NAVIGATION

Science Tracks Icebergs

War-developed radar, loran and underwater sound equipment helped find and track bergs in North Atlantic shipping lanes during the 1948 season.

See Front Cover

➤ PATROL planes, surface vessels, radar, loran and war-developed underwater sound equipment all played important parts in locating and tracking icebergs in North Atlantic shipping lanes during the 1948 iceberg season. It is an example of war science in peacetime applications.

The American part of this ice patrol is a function of the U. S. Coast Guard, which has performed this service since February, 1914. It is carried out under an international agreement, signed in January, 1914, whereby an international derelict destruction, ice-observation, and ice-patrol service was set up.

During February and March this year, the U. S. Coast Guard used converted B-17 planes to search for icebergs while flying on long trips over the water. Then in the latter part of April surface craft began patrolling because foggy and overcast weather decreased the value of aerial surveying. The picture on this week's cover of the SCIENCE NEWS LETTER was taken from a B-17 plane.

These surface vessels used radar to detect icebergs invisible to the naked eye. The bergs reflect the radar pulses much as other objects do, and the icebergs register as "pips" or images on the radar scope or screen. Once found, their exact geographical location was determined by loran. This is a navigation system developed during the war by which a surface vessel or airplane determines its position by two radio beams from separated land-based stations that are picked up by a special craft-borne receiver which computes the location by an automatic triangulation process.

Positions of all detected icebergs were reported by radio to all vessels in the neighboring waters. Underwater sound equipment, similar to that used during the war to locate submerged U-boats, was also successfully employed to locate icebergs. The underwater sound waves sent out by the equipment attached to the bottom of patrol vessels received back echoes from the submerged part of the icebergs just as patrol warships received echoes from hidden submarines.

The Coast Guard, as a result of the 1948 patrol duty, predicts that 310 icebergs will this year drift south of latitude 48 degrees north, or approximately south of Newfoundland. This number, by comparison, is much less than the annual average of 431 bergs for the 48-year period 1900-1947. The trend this year is favorable to southward movement and off-shore distribution, indicating the probability of ice being a serious menace in the vicinity of traffic lanes to be considerably less than normal.

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AERONAUTICS

Thunderjet Fighter Now Equipped with Rockets

➤ EIGHT 140-pound rockets added to the six machine guns with which the plane is already equipped make the 600-mile-per-hour Air Force Thunderjet an unusually formidable combat weapon, recent tests in Aberdeen, Md., at the Army's proving grounds, prove. As a result of these rocket firing tests the plane with the new equipment is now approved for military operation.

The Thunderjet is a fast, jet-propelled fighter plane built by Republic Aviation Corporation, Farmingdale, N. Y., with which the 14th Fighter Group at Dow Base, Bangor, Me., and the 20th group at Shaw Base, Sumter, S. C., are now completely equipped.

The eight rockets on the Thunderjet are carried four under each wing. They are fired individually by the pilot. During the tests here they were fired with a maximum velocity of 950 miles per hour from planes flying up to speeds of 500 miles an hour.

A unique feature of the rocket installation on these planes is the retracting rocket mounts. They automatically disappear into the wings when the rocket is fired. This eliminates speed-reducing obstructions under the wing after the rockets are on their way, permitting greater speed for get-aways.

The Thunderjet, one characteristic of which is its air in-take centered in its nose, is one of the Air Force's three production jet fighters. By the use of extra detachable fuel tanks carried on the tips of its wings, it has a range of over 1,000 miles.

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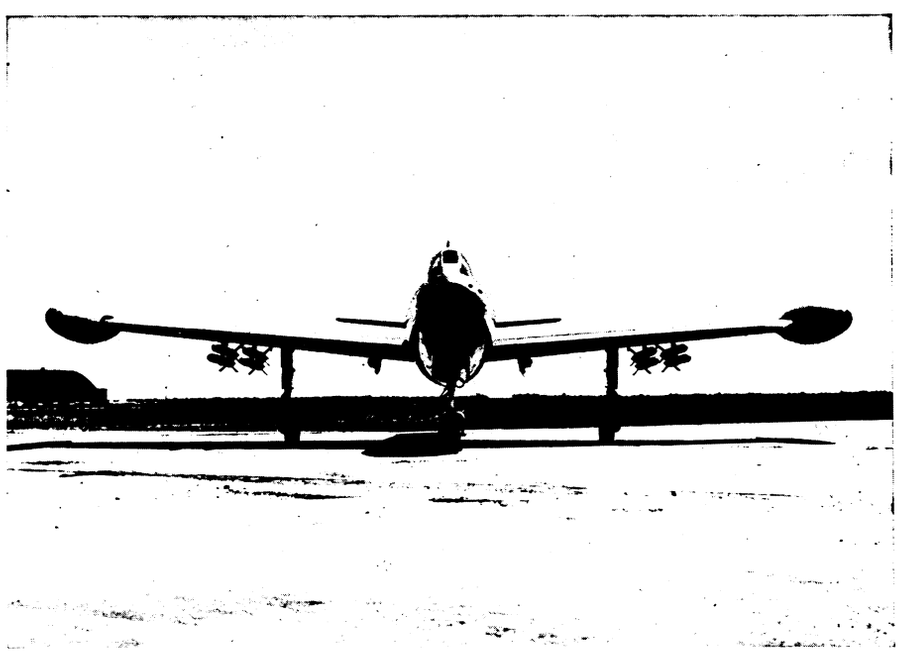

F-84 THUNDERJET—Eight, five-inch aerial rockets and six .50 calibre machine guns with 1,800 rounds of ammunition give this 600-mile-an-hour plane increased offensive power. After rockets are fired, the launching devices automatically retract to provide a streamlined wing surface.