A MODEL AIR AMBULANCE.

GREAT BRITAIN'S TRIBUTE TO FLORENCE NIGHTINGALE.

Air ambulances have already been the means of saving thousands of human lives, and no one to-day disputes their value. Frequent recourse to this mode of transport is had by national Red Cross Societies and it is possible, without undue temerity, to foresee the time when air ambulance services will become part of their regular activities.

Hitherto the conveyance of sick and injured persons by air has been carried out mainly by commercial or private planes improvised as air ambulances. Specially constructed planes, designed solely for this purpose, naturally give the best results but are not within the reach of the average Red Cross Society on account of the expense of building and maintaining them.

It is evident that, in a densely-populated country like Great Britain, there is not the same need for air ambulances as in Australia, Sweden and the United States, for example, where a large proportion of the inhabitants is cut off from any kind of medical aid. Hence, it was not until quite recently that the first specially designed ambulance plane made its bow to the British public. However, the country has lost nothing by waiting, for the new machine incorporates every known perfection and represents the last word in medical aeronautical technique. Its conception is due to Flight-Lieutenant H. M. Schofield, of Schneider Trophy fame, and a Director of General Aircraft, Ltd., one of the largest aircraft manufacturing concerns in Great Britain, and it has been produced in association with the British Red Cross Society.

The machine was launched at Hanworth Aerodrome on June 7th, by Mrs. Amy Mollison, the famous English airwoman, who dedicated it to Florence Nightingale. Several important Government and Red Cross officials were present at the ceremony, as well as a detachment of Red Cross nurses trained as "air escorts."

The ambulance (a "Monospar") is of all-metal construction, fabric covered, and is fitted with two engines, both of which are obvious safety considerations. It can, in fact, maintain height with one engine stopped. The cabin has been specially sound-proofed so that patients can receive medical and nursing care under conditions of perfect stability and comfort. Specially designed chromium-plated stretcher equipment enables loading to be carried out direct into the side of the fuselage without tilting the stretcher from the horizontal. This is made possible by a patent weight-saving system of construction, whereby all the primary structure is retained at a very low level so that modifications can be made in the top half of the fuselage without altering the basic structure.

There is ample room for the patient to receive attention during flight, and cupboard and rack for medical stores, instruments, ice containers, etc., are fitted. Oxygen cylinder racks, controllable cabin heating and ventilation, and lighting are also provided.

A new type of oxygen tent, providing the most efficient and economical method so far devised of administering oxygen, is also equipped. The apparatus comprises a tent of airtight sheeting which is lowered over the patient; mica windows enable him to be kept under observation, and ample facilities for access are provided. The ordinary cylinder, which is placed outside the tent, is fitted with a mechanical device which allows the introduction of oxygen and simultaneously creates a flow of air which passes through a vessel containing soda lime and is thus purged of the carbon dioxide exhaled by the patient. The temperature inside the tent is kept down by means of melting ice let in from one side. Moisture from the patient's breath condenses on the walls of the tent and runs away below. Simple analytical apparatus has been devised so that the composition of the atmosphere in the tent and in the cabin can be controlled; it allows the instantaneous administration of oxygen, and continuous administration at high or low pressure over any period of time. This is the first time that such apparatus has ever been used in aircraft.

The "flying hospital" is even equipped with complete blood transfusion apparatus, and can be used as a dressing station when not in flight. Electric engine starters, radio receiving, transmitting and homing equipment, and the most up-to-date bad weather and blind flying apparatus are provided.

All fittings are chromium-plated and white, and the outside of the machine itself is finished in white with the Geneva cross on both sides.

An erroneous idea persists that the lower barometric pressure consequent upon flying at high altitudes has a prejudicial effect on patients. In normal conditions it is not necessary to fly over 7,000 feet, and in actual practice the usual height is 2,000 feet. In any case, an ascent to 7,000 feet should have no adverse effect upon patients, apart from the lowering of the temperature, which drops about five degrees for each 3,000 feet. In the case of the "flying hospital," such variations can be negatived by the controllable cabin heating and ventilation system.

The effect of lower barometric pressure on patients can be summarised as follows: Superficial wounds which have been bandaged are not affected, but wounds of abdominal vessels tend to bleed. Epileptic fits may occur with patients suffering from head injuries, and in chest cases it has been found that, while height does not seriously affect the patient, there is a risk of abdominal bleeding. Generally speaking, however, it is safe to transport cases with surface wounds or injuries to limbs, providing that hæmorrhage has been arrested. It is a wise precaution to inform the pilot of the nature of his patient's injuries so that he may fly at low altitudes if necessary.

The time factor is, of course, an all-important one and the risks of air transport are infinitely preferable to the possibility of fatal consequences if the patient is not conveyed to hospital quickly.

In peace time, it is evident that the value of air medical transport is incalculable. Apart from the carrying of patients, which must always remain its primary object, medical stores, vaccines, serums and medical personnel can be rushed great distances to the seat of the outbreak of any epidemic, disease or calamity.

No other form of conveyance can equal the aeroplane for speed and comfort. In countries where surface methods of transport are deficient, an air ambulance service will soon be considered as the normal means of conveyance for sick and injured persons, and even in more highly developed countries a well-equipped "flying hospital" represents a valuable asset as a means of saving human life and suffering.

EDITORIAL NOTE: The details given in the above article are extracted from data kindly supplied to the League by Flight-Lieutenant Schofield, who, in addition to his functions as pilot and aeroplane constructor, also serves as Assistant-Director of the Surrey Branch of the British Red Cross Society.

(Communicated by the League of Red Cross Societies.)

RECORD NUMBER OF DOCTORS.

The number of doctors on the Medical Register at the end of 1935 was 58,363, the highest ever recorded, according to a return published in the *British Medical Journal*. The number of names added to the Register last year was 1,884, the largest since 1927. There was a steady increase in the ratio of doctors to the population. There are over 6,000 women on the Register. It is stated that there is an increasing demand by the public for the services of women doctors.

previous page next page