



**NET HARNESS**—This safety harness is designed to protect airmen from crash impact and from take-off and landing jolts.

#### AVIATION

### Strong Net Safety Harness Protects Wearer in Crashes

► A STRONG net harness which fits over the side of a soldier and his pack, designed for airborne troops who sit side by side along the walls of a plane, promises greater safety in case of a crash in take-off or in landing.

This new protective harness was developed at the Wright-Patterson Air Force Base, Dayton, Ohio, and now has withstood field tests. It is called a "side saddle" safety harness, and in use extends upward from the seat to the shoulder, covering the body and pack of fully-equipped parachuters or combat infantrymen.

The harness is made of nylon mesh webbing, secured by four snap-on attachments which fasten to wall and floor fixtures. It is easily converted to a lap belt merely by pulling down a top strap over the shoulder.

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#### VETERINARY MEDICINE

### Sick Cattle Are Aided By Stomach Transfusions

► A NEW kind of transfusion is helping speed the recovery of sick cattle, the American Veterinary Medical Association reports from Chicago.

Instead of blood, digestive fluids are given. These fluids, from the stomachs of recently slaughtered, healthy cattle, contain rumen bacteria and other elements vital to digestion in cattle. Animals recovering from such conditions as shipping fever, severe bloat and scours may refuse feed and water and remain weak because the disease has killed off the helpful bacteria in their own rumens.

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#### OCEANOGRAPHY

## Icebergs Normal This Year

► ICEBERG conditions on the North Atlantic are normal so far this year, and they are expected to remain so.

Every spring and summer Arctic ice drifts southward, a menace to U. S.-Europe shipping. The danger season, where the Labrador current and the Gulf Stream meet to form the so-called "cold wall", lasts from March or April to July.

On April 11, by international agreement, shipping of all nations swung south from the northern, most direct great circle route to Europe. From that date through June 30, ships use emergency track "B", 150 miles south of the route used during the rest of the year.

Since February, U. S. Coast Guard planes, specially equipped B-17's, have been scanning the fog-bound region, approximately the size of Pennsylvania, for the menacing bergs. When these are spotted, usually by radar, their exact position is found, using war-developed Loran to pinpoint the place. Searching by plane is augmented by a patrol ship standing by in the danger area when the berg concentration gets very heavy.

The icebergs, mostly broken from the great glaciers on western Greenland, have journeyed about 1,800 miles in the Labra-

dor current to become such a threat. It is estimated that 7,500 sizable bergs break off each year. Of these, an average of 427 drift south of latitude 48 degrees north, silent white specters to shipping in the North Atlantic region.

The berg's lifespan and travel are controlled by wind, weather and current. Some work has been done to find a formula by which the kind of iceberg year could be predicted. None has yet been entirely successful. So maritime officials stick to the prescribed lanes, listen to the twice-daily broadcasts of the U. S. Navy's Hydrographic Office in Washington, D. C., and thus avoid threatening white mountains.

Spurred by the Titanic disaster, Belgium, Canada, Denmark, France, Germany, England, Italy, Japan, the Netherlands, Norway, Spain, Sweden, Russia and the U. S. signed the agreement to establish a permanent patrol of the iceberg area. Although the ships patrolling are U. S. Coast Guard cutters, the cost of maintaining them is shared by the participating nations. A new ice patrol agreement has now been worked out and ratified by six nations. It will not become effective until at least 15 nations have signed.

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#### RADIO

## Guide Planes to Target

► A RADIO bomb that could be used to guide planes to their targets in enemy territory has been revealed.

Known as the "Grasshopper," the device was developed by the National Bureau of Standards as a robot weather station. It drops by its self-contained parachute, which, when it opens, automatically starts an electric clock that controls the rest of the operations.

The radio station is readied for use by a series of small, explosive charges. The first explosion occurs when the bomb hits the ground, releasing the parachute to prevent the station from being dragged along the ground. After a short period, another explosive charge operates a leg release device which raises the station to an upright position. A third explosion pushes up the antenna, and the station is then ready to go.

The standard model of the station then transmits valuable weather observations—temperature, pressure and humidity data—and broadcasts the information at predetermined intervals regulated by the clock.

The radio's signals carry about 100 miles under normal conditions. The robot weather device could be simplified to become a radio marker beacon, guiding planes to their destination.

The self-powered station carries enough dry batteries to send signals giving weather information every three hours for more than 15 days. The device also contains a warning circuit to inform the receiving station if the equipment is damaged and an identification circuit so that the receiving operator knows which of several stations is being heard.

Three separate mechanisms are responsive to changes in atmospheric conditions. Any change in the temperature, pressure or humidity causes the value of a resistor in the appropriate detection system to change accordingly. When the transmitter is turned on by the clock, these resistors one after the other are connected to the sending circuit.

The signal sent out by the radio station will pulse at a rate proportional to the value of the connected resistor. At the receiving station monitoring the remote automatic transmitter, the pulse rate of the signal can be read as temperature, pressure or humidity, depending on the phase of the clockwork cycle.

The radio station was originally developed as a secret device during World War II by Percival D. Lowell and William Hakkarinen, of the Bureau of Standards, for the Navy Bureau of Ships.

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