

British Radio-Wave Wall Eases Blitz Effect; Mass Radar Production Ordered

(Editor's Note: The first 20 sets of radar—radio "eyes" of the army and navy—went into the American fleet less than three years ago. Discovered and developed at the naval research laboratory, it has contributed to many an American triumph in this global war. The account of its coming-of-age in mass production is told in this final installment of John M. Hightower's story.)

By JOHN M. HIGHTOWER
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By The Associated Press)
WASHINGTON, June 26 (AP)—Arrangements were made for mass production of radar in August, 1940, when Admiral Harold G. Bowen realized that the nation was faced with limited production facilities and war was threatening on every hand.

Bowen had lunch one day with Charles E. Wilson, then president of the General Electric company, now vice chairman of the war production board. The two men were good friends and Bowen felt he could be blunt about it.

"Charlie," he said, "one of us is a damn fool. Either I am a damn fool for visualizing such great possibilities for radar or else you are, for failing to get on it. I've been laughed at for a long time, but I think it is a billion-dollar industry. Now I believe I can prove it to you."

Two weeks later Wilson sent 20 scientists from the GE laboratory at Schenectady to inspect the navy's radar equipment at the naval research laboratory and, in the restrained phrase of an official report, they were "most enthusiastic." Another two weeks and Wilson himself came back to Washington for a demonstration.

He was so impressed with what he saw and heard that he directed Dr. Walter R. Baker, head of GE's radio division, to do whatever was necessary to enable GE to catch up with the navy's radar work on radar. He also reorganized the company's radio division, making Baker a vice president and starting the installation of radar manufacturing facilities. Subsequently GE got a large contract for naval radar.

Westinghouse Sold
In October, 1940, Bowen sold Westinghouse Electric company on the navy's radar program through conversations with A. W. Robertson, chairman of the board, and George Bucher, president. After a visit to NRL, Westinghouse reorganized its radio division and got a large navy contract.

While this work was going forward, a British technical mission showed up in the United States for an exchange of ideas with American scientists. The British conferred with navy department and naval research laboratory men and it was then, for the first time, that the story of Britain's radio detection work became known to our government.

British Work
A navy report says of these conferences: "Members of the British mission stated that the British development had resulted from articles reporting the preliminary work between 1926 and 1930 of Dr. (Albert Hoyt) Taylor and Mr. (Leo C.) Young of the naval research laboratory, and Dr. (Gregory) Breit and Dr. (Merle A.) Tuve of the Carnegie institute, studying the height of the Kennelly-heaviside layer (the world's electric roof, 150 miles up)."

"With this preliminary study as a base, the British had developed their radar system and had arrived at frequencies and circuits very similar to those developed in this country."

Work of Watson-Watt
British development actually was the work of Sir Robert A. Watson-Watt, 51-year-old Scottish physicist. He began his research some years before the war, using as headquarters a hut and a truck near Daventry, the headquarters of the British Broadcasting corporation. His wife was his first assistant. His work was carried out behind a screen of secrecy as great as that which prevailed in this country and under the impulse of war dangers far greater than the United States then faced.

Watson-Watt's equipment provided his country with the radio wave wall around its coasts when the German air force tried to blitz England out of the war. Other equipment he made went into British night-fighter planes which helped greatly in the end to break the back of the Nazi aerial offensive.

Progress Swift
The British had to work against time and their progress in some phases of radar work was comparatively much more swift than that achieved in this country. In consequence, the first American fighter plane to fly on actual combat mission with radio detection used British equipment. It was clumsy and not built according to the best rules of aerodynamics but it



Right Across the Target
The target for this example of army air forces precision bombing was an oil refinery at Leghorn, Italy. The bombs, laid by Flying Fortresses of the Northwest African air forces, hit right across the middle of the target, destroying cracking and refining plants and firing surrounding tanks. Note the white burst of flame as one of the tanks exploded. U. S. army air forces photo.

worked and it won—which was the test it had to meet. While it is generally accepted as a fact today that both British and American radio detection equipment were and are superior to those of Germany and Japan, the Germans had sets in use early in the war. It is believed that the accuracy with which the German battleship laid its first devastating salvo on the British cruiser Hood in May, 1941, resulted from the use of radio devices.

Bismarck Equipped
Further evidence of the use of such devices on the Bismarck is found in the fact that a British plane which subsequently located the battleship and guided British warships and aircraft in for the destruction of the big new German capital ship was fired at and hit while it was still out of sight above the clouds.

Allied authorities could not be sure, however, just how much the enemy knew about this equipment and how far his researches had gone. They therefore maintained absolute secrecy about their own versions of the new weapon to prevent any chance detail from providing the foe with a needed bit of valuable information.

Commercial Production
Once radar went into commercial production in the United States, Rear Admiral Bowen was designated coordinator of all phases of the navy's program. That was in October, 1940.

By the beginning of 1941, General Electric, Westinghouse, Bell Telephone and RCA were carrying on research and undertaking manufacturing operations simultaneously. Today every manufacturer of any size in the American electronics industry is in the program, Admiral Bowen reports.

Dow Studies British
One of the developments which resulted from the visit of the British technical mission to this country in 1940 was a return visit by an American naval officer a few months later. Commander (now Captain) Jennings B. Dow spent most of 1941 in England studying British developments. When he returned to this country he organized a radar branch in the navy's bureau of ships, with which the old bureau of engineering had been amalgamated.

Radar had progressed a long way from the original crude detection equipment used by Page and his naval research associates in creating the first modern instrument. It had even exceeded the first great visions of Taylor and Young back in 1922.

Effort Justified
Its accomplishments in battle had fully justified the sweat and disappointments, the beg, borrow and steal policy which Taylor found inevitable in the early

years to prevent the project from being lost entirely.

Admiral Bowen sums up what was accomplished in these words:

"This is the only time in the history of technology that any art was prosecuted in three dimensions at once—research, development and production. The men at the laboratory did a great job. They made an inestimable contribution to victory."

KLAMATH CHURCHES

CHURCH OF THE NAZARENE
The church is located on the corner of Garden and Martin streets. Bertrand F. Peterson, pastor. Residence, 620 Martin. Telephone, 4870.

Church school, with classes for all, convenes at 9:45 o'clock. Mrs. Emil Hearsh, is superintendent. The pastor will preach on the subject "Elijah's Mantle Be On Us!" at the worship hour at 11 a. m.

The young people's pre-prayer service is at 5:50 o'clock. At 6:20, Mrs. Bernie Peterson will be in charge of the juniors with an illustrated adapted message and songs. The young people's society extends an invitation to all youth to meet at 6:20 p. m. with us. Vern Speirs is president.

Evangelistic congregational singing is led by Ollie Speirs at 7:30. Following, the pastor will speak on "Two Lessons From a Cemetery." Bring your Bibles to prayer meeting at 7:45 p. m. Wednesday.

Choir practice under the direction of Ollie Speirs on Thursday, 7:30 p. m.

FIRST CHRISTIAN CHURCH
At the First Christian church Sunday morning, at the 11 o'clock worship, the minister, Rev. Arthur Charles Bates, will take for his sermon topic, "Working Together." The evening message will be "How Can Democracy Be Preserved?"

MIDWAY'S FLORA
Midway island, scene of the great air-sea battle, has two species of plant found nowhere else in the world—a species of nightshade and a variety of mint.

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Potatoes RECOVERY PUSH STALLED WITH PROFIT-TAKING

By VICTOR EUBANK
NEW YORK, June 26 (AP)—A little profit taking on the 4-session recovery push stalled a number of stocks in today's market but many leaders held their ground without a great deal of difficulty.

The advance was extended by fractions at the opening, with scattered favorites registering peaks for the year or longer in relatively lively transactions. Customers then began to cash in here and there in preparation for the week—and the pace slowed appreciably. Transfers were around 500,000 shares.

Among shares edging into the "new high" class were Willys-Overland, Sears Roebuck and International Harvester. Doing fairly well were Santa Fe, Pennsylvania, Great Northern, Standard Oil (N. J.), Texas Co., Westinghouse, American Telephone, Eastman Kodak and J. I. Case. Intermittent losers included U. S. Steel, General Motors, Chrysler, U. S. Rubber, Goodrich, Youngstown Sheet, Douglas Aircraft, United Aircraft, Kennecott and North American.

Bonds were steady and most commodities higher. Wall Street's principal discussion centered on the quick congressional overriding of the anti-strike bill veto. This development, brokers said, was highly cheering to financial sentiment although it was questionable whether market operations were affected to any appreciable extent.

Closing quotations:
American Can 88 1/2
Am Car & Fdy 43
Am Tel & Tel 154 1/2
Anaconda 28 1/2
Calif Packing 27 1/2
Cat Tractor 48 1/2
Comm'n'lth & Sou 13 1/8
General Electric 38 1/2
General Motors 55 1/2

Automobile Insurance to comply with the new law. See Hans Norland, 118 No. 7th.

Gt Nor Fy pfd	30 1/2
Illinois Central	144
Int Harvester	74 1/2
Kennecott	31 1/2
Lockheed	21 1/2
Long-Bell "A"	10
Montgomery Ward	47 1/2
Nash-Kelvy	14 1/2
N Y Central	17 1/2
Northern Pacific	15 1/2
Pac Gas & El	28 1/2
Packard Motor	47
J C Penney	96 1/2
Penna RR	29 1/2
Republic Steel	19
Richfield Oil	11
Safeway Stores	43
Sears Roebuck	82
Southern Pacific	27 1/2
Standard Brands	8 1/2
Sunshine Mining	6 1/2
Union Oil Calif	20 1/2
Union Pacific	98 1/2
U S Steel	56 1/2
Warner Pictures	15

LIVESTOCK
CHICAGO, June 26 (AP)—Salable hogs 300, total 8800; undertone steady on all grades and classes; quotable top around \$14.10 paid for strictly choice medium-weight hogs if available; compared week ago good and choice barrows and gilts 240 lb down steady to 10 higher; heavier weights and sows steady to 10 lower.

Salable cattle 200, calves none; compared Friday last week: Fed steers and yearlings advanced sharply early, but lost upturn in face of increased runs, and closed steady, with medium grades weak to 25 lower; heifers and cows 25 higher; cows very scarce; weighty sausage bulls strong, at new high on crop, all others 25 lower; vealers mostly 50 lower, closing at \$15.00 down mostly, only strictly choice offerings in small lots \$15.50; largely fed steer and yearling run; extreme top \$17.40 early in week but feed lot mates had to sell at \$17.15 late; best yearlings \$16.75, bulk \$14.25-\$16.75; strictly choice heifers up to \$16.75; cutter cows closed at \$10.25 down, heavy sausage bulls reached \$14.65; stock cattle steady, mostly \$13.75-\$15.25.

Salable sheep none, total 2500; compared Friday last week: Generally an active market on light receipts, prices strong to shade higher; fed western clipped lambs with No. 1 and 2 skins \$13.50-\$14.85, top \$15.00 on strictly choice 105 lb. weights at finish; good to strictly choice native spring lambs \$14.50-\$16.00, best packer deals \$15.75; cull springers occasional \$8.00 down; load good 88 lb. Idahos, first of season, Tuesday at \$15.00 straight; native slaughter ewes generally \$8.25 down, few lacking attractiveness \$6.75, \$7.00, few good woolled native ewes \$9.25.

SOUTH SAN FRANCISCO, June 26 (AP)—Cattle for five days 500. Compared week ago: Good grades untested, medium steers, heifers and range cows steady. Week's top package 1082 lb, grass steers \$14.00-\$14.25; four loads medium to common 950-1000 lb. feeder steers \$12.25, package 981 lb. Mexicans \$11.00 to killers. Few good 815 lb. heifers \$12.50, few loads medium 850-915 lb. \$12.00; three loads fat grass 1030-1100 lb. range cows \$11.00, odd head heavy \$12.00, common to medium cows \$9.50-\$10.50; medium sausage bulls \$10.00-\$11.00, good \$12.00.

Calves for five days 100. Few choice vealers \$14.00; medium to good \$11.00-\$13.00. Hogs: For five days 1800; compared Friday week ago, steady to 10 lower; closing top good and choice 200-240 lb. barrows and gilts \$14.65; good sows \$13.00-\$13.50.

Sheep: For five days 11,000. Compared Friday week ago, over 80 lb. good to choice spring lambs 25-50 higher; medium to good steady; good to choice decks \$15.00, choice 96 lb. \$15.50 extreme top, medium to good numerous at \$13.50-\$14.50; numerous decks feeders \$12.00-\$13.00, light weight common \$11.50; cull to good short ewes \$2.50-\$6.00; few packages \$6.50.

PORTLAND, Ore., June 26 (AP)—CATTLE: Salable for week 1385; calves 225; compared late last week, market weak to 25 cents lower, bulls \$1.50-2.00 lower, vealers around \$1.00 off; good to choice fed steers \$15.00-16.25, grassers mostly \$14.00 down, feeders \$13.00 down; common to medium heifers \$10.00-13.00; canner and cutter cows \$6.00-7.25, grass fat beef cows \$10.00-10.75, good fed

cows early to \$12.25 bulls closed \$11.25 down to \$8.00, early sales to \$12.75; good and choice vealers \$14.00-50, few \$15.00.

HOGS: Salable for week 3525; compared last Friday, market 25 cents and more higher; late bulk good and choice 185 to 230 lbs. \$14.00-25, early top \$14.50, heavier and lighter weights penalized 50 cents to \$1.00; good sows \$11.00 to mostly \$11.50, few \$11.75 and \$12.00; choice light feeder pigs \$16.00 to \$17.50.

SHEEP: Salable for week, 3200; compared week ago, fat lambs strong to 25 cents higher, other classes steady; good to choice springers \$13.50-14.00, common to medium grades \$10 to \$12.00, feeders \$10.50 down; common to good short odd crop lambs \$8.00-11.50; good short ewes \$5.00-50, common down to \$2.00.

Good clearance all classes of livestock at the week's close. The Portland market will be closed to trading Monday, July 5, 1943.

WHEAT

CHICAGO, June 26 (AP)—A firm undertone prevailed in grain pits today as trading sentiment continued to be dominated by rumors the ceiling price on corn would be raised in an effort to get more of the maize moving from the country into terminal markets.

Advances generally were confined to less than a cent, however, and considerable profit-taking was noticeable after yesterday's sharp run-up. There was a little hedging in wheat. Oats, which had the sharpest advance yesterday, tended to lag behind wheat and rye.

At the close wheat was 1-1 cent higher, July \$1.44 1/4, September \$1.45 1/4, oats were 1/2 cent lower to 3/4 cent higher and rye was 1-1/2 cent higher.

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"It used to be that Bob thought he HAD to have a steak after a hard day at the mill. (I like one myself.)"

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"It's up to you, Mabel, I said to myself. Use the old noodle. The first thing I did was to dig out mother's old recipe book. And the first thing I discovered was how to use bread to make appetizing meats taste better, and go farther."

S-T-R-E-T-C-H Your Meat Dishes with BREAD!

Roast Veal Breast, Stuffed

Select piece of veal breast and have butcher make opening on underside and stuff with bread dressing. For the dressing, take about two cups of bread, add browned onion and a dash of garlic, moisten with hot water or stock, add a dash of sage if desired, salt and pepper to taste. Sew up ends, dredge with salt, pepper, ginger and flour; place in hot oven in roasting pan with 2 tablespoons beef or poultry fat, an onion cut fine and a little boiling water. Turn and baste roast often until brown and tender.

NOTE---Good Bread is the foundation for every lunch. Rotate your use of sandwich fillings and spreads for variety. Fluhrer's ENRICHED breads provide vitality for hard work these war days.

Fluhrer's

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