

Automatic Arctic Radar Will Give U. S. Six Hours' Warning of Attack

Intermediate Stations To Track Enemy Planes

By John G. Norris

Staff Reporter

ALONG THE remote northern coast of Alaska and Canada, near lonely Barter Island, some experiments that could affect your very survival were held last winter.

Scientists and military communications experts braved the Arctic rigors to pass judgment on radically new "automatic" radar which can make possible an effective continental defense system.

The field tests were successful, says the Air Force, and Defense Secretary Charles E. Wilson has ordered a go-ahead on plans to build a chain of such early warning stations across the Arctic.

How crucial were the trials has been noted guardedly by Government officials. At stake was a decision on whether to build such a "distant early warning" radar screen to give advance notice of enemy planes coming over the North Pole—the shortest route from Russia—or whether to push our existing radar net in the United States and southern Canada as far north as economically practicable.

IN THE FIRST case, major American and Canadian cities and military bases would get some six hours' warning; the latter system would give them perhaps two hours. Today, we cannot count on more than a half hour's notice.

That is barely enough time to get interceptor planes into the air and antiaircraft guns and missiles readied for a last-ditch fight. Four out of five of the bombers might get through to drop atomic or hydrogen bombs on American cities. That could mean death to 10 million of us, plus crushing blows at our ability to carry on a war.

American defense chiefs admit we are vulnerable today to Russian air attack. Secretary Wilson conceded this recently (though he rejected a suggestion we are "highly vulnerable"). But he stressed that enemy ability to penetrate our air defenses does not mean that we are going to be attacked.

We are "relatively secure" now, he insisted, because of our strategic bombing command. Russia, he said, is "more afraid of us than we are of them, and has been stressing a defensive buildup rather than offensive bombing operations aimed at the United States.

FOR THIS reason—and a conviction that preservation of the American economy is equally vital to victory in the Cold War—Wilson has opposed the vast expenditures some have urged to build an airtight defense against possible H-bomb attack.

Some such proposals call for spending 100 billion dollars or

more on interlinking radar defenses, built in depth over the entire continent, plus thousands of supersonic, all-weather interceptor planes and guided missiles.

Military men generally have opposed such programs as "aerial Maginot lines" which would ultimately lead the United States into a "fatal defensive-mindedness." They contend that the best defense is a good offense, and that we should put most of our money in retaliatory bombers and other mobile forces.

But the more thoughtful military men have realized that much greater emphasis on air defense was necessary if only to assure that our Strategic Air Command could do its job. For if Russia believed that a mass sneak raid could smash our SAC bases before our bombers could get into the air on their retaliatory mission, she might be encouraged to use the long-range A-bombers she has been building of late.

THUS THE question of building up our radar net has been a vital issue ever since Russia exploded its first atomic bomb in 1949. Until then, the United States had done little toward building a continental defense system. We authorized construction of a chain of warning stations along the borders and coasts of the Nation and around key installations like Oak Ridge. Now nearly complete, they have essentially the same type of radar that saved England in the Battle of Britain.

Like the "secret weapon" of 1940, these stations send out pulses of electric energy which bounce back at the speed of light when they hit an airplane or other mass. Such "echoes" indicate the direction, distance and altitude of the target by light "pips" on the radarscope.

WEAKNESSES of radar have been and continue to be these:

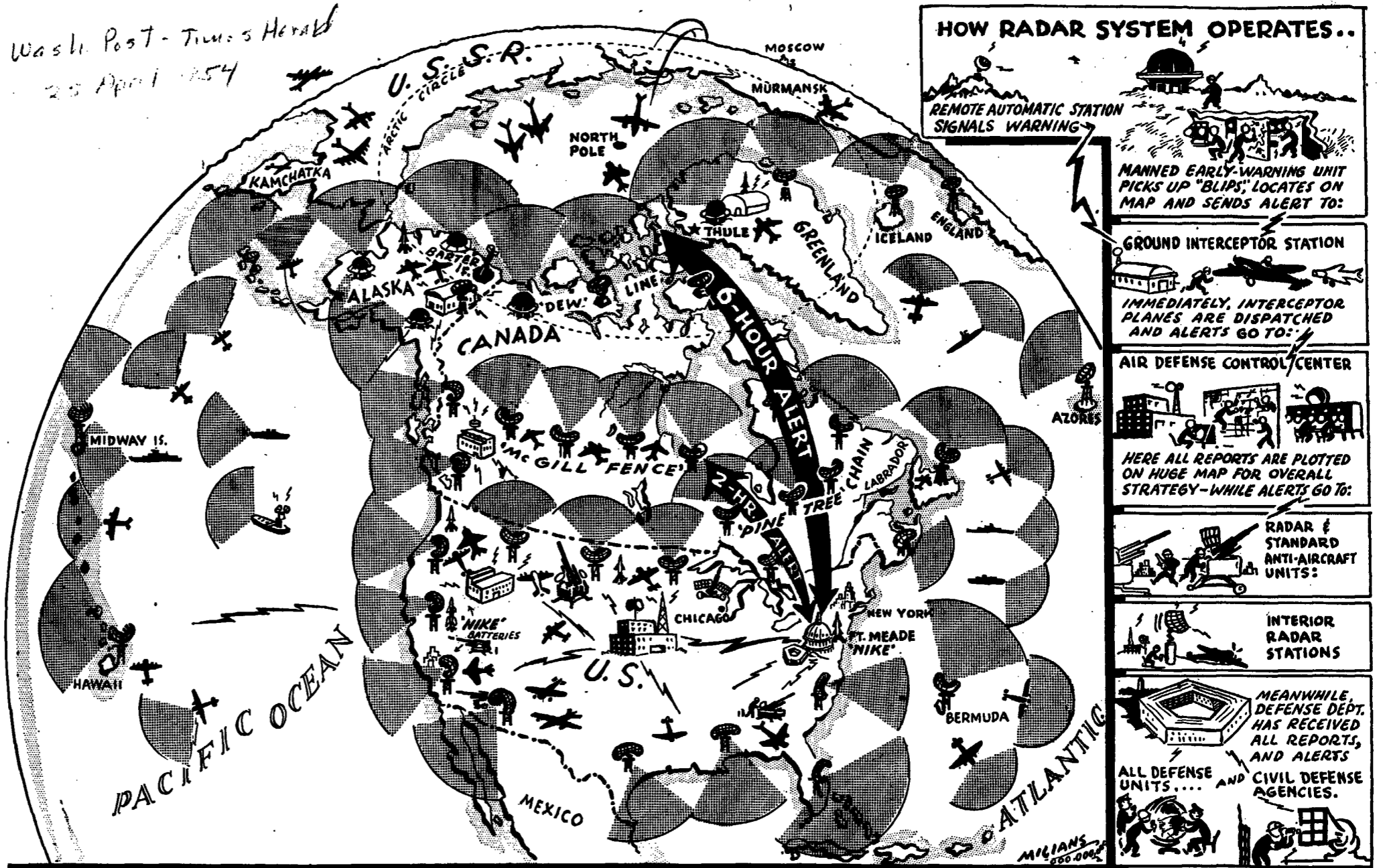
The range of any one station is limited to line of sight; it cannot "see" planes over the horizon.

Enemy aircraft can sneak in at low altitude and escape detection among hills and other ground objects.

The enemy can use electronic countermeasures to throw off watching radarmen.

In the northern areas, the aurora borealis does tricks to

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This is an artist's conception of the continental defense system now planned. It includes an automatic radar chain across the Arctic; intermediate lines across Canada;

existing systems in Alaska, the United States and Greenland, and picket ships and planes patrolling the north Pacific and north Atlantic oceans.

radar reception and radio communication to rear areas.

Identification of targets always is a problem, particularly over a country like the United States where some 25,000 planes are in the air daily.

THE COST of manning a tight radar net "in depth" over an area the size of the North American continent would be a major item. Some 300 to 400 men are required to watch the scopes around the clock and provide cooks, guards and administrative personnel.

But in the Barter Island system, when a radar "sights" a plane it rings a bell at a distant, control point. The warning is transmitted within seconds of the time the enemy aircraft come within range, according to a news release from Western Electric, maker of the system.

"Moreover," it says, "both the radar and the radio transmission which links it with the command centers are

proof against the magnetic storms which knock out conventional electronic equipment in the Arctic during substantial portions of the year."

These existing experimental stations, says the Pentagon, will be extended into a continuous chain from the present Alaskan net to the one around Thule, Greenland.

Such a Distant Early Warning Line—"DEW Line"—would give a minimum of six hours' warning to Air Defense Command Headquarters in Colorado of the approach of enemy bombers.

ONE BIG objection, however, has been that such a line, unless backed up by intermediate chains across Canada, would lend itself to harassing tactics by an enemy. The DEW Line could only warn that planes had crossed over. A series of interlocking lines would be needed to track them. An enemy could wear

out the defenders by constant feints and then slip A-bombers through by dog-leg flights.

The answer is to install such intermediate warning lines. Already in operation is the American-manned "Pinetree Chain" running across the uppermost part of inhabited Canada.

Plans now call for building the "McGill Fence." Designed by McGill University scientists, magazine articles say it will cross Canada about the fifty-fourth parallel. That would give about two hours' warning to the United States.

Wilson's statement of two weeks ago said that the continental defense plan also will provide protection across the northeastern and northwestern approaches to North America. Navy picket ships and patrol planes will do that job.

Already in the Fleet are a few destroyers and submarines converted for radar picket duty. But their func-

tion is protection of the Fleet, and the Navy is asking funds to rebuild Liberty ships for use as regular picket stations. It also is buying a number of Lockheed Super-Constellations with electronics gear to search for invaders.

ABOUT 10 PERCENT of defense spending next year—some \$3,700,000,000—will go for strictly continental defense measures. That includes not only radar, but research for and construction of interceptor planes and antiaircraft guided missiles like the Nike.

This is far short of the defense plan advocated by American scientists. They not only would strengthen the present jerry-built air defense system within the United States, but would greatly step up preparations for an interlocking continental system in depth running from Hawaii to Alaska to Greenland to Ice-

HOW RADAR SYSTEM OPERATES..

REMOTE AUTOMATIC STATION SIGNALS WARNING

MANNED EARLY-WARNING UNIT PICKS UP "BLIPS" LOCATES ON MAP AND SENDS ALERT TO:

GROUND INTERCEPTOR STATION

IMMEDIATELY, INTERCEPTOR PLANES ARE DISPATCHED AND ALERTS GO TO:

AIR DEFENSE CONTROL CENTER

HERE ALL REPORTS ARE PLOTTED ON HUGE MAP FOR OVERALL STRATEGY—WHILE ALERTS GO TO:

RADAR & STANDARD ANTI-AIRCRAFT UNITS:

INTERIOR RADAR STATIONS

MEANWHILE, DEFENSE DEPT. HAS RECEIVED ALL REPORTS, AND ALERTS

ALL DEFENSE UNITS... AND CIVIL DEFENSE AGENCIES.