



STARK POSITION FINDER

Capt. Horace Stark, inventor, with Pilots Sam Griesner and Murl Estes, examining the new device for determining position

AERONAUTICS

## Position Finders Developed To Tell Pilot Where He Is

### Devices Take Complicated Figuring Out of Navigation By Translating Compass Bearings Into Map Location

ANOTHER of those air safety gadgets that make a pilot's cockpit as complicated as an income tax return but will make the plane as safe as a buggy ride and a lot more comfortable is being introduced to the industry.

It is the Stark Position Finder. It tells the pilot where he is and takes another element of complicated figuring and guesswork out of the science of flying. The first commercial models have been turned over to pilots of a leading airline at Washington Airport. A similar instrument has also just been developed by Glenn E. Markt of American Airlines.

#### Bearings

Invented by Capt. Horace Stark, Pennsylvania-Central Airlines pilot, the new instrument enables a pilot to translate radio compass bearings in a jiffy into his position on a map.

The position finder consists essentially

of a translucent map representing on a circle eight inches in diameter territory 520 miles across—an area large enough to cover ground lying 250 miles each side of the airway along which the plane is supposed to be flying.

Below the map are two translucent screens ruled with spaced parallel lines. The three plates can be turned.

If the pilot wishes to note where he is, he takes a bearing on a given radio station by means of his radio compass. He then turns one ruled plate until the lines are pointed in the same direction as the radio station. He repeats the procedure taking a bearing on a different station and using the other ruled screen. The line on one plate which points to the radio station to which it is adjusted will intersect the corresponding line on the other plate at the point where the plane is located.

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AERONAUTICS

## Automatic Position Finder Is Developed in England

AN experimental model of a position finder which automatically tells an airplane pilot where he is at a given moment with only a small error has been successfully demonstrated at Hamble, it is reported in London.

The device, still very much in the process of development, consists of a pair of automatic direction finders, each tuned to a different radio station. Each is linked to a needle swinging on a point representing the station to which it is tuned; hence each needle points toward the plane. The point where the needles cross is the point where the plane is located. The two needles are, of course, located on a map of the region over which the plane is traveling.

Successful development of this device will mark another of the major safety advances in aviation that seems promised by instruments demonstrated within the last few weeks. Not only would it be another insurance against being lost, but it would be useful in medium-sized transport and military planes which cannot carry a separate navigator.

Collaborating in the development are O. G. E. Roberts of the Straight Corporation and J. A. McGillivray, chief wireless instructor of Air Service Training.

#### Direction Finder

An automatic direction finder, an instrument distinct from the position finder, which in itself is a guarantee of not getting lost, has been independently developed and demonstrated in the United States by the Sperry Gyroscope Company and the Radio Corporation of America.

This new scheme merely takes two automatic direction finders and operates on the well-known principle that the lines from the plane to the stations must intersect at the plane. By superimposing the lines on a map, in the form of needles that respond continuously to changes in the plane's position, the pilot can be kept informed of where he is.

Refinements in construction of the direction finders and in other parts of the equipment may mean some day that much of the laborious work of calculating one's position will be unnecessary. It should also make ground speed determination, still one of the not-so-easy-to-figure aeronautical facts, easier to determine.

The present equipment is still subject

to certain errors, one of which probably can be eliminated, and the other of which is not a large error. The possibility of linking the device with the automatic pilot is also foreseen. Reports emphasize, however, that this model is only an experimental one and that conclusions as to its performance in production models, which are still a long way off, cannot yet be drawn. Its weight, now 100 pounds, can probably be reduced to 60 pounds.

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PUBLIC HEALTH

## Health Hints For Tropic Vacations

THE TROPICS have become so popular with vacationists that Dr. George A. Skinner, professor of public health at the University of Nebraska Medical College, believes it is time to issue some health hints for tropic travellers. The Minnesota Public Health Association publishes them in its journal, *Everybody's Health*, just in time for snow-and-ice-bound northerners planning tropic cruises or other winter vacations to sunny lands. (November)

First thing to do when you plan your trip to the tropics is to be vaccinated against smallpox and typhoid fever. Dr. Skinner says "without exception" travellers should be protected by these two measures.

Milk, water, food and insects are health dangers to be considered particularly in the tropics or in any region where sanitary conditions are primitive. These may all carry the germs of dangerous, even fatal diseases.

Don't, Dr. Skinner warns, let the residents of the tropics persuade you to forego health precautions, or to believe that the milk and water are safe because they have been using them for years without being sick. A person long resident of a region where the milk is dirty and the water supply contaminated may use both and "get away with it" because he has built up a resistance to the germs they contain. The visitor is not so protected.

To be safe, milk and water should be boiled. So should cream for the coffee, because coffee at a temperature that can be drunk is not hot enough to kill the germs in milk or cream. Water for tooth-brushing also should be boiled, and don't put ice in the water unless it also is made from boiled, distilled or otherwise safe water. Ice cream and ices are another possible source of germs that are apt to be overlooked.

Raw fruits, vegetables and salads should also be avoided, except fruits like oranges and bananas that have a skin thick enough to keep out germs. Wash and peel these yourself, to be safe.

Incidentally, don't forget to wash your hands before eating, because they are constantly touching infected things, Dr. Skinner warns.

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PUBLIC HEALTH

## Health Service Fighting Dixie's Spreading Menace

NEW steps in the U. S. Public Health Service's fight against one of Dixie's serious health menaces, typhus fever, have just been announced. They consist of the discovery that the virus of typhus fever may find harborage in squirrels, rabbits, chipmunks and skunks as well as in rats, mice, woodchucks and opossums.

Addition of these new animals to the list of potential and actual animal reservoirs of typhus fever was made by Dr. George D. Brigham, assistant bacteriologist at the Federal Health Service's Typhus Research Laboratory in Mobile, Alabama.

For the first 46 weeks of this year 1,700 cases of typhus fever have been reported to the U. S. Public Health Service. Last year Georgia alone had over 1,000 and the total number probably ran as high as 3,000. The disease has spread not only in numbers of cases but in geographical directions as well. Texas, Alabama and Georgia are chiefly affected.

From two to four of every hundred cases of typhus fever end fatally. The

disease is not the same as typhoid fever. Typhus fever used also to be called jail fever and ship's fever, because epidemics of it so often occurred in jails or ships. It was epidemic in Europe toward the close of the World War. The typhus fever we have in America is milder than the European variety and does not come in epidemics. Federal health officials have been trying to perfect a vaccine against typhus fever, but point out that the occurrence of the cases is too scattered for vaccination to be a very practical method of control.

War against rats is the method advised for fighting typhus fever, because these are the chief villains in the American typhus fever situation. Federal health officials have found the virus of the disease in these animals and proved that it was spread from rats to man by means of the rat flea. Dr. Brigham has been searching for other possible animal reservoirs of the typhus virus and found that he could inoculate the animals listed. Whether or not these actually provide harborage of the virus outside the laboratory is not yet known.

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MEDICINE

## Blood Letting Used To Check Bleeding in Hemophilia

BLOOD letting is, paradoxically, being used with success as a treatment for bleeders.

Two Virginia physicians, Dr. George B. Lawson of Roanoke and Dr. A. B. Graybeal of Marion, Va., tell how they treated a man and two boys with hemophilia by the venesection method. (*Journal, American Medical Association, Dec. 3*)

One middle-aged patient has been bled every six or eight weeks for seven years,

each time with almost immediate relief from all his symptoms.

Moreover, under the periodic blood letting regimen, he has had no internal hemorrhages for a number of years although they used to be frequent and often confined him to his bed for six weeks at a time.

It all began back in March, 1931, when the man became acutely ill with signs pointing to the presence of hemorrhage in the chest, abdomen and the