

MEDICINE

Physical Defects Found in Large Percentage of Pilots

Although Not Disabled, 71 Out of 103 Transport Pilots Had Ills That Could Affect or Were Affecting Health

ALARGE percentage of transport pilots who believe they are in good health and have passed the Civil Aeronautics Authority examinations have physical defects that may affect their health and even endanger their own and their passengers' safety. Evidence for this appeared in a report by Dr. Jan H. Tillisch and Dr. W. Randolph Lovelace, of the Mayo Clinic, to the Aero Medical Association meeting in Boston.

In a group of 103 transport pilots examined by these doctors, "71 had physical defects which could affect or were affecting their general health," the Mayo Clinic doctors reported.

Infections of tonsils, teeth and sinuses, which if untreated might cause enough hearing loss to ground the pilot, were discovered in these men who did not think they were in need of medical attention. Some slight impairment of hearing was discovered in 41 of the 103 aviators.

Active duodenal stomach ulcers, only one of which had been previously diagnosed, were discovered in five of the men. This means that four if not five of these men were in danger of serious illness and invalidism and even of sudden hemorrhage and fainting while at the controls of their planes.

One man had undiagnosed cancer of the bladder. Another had kidney stones. The reason these physical defects were not discovered during the CAA examinations, it was pointed out, is because the CAA examination is designed primarily to determine the pilot's immediate physical ability to fly, not to determine the state of his general health.

Science News Letter, November 22, 1941

Autogiros for Wounded

AUTOGIROS as well as large ambulance transport planes may play a part in evacuating war-wounded, it appears from a report by Dr. Lovelace and Major John Hargreaves, U. S. Army.

The autogiro companies claim, these doctors reported, to have a plane capable

of a jump take-off which will carry two litter patients, an attendant and a pilot.

Such a plane would be useful in evacuating wounded when suitable landing fields for large planes were not available and roads were blocked so that motor ambulances could not reach the loading points.

Experiences in the wars in Spain and Poland and in civil life show that the air transport of the sick and wounded is the method of choice, Dr. Lovelace and Major Hargreaves declared. Chances of recovery of seriously wounded men are improved because of the shorter time needed to bring them to base hospitals where major surgical and other procedures can be carried out. Morale is also improved by the knowledge that they will soon be getting more than hurried first-aid treatment.

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Test for Dive Bombing

A TEST which may be useful in selecting pilots who will be able to undergo prolonged rapid descents as in dive bombing without injury to their ears or hearing was described by Major Paul A. Campbell, of the School of Aviation Medicine, Randolph Field, Tex., to the Aero Medical Association.

The test depends on the ability of the eustachian tube, between the middle ear and the throat, to ventilate properly and thus carry on its important function of keeping air pressure on the inner side of the ear drum membrane the same as on the outer side.

Ability of the tube to ventilate can be determined, Major Campbell said, by determining the amount of pressure necessary to force it open during the act of swallowing.

If a flier cannot ventilate his eustachian tube properly, due to pharyngeal inflammation, anatomical deformity or other reason, loss of hearing for certain tones may result after extremely rapid changes in altitude. These losses of hearing are usually only transient, but may become

permanent if the "insult" to the hearing apparatus is repeated often enough.

Loss of hearing in the 4096 frequency area, the area of the highest note on the piano, may result from long periods of subjection to the noise of high powered motors, the whine of propellers combined with other noise inherent in the movement of aircraft. This loss of hearing may be only transient, but if severe enough or repeated often enough, it may become permanent, depending on the hearing apparatus the flier has inherited, past diseases of the ear, and the like.

From study of the hearing curves, as recorded by audiometers, of many fliers in the past few years, Major Campbell concludes that many of those who have flown thousands of hours have perfectly normal audiograms for their age group and "examination of their ear drums fails to give any clew as to their vocation or avocation."

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Have Distinctive Interests

IT IS the strongly "he-man" type of boy who goes into naval aviation, Commander Eric Liljencrantz, of the Navy's aeronautic medical research section, told the Aero Medical Association.

The interests of the boys who want to enter this field are so typical, he indicated, that a test of interests can be used to betray the draft evader or those with other ulterior motives rather than a genuine love of flying. Naval flyers are like men in skilled trades and the applied sciences in their interests. They have little in common with artists, lawyers or salesmen.

Increasing stress of service for the Navy's fighting flyers has produced a "crying need," for a new reliable measure of emotional stability, Commander Liljencrantz said.

In spite of the high physical standards of naval aviation, about a fourth of the men who meet them fail in flight training, he said. Personality defects may be responsible for many of these failures.

Tests of intelligence of a paper-and-pencil type are of little use at present in selecting naval aviation candidates, because the college education requirement already insures that these boys must have a high degree of intelligence. If this requirement were waived, however, the intelligence test would be very useful.

The pilot must be able to do much more than manipulate the controls of an airplane, Commander Liljencrantz said. Almost any healthy young person can be

taught to do this. Carrier and catapult operations, mass formation flights, protracted exacting missions and operations under adverse weather conditions or in darkness must be carried out. A Navy pilot must be able to cope with complex problems in navigation and to carry out exacting orders and make split-second judgments.

The Navy does not search for any Apollo-like, or movie-idol type of physical build in their aviators. Physical dimensions of aviators are limited by the

size of the cockpit, Commander Liljencrantz indicated, and by good health and general Navy physical standards. Beyond that no relation has been found between the build of the individual and his success in flying.

But the best of physiological performance is none too good for the flyer, he said. The mechanical performance of airplanes now exceeds the limits of physiological performance of the men who must fly them.

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PSYCHIATRY

Board of Experts Proposed To Guide Men Back to Sanity

If Such a Group Had Been Employed Years Ago, Hitler Could Not Have Come Into His Power, Scientist Holds

TO BRING men back to sanity after this war, governments should officially employ boards of scientific experts in psychiatry, anthropology, and semantics, it is proposed by Director Alfred Korzybski, of the Institute of General Semantics.

If such a group of experts had been on duty years ago, Dr. Korzybski said, (*American Journal of Psychiatry*, September) they would have studied "Mein Kampf" which politicians did not then read or understand. They would have reported officially that a sick man was getting into power and could have predicted the consequences.

"With that enlightenment, those in power could have met the situation more intelligently, and thus avoided the unbelievable blunders such as appeasements. More than that: if such an inevitable diagnosis by government experts had been officially published, even the people under mentally sick rulers would

have refused to follow their leadership. The world is learning its lesson too late."

Anyone who studies hospitalized mental patients and their writings, Dr. Korzybski said, cannot miss seeing in "Mein Kampf" and the speeches of various Nazis a pathological use of language which completely disregards its proper use of conveying thought or information.

Such a "sick use" of language for deliberate distortions abolishes predictability and so breeds fears and anxieties among the people subjected to it.

When a new weapon like the magnetic mine appears, it is turned over as a problem to experts in physics and engineering. The "war of nerves," "war of verbal distortion," and "war of linguistic pathology" are also important problems for experts and should be referred, Dr. Korzybski indicated, to such a board of scientists as he proposed.

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less fireworks-like eruption of brilliant experimental solutions of difficult problems, interspersed with equally brilliant outrageous pranks.

R. W. Wood showed how to produce a stream of atomic hydrogen, now the foundation of a non-oxidizing welding process. He performed the first experiments that eventuated in the present-day sodium vapor lamps. He devised a beacon-lamp using ultraviolet radiation, that enabled convoys to maintain formation at night while remaining invisible to the periscopes of submarines. He solved the riddle of the purple gold of Tutankhamen. He found a way to make cheaply the fine-ruled gratings that split sunlight into its spectrum. He did a thousand other similar feats—usually, legend declares, in about fifteen minutes per feat.

The same R. W. Wood set street idlers agape by apparently spitting fire into a rainwater puddle—the trick was done with a bit of metallic sodium. He kept cats off the back fence by planting sensitively explosive nitrogen tri-iodide on it. He carried a pint jar of blue dye all the way to Yellowstone Park (on his wedding trip, at that!) just to make Morningglory Pool bluer than it had ever been before, to the amazement of a flock of tourists who didn't see him drop it in.

He emulated Renaissance geniuses who dabbled in poetry on the side—but not too seriously. His two little classics, *How to Tell the Birds From the Flowers* and *Animal Analogues*, have passed through many editions. He carried on a ceaseless war against mediums and other frauds, showing them up mercilessly with tricks ever so much smoother than their own.

Past seventy now, and gray-haired, R. W. Wood is still a curiosity-driven, irrepressible boy.

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PHYSICS

Outrageous Pranks Sparkle In Life Story of Prof. Wood

A NEGLECTED advantage of science is the tremendous amount of fun you can get out of it—provided you have a sufficiently lively imagination and not too many stilted inhibitions. This advantage has been realized to the full by one of the most notable of the world's leaders in physics, Prof. R. W. Wood

of the Johns Hopkins University, whose biography is just published, (*Reviewed SNL, this issue*).

Prof. Wood appears in this book, which comes out under the authorship of William Seabrook, as a veritable modern Faust, a figure growing into a legend even in his own lifetime, for his cease-

● RADIO

Wednesday, November 26, 3:45 p.m., EST

On "Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Don W. Gudakunst, medical director of the National Foundation for Infantile Paralysis, will report on the infantile paralysis outbreaks of 1941 and tell of studies of cause of spread and methods of treatment of the disease.

Saturday, December 6, 11:45 a.m. EST

Sidney D. Kirkpatrick, editor of Chemical and Metallurgical Engineering, will discuss magnesium from seawater.

Listen in each later Saturday at 1:30 p.m.

Monday, December 1, 9:30 p.m., EST

Science Clubs of America programs over WRUL, Boston, on 6.04 and 11.73 megacycles.

One in a series of regular periods over this short wave station to serve science clubs, particularly in high schools, throughout the Americas. Have your science group listen in at this time.