna trails behind the airplane thru the steel tube as seen in Fig. 1, at the end of which there is a small pulley. At the free end of the antenna wire there is a weight of two or three kilograms (4 to 6 pounds) which tends to keep the antenna more or less taut. The wire stays of the airplane themselves form the "ground" for the wireless system. All aviators in the air were constantly in touch with each other, and in order that one airplane should not be mistaken for another one, different wave lengths were used for each. Not only this, but other tricks as for instance, sending at a different intensity, was often resorted to by certain aviators in order that the ground station would know from which plane the signals emanated.

Signaling Tanks.

The "baby" Renault tanks now well known in the United States, played an important rôle in pushing back the Huns. They had not a little to do with the Allied victory and were constructed by the French engineer, Louis Renault. This well-known French technician created many different models, some of which carried cannon and

metallic mast, the four lower legs of which are mounted on a revolving cupola which makes it possible for the mast to be immediately revolved in any direction. The top of the mast is 7½ meters from the ground. The two searchlights are arranged in such a manner that they can send out two independent light shafts, or the two shafts can be converted into a single shaft of light. In



The "Baby" Renault Tanks Played an Important Rôle in Pushing Back the Huns. Some of These Tanks Carried Cannon and Machine Guns. The "Tank Projecteur" Here Shown Was Effectively Used for Signaling Purposes. Fig. 2.

machine guns, while others merely carried ammunition. One of the strangest ones constructed by him is the "tank projecteur" (signaling tank). It is shown in the accompanying photograph, Fig. 2. This tank is built along the lines of the "baby" tank,

the inside of the tank we find our usual Morse telegraphers, operating a key which controls the light shafts. By means of this arrangement, the ordinary Morse or Continental Code can be sent out by breaking up the light shaft into "dots and dashes" the same as is done in the usual method of signaling with lights. Mr. Renault has incorporated several refinements into the search lights, one of which is an iris obturator whereby the volume of the light can be increased or decreased at will.

Radio-stereoscope.

This apparatus has been developed by the French engineer, M. Nemirowsky, the X-ray specialist of Paris. It has given wonderful results to the French military physicians, and it now becomes possible to locate metallic or other foreign pieces in the human body in a manner not possible before. The ordinary X-ray photograph shows only the foreign body, but it is impossible to tell how deep the penetration is, and often the physician cannot tell if a bullet is in front or in back of a certain organ. In other words, he does not know just how deep the bullet is embodied. Everyone who has looked thru the ordinary stereoscope will readily understand how objects "stand out" and how they reveal their exact location to the human eye.

It is this principle which is made use of by M. Nemirowsky, who has also greatly simplified the radio-stereoscope technique. Our illustration, Fig. 3, shows the method. Two X-ray pictures taken at one time by superimposing two plates and afterward developing them are placed side by side in an arrangement termed a "negatoscope." The plates are illuminated from behind by means of an electric lamp. The physician then regulates the radio-stereoscope by means of a thumb screw as shown, until he sees the bones, and all other parts as well. The foreign body then stands out in plain relief. The physician now examines the plates carefully and he obtains a clear mental picture which subsequently gives him an exact idea as to just how deep the foreign body is emplaced. If necessary during the operation, he can frequently inspect the negatives stereoscopically in order to guide himself should this be necessary.

The war has brought forth a great many surprises, many of which for military reasons having remained secret, and many will continue a secret for some time to come. Our readers no doubt are very much interested in many of the war devices brought out during the war by our European Allies. We have therefore made arrangements with our Paris correspondent, Mr. Jacques Boyer to send us an article each month on hitherto unpublished information. The first article of the series appears on this page.—Editor.

but in the back we find on an inclined steel truss a little dynamo driven by the machinery of the tank. Two "signaling projectors" are mounted at the top of a light