

MEDICAL NOTES

THE FUTURE OF AERONAUTICS, WITH SPECIAL REFERENCE TO THE MEDICAL EXAMINATION OF COMMERCIAL PILOTS

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A STUDY of the question of aviation in the future leads to the conclusion that there are several types of pilots likely to be found.

1. *The pilot in charge of a passenger-carrying aeroplane.*—This is the first type to be considered. There may be a distinction drawn between the man who does short distances (London to Liverpool or Paris) and the long-distance pilot (Transatlantic and Trans-continental).

The late Capt. Hucks made the following statement to me in 1917. "In my opinion the strain on a pilot doing regular trips on a Handley Page between London and Liverpool would be no greater than that of the captain of an Atlantic liner or the driver of a motor 'bus.'"

This statement, with slight qualifications, has been agreed to by many experienced pilots with whom I have discussed the question.

Given a series of landing grounds, a wireless telephone informing the pilot of the weather conditions *en route*, and a reliable machine, an experienced pilot should last almost indefinitely in work of this nature.

Long-distance flying is, of course, more strenuous, but there will be usually two pilots who will relieve each other and share the responsibility.

2. *Pilots of fast freight and mail carrying aeroplanes.*
3. *Instructors at schools of flying.*
4. *Sportsmen and exhibition pilots.*
5. *Test pilots.*
6. *Aerial police.*

Crashes

This is the most important point from the standpoint of the commercial aircraft firms. No firm can stand the expense of losing continuously big aeroplanes, therefore they must insure against accidents.

Insurance

No insurance firm will underwrite a machine without knowing the qualifications of the pilot who is going to fly that particular machine as regards his flying ability and physical fitness.

Flying ability

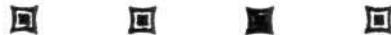
A system of grading by the Royal Air Force or the Royal Aero Club according to ability should satisfy the public on this point.

Physical fitness of the pilot

This is the problem which must be dealt with efficiently if commercial aviation is to be a success.

The solution of the difficulty can only be made with the assistance of the State and by co-operation between the medical profession, the Universities, and the R.A.F. Medical Service. Steps should be taken that the knowledge gained by the study of so-called "Air Sickness" and the researches of the Air Medical Investigation Committee, and similar bodies in Allied countries, should be communicated to the medical profession.

A school for the study of air disabilities could be founded at one of the R.A.F. hospitals where medical students and doctors could take a special course, and the medical squadron, which is doing research work could co-operate with advantage here, in addition to increasing our knowledge of such disabilities.



An Aviation Section for the New York Police

THE New York Police Department has now a special aviation section, of which Col. J. DeMont Thompson has been appointed chief by Police Commissioner Richard Enright. Reasons for this appointment have been announced as follows:—

"The fundamental importance of the Aviation Section is quickly appreciated when the many duties of the Police Department are considered. The work of the aviators in connection with directing the protection of communities surrounding Morgan, New Jersey, during the recent catastrophe, when the fire threatened to set on fire tons of T.N.T., which might have caused the destruction of the subways and buildings even in New York City, emphasised the necessity of having aviators available for such emergencies.

"The work of policing the rivers, harbour and bay is also of tremendous importance, and the problems connected

The Medical Examination

The question of the sources from which our commercial aviators will be drawn and the special points to be noted require consideration.

Pilots now serving with the R.A.F.

(a) *Those who have served overseas.*—These must be tested to ascertain whether they are suffering from the effects of stress of active service, concussion, the effects of flying at high altitudes, or other causes which result in some cases in loss of consciousness whilst flying.

(b) *Pilots serving at home.*—These we would expect to be free from symptoms unless they had concussion, loss of confidence, or staleness.

(c) *Fresh candidates at the flying schools* require careful scrutiny in order to obtain the maximum degree of "air efficiency."

The methods of examination of pilots and candidates as carried out by the R.A.F. Medical Service

Briefly stated, the candidate is examined by a series of doctors, who are specialists, and the final reports are adjudicated by an assessor. From the standpoint of the pilot of a passenger-carrying aeroplane the following scheme, in addition to a good previous medical history, would be necessary:—

Physical Examination

Respiratory system.—In addition to being free from disease must be able to stand heights.

Circulatory system.—Must be able to adapt itself to changing atmospheric pressure, and the circulation in the extremities must be in good order to stand cold.

Nervous system.—Must re-act rapidly to all impressions received by the senses, all of which must be normal.

Muscular, cutaneous and joint sensation must be particularly efficient. For vision, special tests are necessary for pilots on account of the necessity of estimating distance and position of the aeroplane in the air. Hearing, also, for obvious reasons, must be normal.

Psychological examination.—Reliability, alertness, self-control, whether confident and mentally normal, or suffering from any symptoms suggesting an anxiety state or psychopathic condition.

Periodical overhaul.—Pilots of passenger-carrying aeroplanes should be also re-examined periodically to find out how they are wearing. In this way the tendency to accidents through staleness will be mitigated.

Aptitude for flying.—My observations show that the best aviators are not possessed of any special faculty which enables them to fly, but rather that the average normal young man with an aptitude for sport and games, and without any weak points, is the most likely to last well. The essential qualification of the best pilot, therefore, is that he should have no weak spot. Since the human organism, being very complicated, and our knowledge of the way in which it re-acts to flying, is still very incomplete, it is all the more necessary during the early days of commercial aeronautics to overhaul very carefully the mechanism of the aviator who assumes any serious responsibility.

with this work will be easily solved by the employment of aircraft."

An American Seaplane Record

SOME further details are now available regarding the record flight of a U.S. Navy seaplane with 50 passengers at Rockaway on November 27th. The machine was an N.C.1, designed and built by the Curtiss Engineering Corporation at Garden City, and was piloted by Lieut. E. H. McCullough, U.S. Naval Reserve Flying Corps. The machine is of the flying boat type, the wings having a span of 126 ft., and it is fitted with three low-compression Liberty engines, each of 385 h.p. The normal speed of the machine is 80 m.p.h., but with 50 passengers on board this was reduced to 72 m.p.h. According to the report of the Aero Club of America, the machine left the water within 1,000 ft. at a speed of 45 knots, and rose to a height of 35 ft. It is stated that the machine can climb 2,000 ft. in 10 min.