A MOTOR AMBULANCE FOR THE UNITED STATES ARMY.

BY WALDON FAWCETT.

A specially constructed automobile ambulance is the latest device of modern warfare which has engaged the attention of the War Department at Washington, and such has been the success attending the experiments thus far made with this new adjunct of the hospital service of the United States army that probably arrangements will be made in the near future for the adoption of such vehicles as a part of the regular equipment at our principal military posts. The cost of the auto ambulances will be less than $3,000 each, and taking into consideration cost of maintenance and service rendered, these cars possess many points of superiority over the four-mule ambulances heretofore employed.

While several European nations anticipated the United States government in the introduction of the motor ambulance for military service, the movement which led to the present innovation was really inaugurated over two years ago when Surgeon-General O'Reilly called the attention of the Secretary of War to the fact that practically no progress had been made since the civil war in the facilities for the transportation of the dead and wounded from the field of battle. With the sanction of the Secretary of War, orders were issued directing Capt. Clyde S. Ford, assistant surgeon, United States army, then stationed at Fort Barrancas, Florida, to make a thorough investigation of the transport problems of the hospital service—a subject to which he had previously devoted considerable attention. The recommendations of Capt. Ford were so emphatically in favor of motor ambulances as affording the ideal solution of many of the problems involved, that he was authorized to have an experimental car constructed in accordance with his own designs.

In view of the exactions likely to be placed upon an army ambulance, operating ofttimes under rather unusual conditions, Capt. Ford decided in favor of steam in preference to any other motive power, and the automobile was constructed under his direction by the White Sewing Machine Company, of Cleveland, Ohio. It is an 18-horse-power vehicle, and the chassis is practically of the stock type employed in the regulation touring car of the White model, but the body, which was designed by Capt. Ford, is of course unique in construction.

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Interior of the New United States Automobile Ambulance.

The top which surmounts the body is little higher than that of the ordinary inclosed automobile and is hung with heavy curtains upon which, as upon the body proper, appear the letters U. S. and the design of the Maltese cross in red upon a white ground, which constitutes the emblem of the medical branch of our military service. The interior of the car, under ordinary conditions, presents a clear space save for long seats on either side, the occupants of which face one another. This arrangement insures a maximum carrying capacity when the motor is used as an ordinary conveyance by officers of the medical department or is employed in the transportation of slightly wounded soldiers or convalescents.

In the event of the car's requirement for service as a hospital on wheels for the conveyance of seriously wounded men, a transformation is quickly effected by folding the seats, previously mentioned, snug against the wall on either side and letting down from the ceiling, where they have been suspended out of the way, heavy oak poles or standards which are set in place in the middle of the car, dividing the interior into two sections, as it were. The purpose of these poles, to which are secured iron hooks, is to serve as supports for the litters or stretchers to which the entire interior of the ambulance is given up under this arrangement.

The auto ambulance affords space for four stretchers with the occupants extended at full length. Two of the litters are placed side by side on the floor of the car while the other two are placed above in position corresponding to the upper berths of a sleeping car. Each of these upper litters is supported on the inner side by the hooks on the oak standards in the middle of the car, while on the opposite side it is suspended by leather straps attached to the framework of the top. At the rear of the car is a broad step for the ambulance surgeon, and the driver's seat at the front of the machine provides accommodations for two medical attendants in addition to the chauffeur.

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Carrying Wounded to New United States Army Automobile Ambulance.

The tests to which this initial American military automobile ambulance has recently been subjected at Fort Myer, Virginia, were designed to bring out all possible defects, but despite the severity of the tasks imposed, there were no developments that would make necessary radical changes in either design or construction. The automobile has been operated, under campaign conditions, over a total of more than 1,600 miles. In one test it carried a load of twelve persons a distance of fifteen miles in less than an hour and on another occasion a speed of nearly forty miles per hour was attained on a smooth road. The motor has more than met the expectations of the army officers in hill-climbing capabilities and has demonstrated an ability to travel over ploughed ground at a speed of six miles per hour.

The increased carrying capacity of automobile ambulances gives them great superiority over the old-style vehicles of this class, but of course the chief consideration in favor of their adoption is found in the higher speed which can be attained, obviously a most important factor, since in surgery saving of time frequently means the saving of life. In time of peace the auto-ambulance will be employed in the sphere of usefulness now open to its horse-drawn prototype, and in time of war such vehicles will be used to remove the sick and wounded from the field of battle to temporary hospitals or direct to railroad trains and also for the transfer of invalids from temporary hospitals to base hospitals.

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Placing Men on Stretchers in the New Automobile Ambulance.

VIEWS SHOWING NEW STEAM AUTOMOBILE AMBULANCE FOR THE UNITED STATES ARMY.

Artificial Caoutchouc.

At the rate at which the consumption of caoutchouc is going, the question arises if the production of this substance will much longer be sufficient for the needs of the multiple industries that use it. The annual production of caoutchouc varies at present between 60,000 and 70,000 tons, and in 1904 already the world's consumption reached 60,000 tons. On taking into consideration the progress of automobilism and the application of electricity (the extension of which is far from stopping), we may affirm that this year the consumption has exceeded the production. There will, therefore, soon be created a crisis, for which Mons. E. Coustet proposes three solutions.

The first would consist in utilizing the mineral caoutchouc or elastic fossil bitumen, discovered in 1785 in the mines of Castleton, England, and in 1816 n the environs of Angers, France. The second would be the employment of an artificial product possessing properties analogous to those of the natural product. This product exists; it was obtained in 1846 by the chemists Sacc and Jonas, by treating linseed oil with azotic acid. An elastic and membranous substance is then obtained, the "*caoutchouc des huiles*" (oil-caoutchouc), which has already been utilized to render fabrics impervious. Similarly, artificial caoutchoucs have been obtained by treating tar or the oil of turpentine with sulphuric acid. These products did not have great success at their appearance; but then the dearth of caoutchouc was not in question, and it is very probable that the need would soon call forth improvements that would bring the manufacture of artificial caoutchouc to the desired point. The third solution would evidently be to increase the natural product, but it is not perhaps the quickest.—From L'Illustration.

Here is an instance showing that obedience to the whittling conscience is still a cause of inventions. Mr. H. S. Hopper was driving through one of the Southern swamps some time ago, when he cut down a reed which he used for a whip. It followed, of course, that he cut off a chip from the reed and used it for a toothpick. He noticed that the chip was hard and durable and yet pliable, and for the purpose was much better than the article commonly on sale. Acting on the suggestion, he has designed an automatic machine, which makes an excellent grade of toothpicks from the reeds of the Southern swamp. A factory has been built at Bower's Hill, Norfolk County, Virginia, and the business inaugurated. A reed is cut into suitable lengths without knots, and a set of radial knives is made to split the tubular reed into pieces the size of a toothpick. Before splitting, the ends of the tubular sections of the reed are reamed out by tapering reamers, which remove the pith or soft interior, so that the splitting forms toothpicks with tapering ends of hard, tough material.