

file 29-35

HEADQUARTERS  
U.S. STRATEGIC BOMBING SURVEY  
(PACIFIC)  
APO #234  
C/O POSTMASTER, SAN FRANCISCO

INTERROGATION NO. 191

PLACE: Kawasaki  
DATE : 31 Oct. 45.

Division of Origin: Capital Equipment and Construction.

Subject: Visit to Kawasaki Plant of Tokyo Shibaura Electric Co.

Personnel interrogated and background of each:

Mr. Kawai - Production Engineer of the Shibaura Electric Co.

Where interviewed: Office at Kawasaki.

Interrogator: Pfc. Jacobson.

Interpreter : Lt. (jg) HART, USNR.

Allied Officers Present: None.

Summary:

Production difficulties and reasons for the difficulties during the war were discussed.

Visit to Kawasaki Plant of Tokyo Shibaura Electric Co.

The Kawasaki plant was the largest producer of incandescent lamps and vacuum tubes in Japan. Before the war (1940) Tokyo-Shibaura produced over 60% of all lamps and tubes made in Japan. Of this total, the Kawasaki plant made one-fifth of the incandescent lamps made by Tokyo-Shibaura, and 80% of all small type receiving tubes for wireless. Large sized transmitter tubes were made in other plants of the company. Mr. Kawai indicated that these plants had been virtually destroyed in air attacks.

As the war progressed, more and more effort was concentrated on the manufacture of products for the armed forces. Light bulbs were made for signal purposes, for naval vessels, and aircraft. Vacuum tubes were made in greater variety of types as the war progressed.

Other apparatus was also made at the Kawasaki plant. It included laboratory products such as oscillographs, controls, stroboscopes etc., as well as ordinary types of lighting accessories used in ordinary household and commercial establishments. Production of these latter items dropped off sharply during the war as effort was concentrated on vacuum tube production mainly.

Difficulties in the mass production manufacture of lamp and tubes were great, since the Army, Navy, and Air Force had individual demands for production, which occasionally conflicted. The company had to make 150 different types of tubes. As a result it was compelled to resort to subcontracting for metal parts for the tubes. 20% of vacuum tube parts manufacture was subcontracted to small shops. Technical difficulties were great since skilled labor, and experienced engineers had been inducted into the Armed Forces. Special difficulties were apparent in bulb blowing machinery.

No standardization was possible even in the use of raw materials since the materials the Armed Forces ordered the plant to use also changed constantly. Thus, mass production methods tended to break down.

The quality of tubes deteriorated from a pre-war standard of 90% efficiency to an efficiency of approximately 50%. As an illustration of the drop in production, the plant might have been able to produce 10 million vacuum tubes in 1944 but produced about 5 million instead, in spite of additions of floor space formerly used in the manufacture of incandescent lamps and the purchase of new machinery. The main factors were changes in types, deterioration in the quality of labor, and lack of raw materials, such as nickel, tungsten, and molybdenum. Raw materials shortages and the greatest influence on the drop in production of electrical apparatus, since whatever materials were on hand were diverted to more essential uses.

Attempts to disperse production in 1944 served to retard production also. Time was consumed shifting some machinery to outlying plants, but most of these did not go into operation by the time the war ended.

Subcontractors also played an important role in the manufacture of electrical apparatus for laboratory use. About 50% of parts were thus supplied. When subcontractors small factories were burned out in the Kawasaki area, the plant had to resort to black-market purchases to obtain some small parts which could thus be obtained. Production was very difficult to maintain thereafter.

Visit to Kawasaki Plant of Tokyo Shibaura Electric Co. (cont'd) ..

In the fiscal year 1943-44, the plant was ordered to increase its production of vacuum tubes by 300% but production tended to drop rather than increase. A great deal of confusion was evident in both planning policy and in the productive process.

After the air raid of April 1945, production fell off disastrously. It was 10-15% of production in March and fell even lower in June since the supply of component parts was exhausted.

The vacuum tube manufacturing industry was apparently not flexible enough to meet a constantly changing demand for different types of vacuum tubes in the quantities in which they were needed. Demands were delivered from three, main sectors--for Army, Navy and for aircraft equipment. None of the demands were met, but each service took its share in proportion to the demands made upon the plant. Wireless equipment production always outstripped vacuum tube production throughout the war.

At the moment the plant is producing incandescent lamps for ordinary use at the rate of 170,000 per month. It expects to increase its capacity to about 500,000 per month by January. No vacuum tube production is being undertaken, but parts for tubes for domestic receivers are being made.