

RADIO AGE

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JULY

1948

TELEVISION
AT THE CONVENTIONS

TUBE PLANT ENLARGED

Million Dollar Extension to Lancaster Factory Will Provide an Additional Acre of Space for the Manufacture of Television Picture Tubes

WHEN engineering and production staffs of the RCA tube plant at Lancaster, Pa., succeeded late last year in tuning up their ingenious machines to turn out television kinescope tubes at the then unheard of rate of one-a-minute, they discovered that the results of their efforts, admirable as they were, were still much below the fast-growing demands of the television industry. For almost overnight, television had caught the fancy of America. Each set that was sold, sold others. Everyone, it seemed, wanted a television receiver. And as set production increased, the demand for kinescopes kept pace. RCA recognized the situation and moved rapidly to meet it. Early this year, a million dollars were set aside for the construction of a wing to the Lancaster plant, which would make available nearly an acre of additional space for more automatic machines and proportionately more tubes.

Before the new building is completed sometime this summer, workmen will have begun the installation of the machines that, by the end of the year, should begin to contribute their appreciable output to the present supply.

Built in 1942 and operated throughout the war by RCA for the Navy Department as the largest

single supplier of cathode-ray and power tubes for critical war equipment, the Lancaster plant was purchased by RCA from the Navy in April, 1946. The most modern electron and television tube factory in the world, the plant at war's end comprised 394,450 square feet of efficient manufacturing and engineering space and presented a supreme opportunity to bring to immediate fulfillment one of the rosy promises of the postwar "dream world."

Plans Revealed to Industry

The first move was to expand and convert the plant's existing equipment, and design and install additional high-speed production machinery. At the same time, RCA's plans were made known to the electronics industry at large with a view to stimulating wide-scale interest and some measure of standardization of tube sizes on the part of manufacturers and designers so that the new-born television industry could move forward on a broad front.

Today, 1800 highly-skilled workers are employed at the plant and television tube production is running on a two and three shift basis for most operations. Newer and even more efficient methods and machinery continue to be installed.

Luminescent materials for the glowing picture face of the picture tube, once produced by the cupful in laboratories, are now manufactured at the rate of almost a ton a month at Lancaster. As an indication of the remarkable efficiency necessary in this operation, impurities must be held to less than one in 30 million to prevent impairment of the luminescent face of the television tube.

The installation of the first of three giant "settling machines" which made the critical process of applying the luminescent screen to the face of the tube almost totally automatic, has recently been completed at Lancaster. The endless belt machines automatically and precisely feed the luminescent solution into the glass bulbs, transport them across the machine while the television screen forms, pour off the excess fluid, wash the bulbs first in an acid then in a water bath, and finally blow them dry. In this critical operation, any vibration which might disturb the even settling of the luminescent particles to the face of the tube must be eliminated. The giant three-ton settling machine is so finely balanced that it is powered by a single quarter-horsepower electric motor—no larger than the motor in a vacuum cleaner. Mounted on precision ball bearings, the machine stands on a vibration-deadening cork "island" isolated from the rest of the plant by thick sandwiches of concrete and cork.

Electronization, expected to be the next great revolution in America's industrial plant, is already

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RCA TUBE PLANT AT LANCASTER, PA, NOW BEING ENLARGED WITH A MILLION DOLLAR EXTENSION WHICH WILL SUBSTANTIALLY INCREASE THE FACTORY'S 1949 OUTPUT OF KINESCOPE TUBES FOR TELEVISION.



Tube Plant Enlarged

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widely utilized at Lancaster. In one of the first manufacturing operations on the bulbs, r-f heat burns a dime-sized hole in the glass side wall and welds a metal anode-button to the glass at a temperature of 700 degrees centigrade.

The vacuum itself within the tube is created by another "robot" process in the "straight-line exhaust machines." After rigid inspection, including exacting scrutiny of the luminescent screen face, the precisely engineered electron gun which focuses the beam of electrons to "paint" the glowing television picture on the luminescent face of the tube is inserted into the glass neck and the bulb is placed on moving carts which pass through long oven-like machines. Eighty-four of the bulbs are handled at a time in two parallel exhaust machines. The evacuated tubes, each with a vacuum ten times that of an ordinary electron tube, emerge from the far end of the exhaust machine to be automatically "pinched off" and sealed, and placed on the conveyor belt for the trip to the next process, untouched by human hands.

Besides its vital production role, the Lancaster plant is, in effect, a "pilot plant" for the growing television industry. The unique automatic machines, the rich fund of "know-how" have all been made

New Explorations Open Way

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casting set forth in this statement, and the position taken by the RCA toward opening up the higher frequencies of the radio spectrum, completely disprove this charge.

"The Radio Corporation of America unequivocally and categorically denies the charge."

Dr. Jolliffe pointed out that RCA and NBC have made notable contributions to the development of FM. "RCA has worked on FM since 1924," he continued. "RCA was a leader in the development of the higher frequencies and the new radio services which those frequencies made possible.

"Long before FM broadcasting could commence, these higher radio frequencies had to be pioneered. New vacuum tubes had to be cre-

available to the tube-making industry at large.

For this and many other reasons, some future historian may well point to the low-lying brick structure at Lancaster as the open sesame that unlocked the gates to television, another of America's great industries.

ated to work on these frequencies. Transmitters, antennas and receivers had to be developed to meet their hitherto unexplored characteristics. This was the pioneering on which RCA engineers spent years of exploration, research, invention and engineering. Commencing almost with the beginning of the company in 1919, RCA has been in the forefront of the development of this natural resource.

"The significance of this pioneering work can best be understood when it is realized that two of the principal advantages of high frequency or FM broadcasting, viz., high fidelity and freedom from natural static, are derived from the use of these higher radio frequencies, and not from the type of modulation employed."