SCIENCE NEWS

Science Service, Washington, D. C.

RADAR FOR AIRPORTS AND PLANES

RADAR will help to make postwar air travel even more safe as the result of research started by the Civil Aeronautics Administration, which is expected to increase the safety factors of flying in fog, snow, rain or when the ground is obscured by clouds, called "instrument weather" by pilots.

Experimentation now under way at the CAA Experimental Station at Indianapolis is aimed at the perfection of two radar devices, one for airport use, and the other, a collision warning device, for use in the airplane itself. About 10 carloads of radar equipment have been loaned to the CAA for this research.

A radar tower controller for airports will permit the control tower operators to visualize on a screen the actual position of all aircraft within a radius of about 25 miles. This would detect immediately any hazardous condition that might occur because of pilot's error, or some mechanical failure in the radio landing system. The operator could adjust the control of outbound traffic at a fog-bound airfield with complete knowledge of the exact position of all incoming planes. To-day, the only way an operator can determine the position of planes near his field is through position reports which are radioed in by pilots. Only one of these pilots' reports can be handled at a time, and the estimates are not always accurate.

The collision warning device is designed to be mounted on the instrument panel of the airplane. Not just another gadget to clutter up the already jammed instrument boards in most planes, the radar screen will be extremely valuable. It will report to the pilot his position in the air relative to other aircraft, and to obstacles in his path, such as radio towers, beacons, water towers and similar objects that may be hidden from his sight when the ceiling is low.

In actual operation of the collision radar instrument, pilots would be responsible for maintaining the proper distance from other aircraft while climbing to assigned altitudes and while approaching an airport for a landing. The complete landing approach could be handled by the pilot with the control tower acting as a monitoring agent through its radar screen. This would speed up landings and take-offs in bad weather.

A radar collision warning device was developed several years ago by the CAA, but it was too heavy and too expensive for general use. Wartime demands have speeded up the refinement and practical application of this device.

ITEMS

MECHANICAL, electrical and non-chemical patents, seized from enemy aliens and nationals of occupied countries by the American Government, have been abstracted and the abstracts printed. They are available in five volumes containing information relative to 37,000 patents, or in separate sections by subjects. Two thirds of the patents were granted to Germans. Abstracts of 8,000 chemical patents have previously been made available. The patents now abstracted include such broadly diversified fields as aeronautics, brakes, electric lamps and heating, electric furnaces, foods and beverages, internal combustion engines, machine elements, motors, printing, electronics and refrigeration, as well as many household articles. Telephony, telegraphy, textiles and tools are also included. The abstracts consist of the inventor's claim to the patent and a reproduction of the drawing as published in the *Official Gazette* of the U. S. Patent Office. Licenses under most of these patents are readily obtainable by any United States citizen upon application and payment of an administrative fee of $15 per patent. Over 9,000 have already been licensed by the Alien Property Custodian to nearly 700 persons or firms. This office issues all licenses.

How long has Australia had human inhabitants? This question is being threshed out anew as a result of the discovery of a human skull in an undisturbed deposit estimated to be 50,000 years old, near Keilor, Australia. This would seem to give the skull an age of 500 centuries. However, Dr. Franz Weidenreich, of the American Museum of Natural History, has made a careful examination of the specimen, and he states, in the issue of the *Journal of Physical Anthropology* which appeared recently, that this skull is very similar to another ancient Australian relic, known as the Wadjak skull, which was found in 1889, and which has a generally agreed-on age of only 20,000 years. If Dr. Weidenreich is correct in his identification of the Keilor skull as belonging to the Wadjak people, a really ancient human type is yet to be found in Australia. A possible complication in the problem may arise from the fact that "modern" types of human skulls have been found at apparently the same levels with undoubtedly ancient, primitive skulls, in other parts of the world. Could this mean that modern types evolved early, and perhaps at several different times? Dr. Weidenreich is inclined to think not. He feels that in such cases the dating is in error and that more reliance can be placed on the skull type than on the geological level of burial.

COLOR detectives that simplify and speed up the chemical analysis of such substances as milk, metals, beer, wine and soap have been perfected in stable form at the University of Illinois. The detectives are chemical reagents that have long been known in chemical laboratories, but because of difficulties involved in compounding them have not heretofore been looked upon as stable and positive tools of chemical analysis. Chemically the reagents are known as ortho-phenanthrolines. They are so efficient that they are able to disclose the presence of one part of iron, or certain other elements, in a million parts of water. The new development at the chemical laboratory of the university is a process of producing the reagents as stable compounds capable of giving reliable reaction. Their use will permit an industrial chemist to make in 15 minutes certain analysis that under old methods might take a half day.