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THE AVIATION SERVICE OF THE MEDICAL
DEPARTMENT OF THE ARMY.*

By THEODORE C. LYSTER, M. D.,

BRIGADIER-GENERAL, MEDICAL CORPS, U. S. A.,

WASHINGTON.

It is now just a year since we were all assembled here facing the beginning of our part of the war. If you will remember, two problems were uppermost in our minds at that time: (1) How to utilize the men who had specialized in medicine so that their special services would not be lost by placing the round peg in the square hole. How this has been accomplished you are in position to judge. (2) How to organize an efficient aviation medical service. As it exists today, there is a large number of medical officers and enlisted personnel of the Medical Department serving with the Air Service.

It is the desire here not to treat the whole problem of the Aviation Service, but to take up the question of the vital care

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that should now be given to the individual aviator if we wish him to fulfill our expectations for him when flying over the lines. It is my desire to bring briefly but clearly to your mind what has been forcefully brought to our attention while recently in France as to the need of special medical care for the aviator. An opportunity was given both Major (now Lieut.-Col.) Isaac H. Jones and myself by the commanding general to see what is actually being done by Great Britain, France and Italy towards maintaining an efficient flying force. It is our desire to have you look beyond the building of machines and the enlisting of men for the aviation service and go a step further into a development which is even more recent than the art of flying. It is one thing to build machines and train men to fly in them; but another to maintain these men and machines in the air by the constant supervision necessary. This is a far-reaching problem, which is intimately involved in the evolution of the air service, and largely falls upon the medical service to keep these fliers at their greatest efficiency.

Bear in mind the three general subheads under which the Medical Division of the Aviation Section was endeavoring to send the maximum number of fliers over the top and to send them over in the best physical condition to accomplish the purpose. After all, it is the human machine that controls the situation. France today mourns the loss of many of her best fliers, which she describes as "Aces." Great Britain has suffered in a similar way, and has taken a decided stand in specially protecting her fliers while on the fighting line. She now realizes that her honor rolls, which are usually hung up in each squadron headquarters, are too often a measure of failure, not of the aviator, but of those responsible for his fitness at the time of his crash.

The three subheads are:

First—The selection of those suitable for flying;

Second—Their classification from a medical standpoint for duty with observation squadrons, fighting squadrons, day bombing and night bombing; and

Third—The maintenance of each aviator at his maximum efficiency.

What we have done, or are trying to do, I will try to briefly describe.

In the selection of prospective fliers the Medical Division has been able to carry out the physical examination by trained examiners in different centers throughout the United States. Thousands of men have been examined, from whom were selected a body of men who today, physically, have no equal in this or any other country. And further, we have enough to lend our allies a considerable number should they need them.

Having now aided in this selection of aviators, it has been found out that our real work has just begun. These men are either in France or in this country, actually flying or undergoing instruction. It is not enough nowadays simply to be a normal man to be fitted equally well for the different types of flying now demanded. High as the standard has been, we now realize from the work abroad, that we can go a step further and determine just what type of flying an individual is physically best fitted to perform. The question that confronts us is how can we determine as early as practicable just where each pilot belongs. Certainly not by guesswork, individual impressions, nor by the fact that a pilot does not return after a flight.

It is fully realized that the final test comes in the air, but it is even more fully realized that the first test should not be in the air but by the most careful examination possible as early in the course of training as it can be carried out. As an example, to make a pilot with a poor light sense (his vision otherwise normal) fly at night is suicidal; equally so to compel him to do altitude flying when it can be shown to a certainty that he will faint on reaching ten to twelve thousand feet. If these pilots were properly classified the man with the poor light sense but otherwise normal should and would be able to do satisfactory service as a day bomber; the pilot who, otherwise normal, could not fly at an elevation beyond ten or twelve thousand feet, might well be able to do efficient service in an observation plane which is not intended nor able to ascend to these altitudes. These examples are mentioned to direct your thoughts as to how very practical research of this character can be made.

Finally, it is not enough to select a flier and then to classify him unless he is to be maintained at his maximum efficiency. It is here that the trained medical man, as an adviser to the commanding officer of each aerodrome or flying school, can give that same close supervision to the human machine that is now given to the aeroplane itself. In 1915 there were many accidents in the Royal Flying Corps due to physical defects of the pilots. When this became known, the physical entrance requirements were made more rigid. The rate fell rapidly in 1916, and still further in 1917. No country can afford to sacrifice its fliers from causes which are preventable.

In order to carry further this maintenance of the efficiency of every flier in the Air Service, authorization was obtained for the creation of the position of flight surgeons and physical directors. A flight surgeon is a medical officer whose duties will be to have charge of all that pertains to the physical well being of the cadet flier. Many of the flying schools have already been provided with flight surgeons. Medical men to fill these positions are most carefully selected, with a view to their special fitness for a class of work which requires good medical training, excellent judgment and special knowledge of the medical problems involved in the flying service. After selecting prospective flight surgeons, they are sent to the Medical Research Laboratory for intensive training and then to a flying school. Before long every flying school will have a flight surgeon.

The physical directors are being selected from the well known coaches, physical directors and trainers of our various colleges. These directors are taken in as First Lieutenants in the Sanitary Corps, sent for a short time to the Medical Research Laboratory for a special course, and then on to the flying schools. Their duty will be as assistant of the flight surgeon in everything that relates to the training of prospective fliers, and to occupy a position to the flier similar to that which they occupied in athletics in the various universities from which they come.

You will see from the foregoing that the personnel of the flying schools will be treated very much as an athletic section of a university, with the flying instructors acting in the capacity of the coach, the flight surgeons as athletic or team sur-

geons, and the physical directors, as physical directors or trainers. It is the purpose so to regulate the lives of the cadet fliers that they will be in good condition at all times, neither undertrained nor overtrained. It is realized that the game to be played is not one of a day or a season but of years, and their condition must be made to conform to this extension of the time limit.

It is proposed to have the Food Division in the Surgeon General's office supervise the diets at the flying schools. The importance of the training table is too long established in connection with our various athletic teams to require any urging on my part of its great need.

Early in the organization of the Aviation Division of the Medical Department it was seen that many of the problems would require a very efficient research board to help to solve them. Such a board was created about a year ago and has now extended its functions by establishing laboratories at many of our flying schools. The main laboratory will naturally do most of the research; the branch laboratories will be largely concerned in classifying our fliers.

The above sketch has been given with a view to presenting in a brief way the special features involved in the flying service, which is entirely different from other branches of the military service. Because of these differences, the Medical Department assigned to duty with the Air Service naturally, in addition to the usual difficulties involved in caring for a body of troops, was compelled to deal with these special and unknown problems in addition. Our losses from accidents in the air so far have remained small. It is expected that the medical organization will not only be able to lessen these but will prove invaluable on the other side, where our fliers naturally must operate under most exhausting conditions.