

Because of the secrecy factor connected with technical development projects, we are aware that it is impossible for the boards, whose duty it is to pass out this work to capable organizations, to describe the various projects and invite bidders on the same. Instead, it is necessary for these boards to familiarize themselves with the various organizations' equipment, personnel, the particular line of work which they are most familiar and most capable of handling.

In view of the above and our interest in securing our share of this defense work for our vacuum tube department, we are here submitting this paper describing briefly our research and development facilities. Because of the brevity it is not complete but should furnish sufficient inside information to give a general idea of facilities. More detailed information is available on inquiry which we invite.

The vacuum tube department proper excluding offices occupies an area of about 3000 sq. ft. of floor space with approximately 75% of the rooms air conditioned. These rooms are sealed and furnished with dust free air maintained at a pressure above atmospheric in order to minimize dust entering the rooms on opening doors to the outside area.

There are two glass working rooms with provisions for accommodating five or six glass workers. To date only two are employed. The glass working equipment consists of the essential fires for working quartz, hard and soft glass, a series of annealing ovens of various sizes provided with automatic temperature control, a horizontal glass lathe and vertical sealing machine.

The assembling rooms (two in number) are equipped with four spot welders and bench space to accommodate twice this number without crowding. These rooms are equipped with the necessary hand tools and special assembly jigs.

The exhaust room contains 12 exhaust positions, four of which are provided with non-radiant tube baking equipment designed primarily for photoelectric work. The radiant type of oven is used for all general work. Five of the exhaust positions are specially equipped for evaporation and sputtering. Two R.F. sources are available for heating and general outgassing of tube parts.

Necessary equipment, primarily furnaces, are available for hydrogen firing of tube parts of considerable size. The large molybdenum furnace will accommodate a parts container 3" in diameter and more than 12" long.

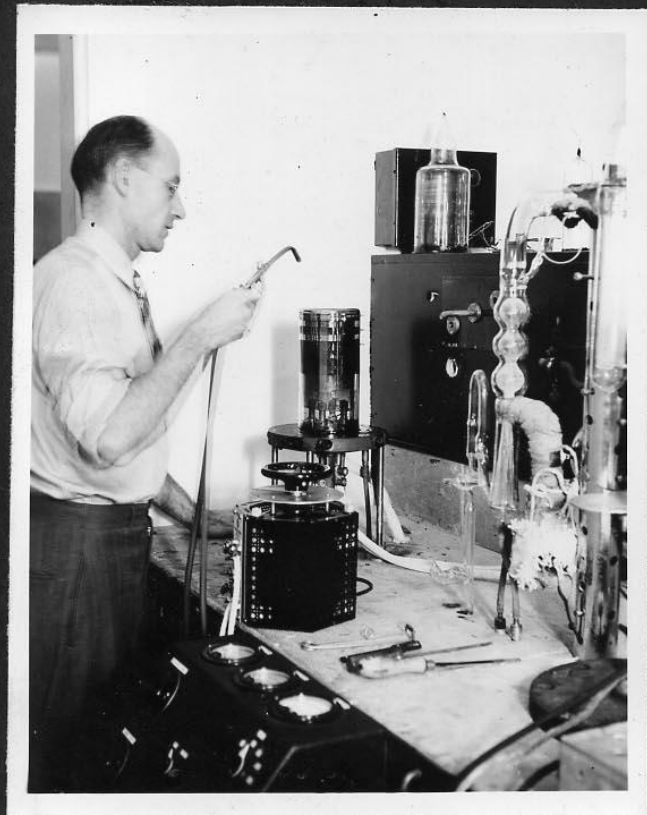
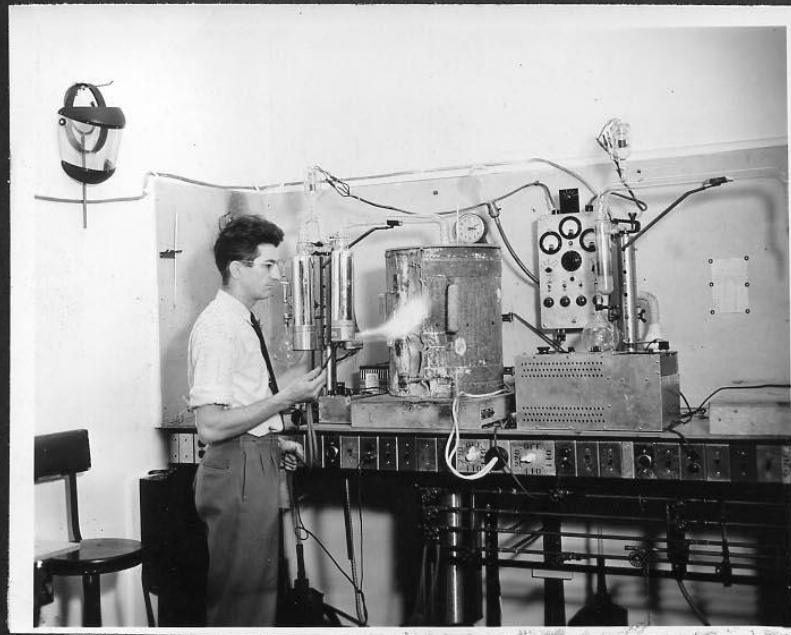
Two sink rooms are provided for general cleaning of parts and blanks and a number of small rooms for special work. One of these at present is being used for fluorescent screen work and is fully equipped, another for spectroscopic work is provided with a Gaertner monochromator and all the auxiliary equipment for determination of the response curves of photoelectric surfaces.

A small chemical laboratory exterior to the air conditioned area, a shop for mechanical work and a room for general development work complete the vacuum tube department proper.

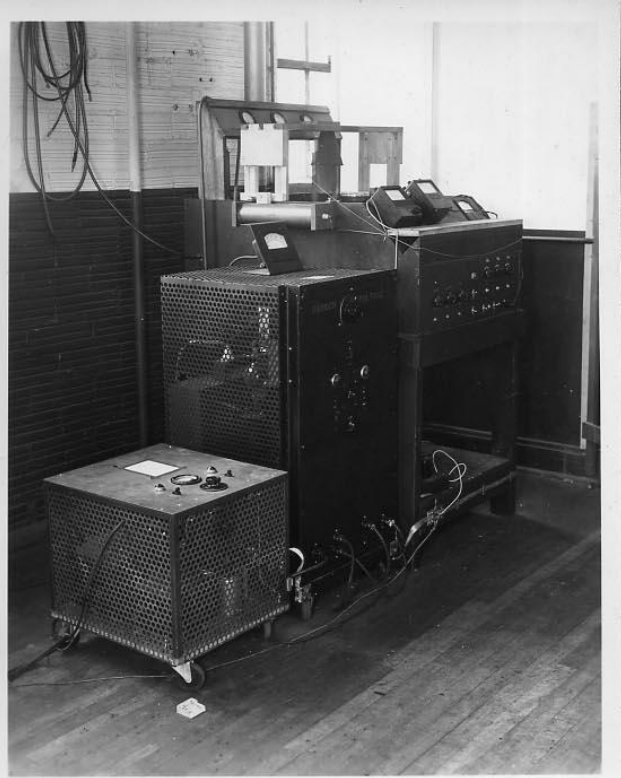
The personnel at present consists of three senior engineers, two skilled glass workers, and three technicians.

Because of the extensive work done by this laboratory over a period of years in the field of electronic television, having specialized in pick-up and electron multiplier tubes, there is built up here a unique experience in photoelectric and cathode ray technique. There are two vacuum tube devices in semi-production here at the present time; viz, the dissector and two varieties of photocell multipliers.

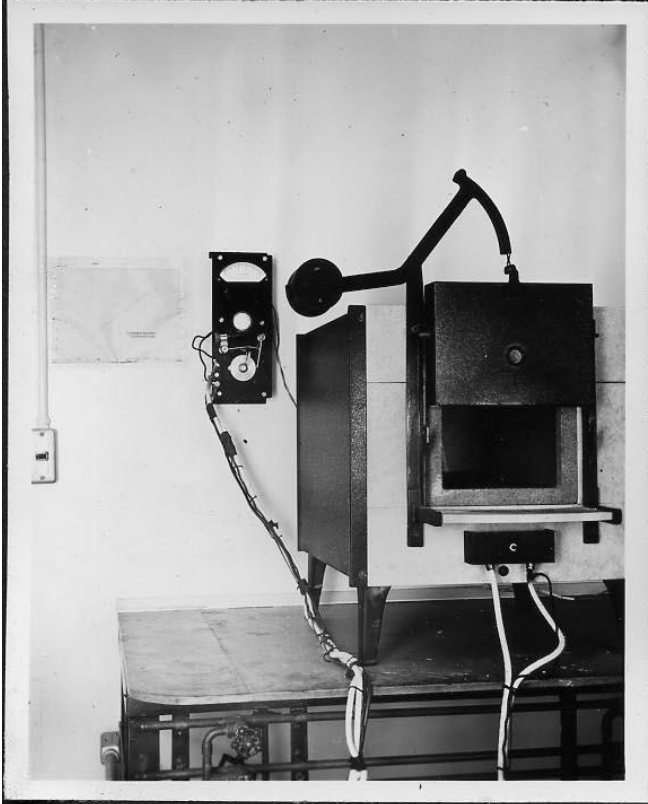
A number of photographs are added showing views within the laboratory as well as the product of the same. A careful examination of these should give at least a rough idea of what we should be able to do either in development or small scale manufacture.



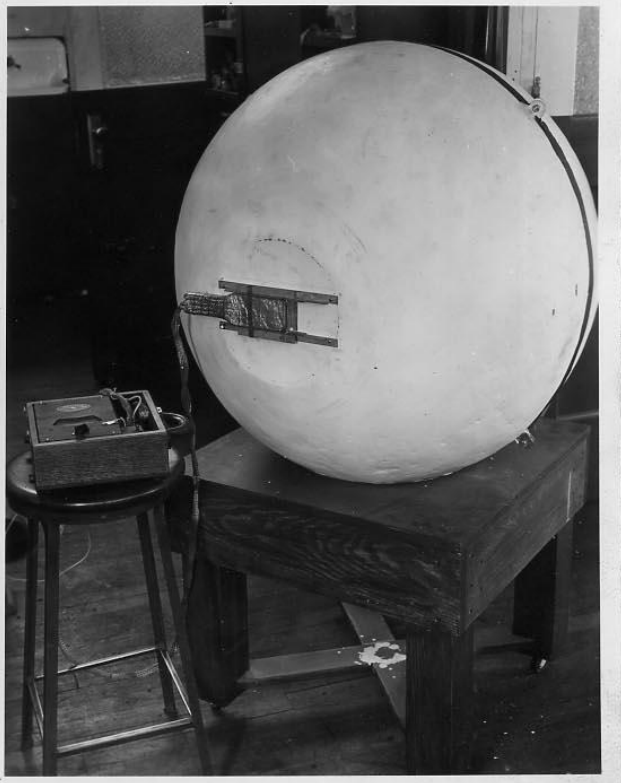
VIEWS IN EXHAUST, GLASSWORKING & ASSEMBLING ROOMS



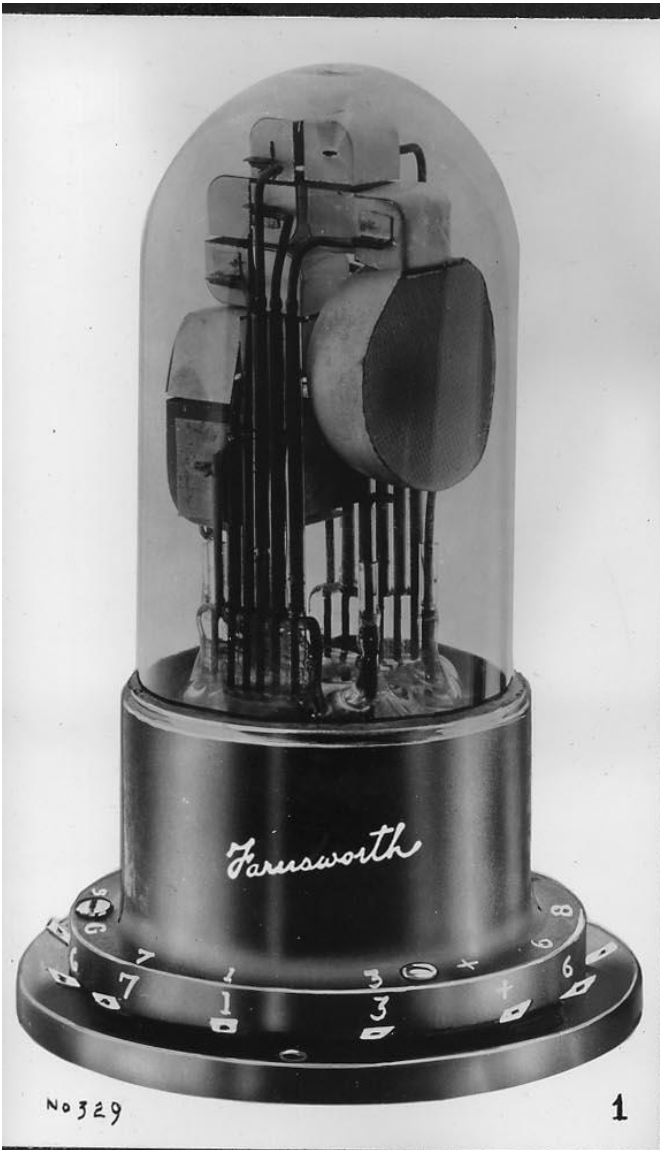
HIGH VOLTAGE CRT LIFE-TEST RACK



MUFFLE FURNACE



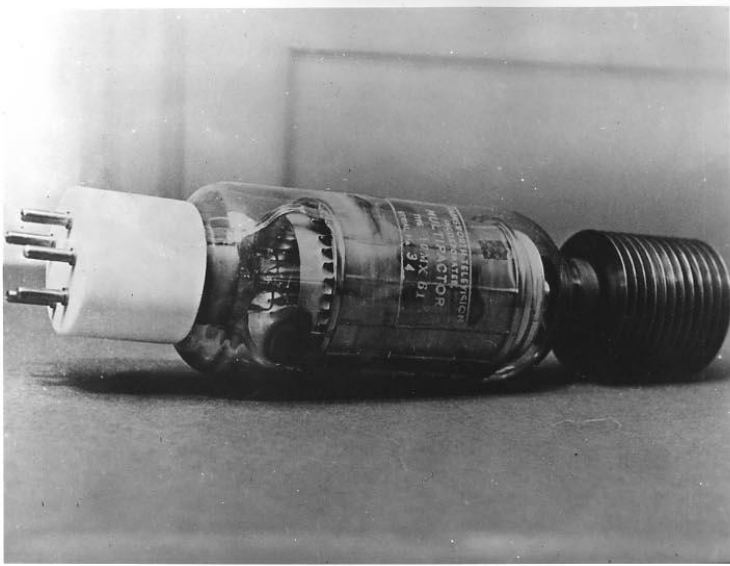
INTEGRATING SPHERE



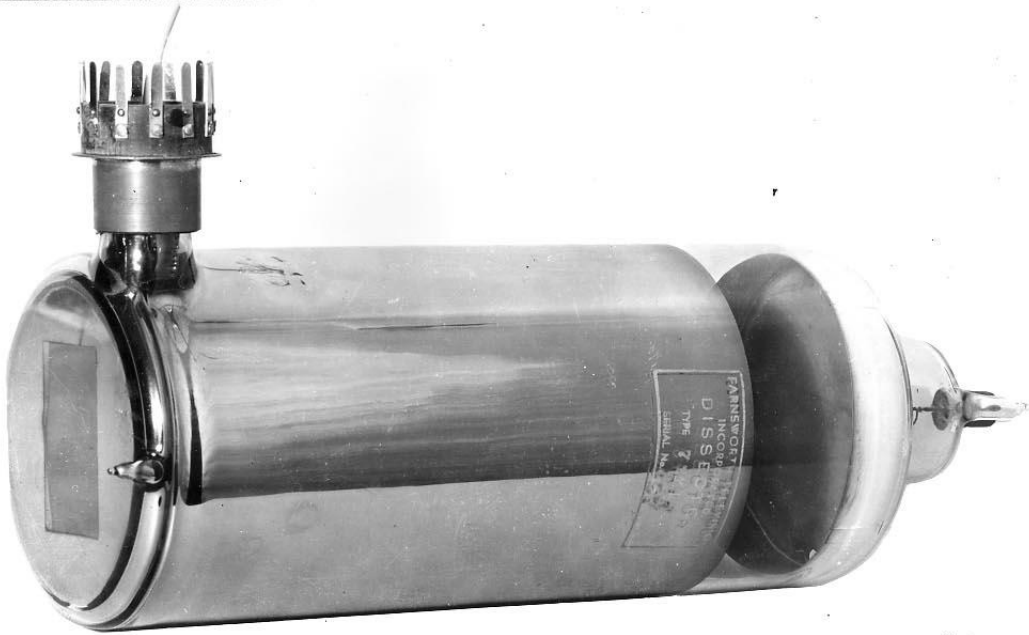
PHOTOCELL MULTIPLIERS
#2), #2 with quartz window

MULTIPLYING
TUBE

SPECIAL DISSECTOR →



POWER MULTIFACTOR

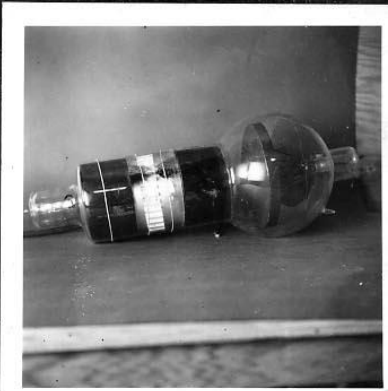
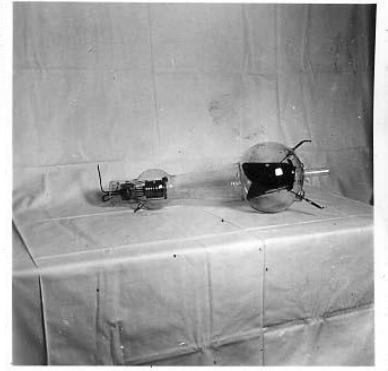
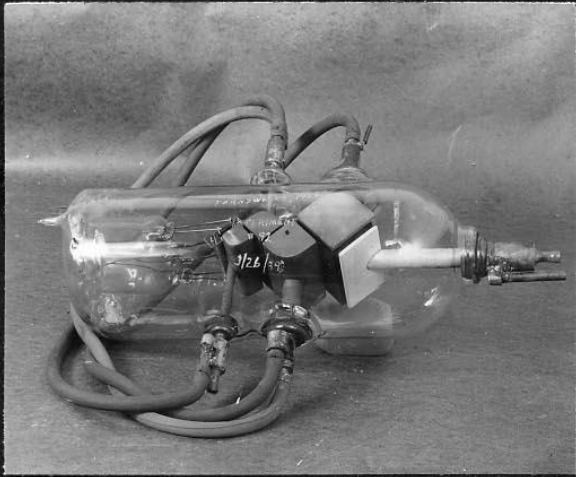


STANDARD
DISSECTOR

No 337



PROJECTION TUBES



MISCELLANEOUS DEVELOPMENT
TUBES