

R E S T R I C T E D

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

RESTRICTED

INTERROGATION NO. 338

PLACE: Osaka
DATE: 7 November 1945

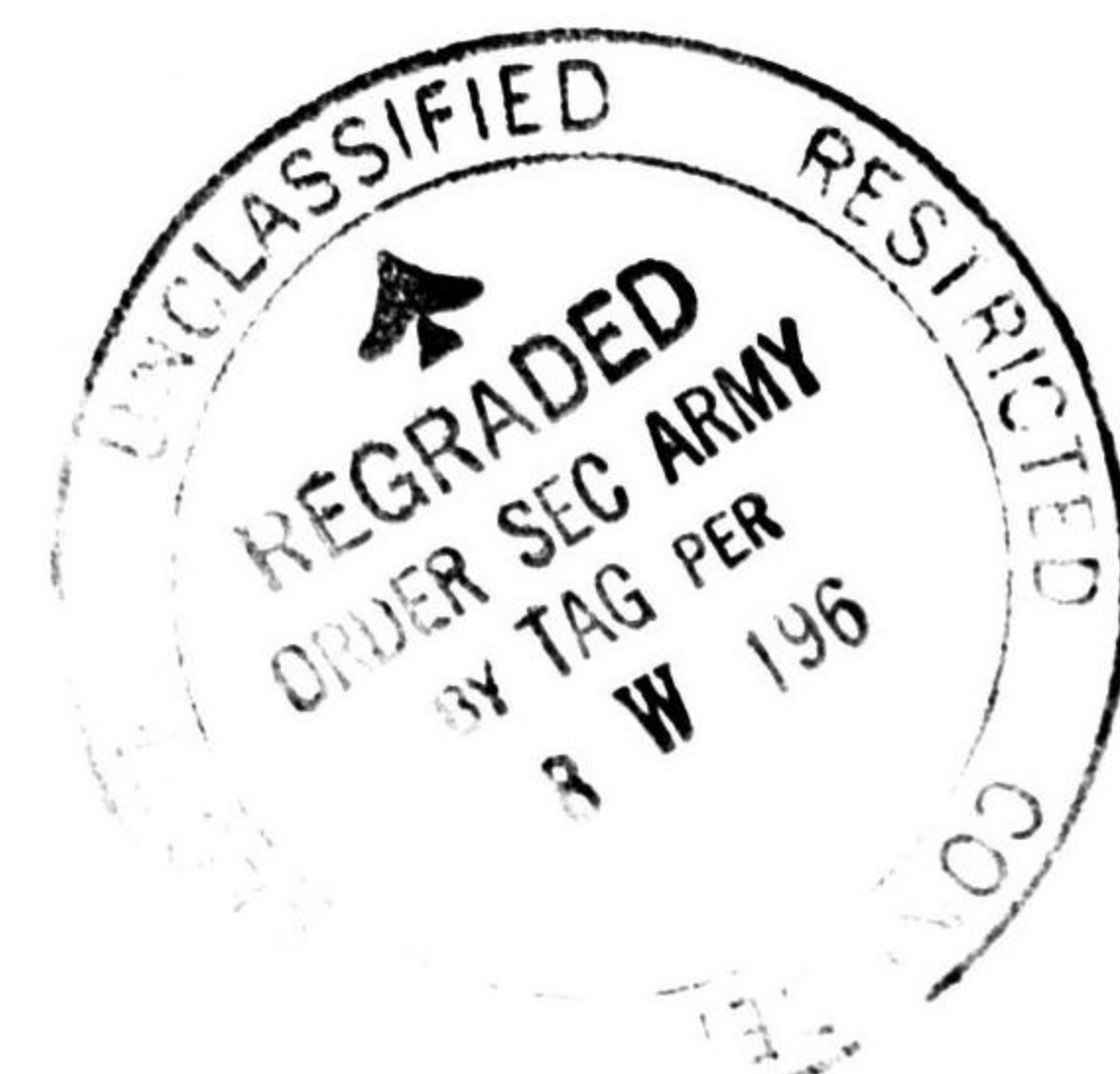
Division of Origin: Basic Materials
Subject: Aluminum and Copper Fabrication
Personnel Interrogated:
SUMIDA, J. Plant Manager, Sumitomo Metals Co., Osaka
SAWA, S. Chief Mechanical Engineer, Sumitomo Metals
Co., Osaka.
Where Interviewed: Plant Office, Sumitomo Metals Co., Osaka
(Sumitomo Light Metals Ind. Co.)
Interrogator: Lt. R. C. BEYER
Allied Officers Present: Lt. A. M. FREEDMAN, Mr. Donald COLWELL

SUMMARY

The most important points resulting from this interview were :

1. The only serious shortage experienced by this duralumin rolling mill prior to the first attack on June 1, 1945 was aluminum ingot.
2. Approximately 80% of all duralumin products in 1945 was from scrap; 20% from primary aluminum. In 1944 approximately 40% had come from scrap; 60% from primary aluminum.
3. The plant was never short of copper. The shortage of aluminum ingot and the sufficiency of copper is at variance with information from other sources and may be explained upon the receipt of more detailed information from the plant.

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1. The chief products of the Sumitomo Metals Company were duralumin sheet, pipe, rod, extruded shapes forgings for airplanes (crank cases), propellers, and other shapes; brass and copper sheet and other fabricated shapes including cartridge blanks. The Sumitomo Metals Company was one of the six or seven largest duralumin and brass mills in Japan. It was an extremely modern, well organized plant.

ALUMINUM

2. On June 1, 1945, the date of the first raid which was incendiary and did little damage, the duralumin production was 1600 m.t. per month or 80% of its 2000 tons per month capacity. (The devastating raids occurred on June 26 and July 24.) The shortages which accounted for the lower-than-capacity production were:

- a. Raw materials -- virgin aluminum, coal, coke.
- b. Labor -- Failed to come to work.
- c. Air raid alerts.
- d. Transportation, especially trucks.

The most serious shortage was that of primary aluminum which first developed about January 1, 1945. Prior to November 1943, when the Ministry of Munitions was set up, the plant was well supplied with raw materials by the Army and Navy; but after that time the plant seemed to have some trouble.

3. Aluminum made from aluminous shale had been tested and found adequate. From then on it was used interchangeably with aluminum made of bauxite and no distinction of primary aluminums was made. Inasmuch as regular production also used secondary aluminum from both airplane plants, including borings and turnings, and from crashed and war weary aircraft it is probably true that one primary was as good as the other and any harmful effects were due to contamination in the large proportions of secondary that were used.

4. About 60% of their production was of Duralumin (probably 24S, although they were uncertain on this point). Very little pure (25) was produced, and the balance was mainly forging alloys and ESD and HD (zinc 8% and 5% respectively).

5. In 1944 the aluminum used by their company was 40% from secondary sources, and in 1945 80% from secondary sources. This secondary was allocated to them by Kansai Distribution Control Company, Dept. of Munitions and Supply. It included mill run -- around scrap, borings and turnings, and also scrap from war-weary and crashed aircraft. It was supposedly carefully segregated, and the company claimed that the iron content of their ingot in 1945 was about 0.6%. In view of the large proportion of scrap and the doubtful segregation when so much ESD and HD alloy was used, it is questionable if their ingot was this good. They admitted, however, that production was lowered about 10% and mechanical properties about 10% by the use of so much metal from comparatively low grade scrap. (In comparison, U. S. practice has been to use only carefully segregated scrap in its wrought alloys for aircraft, and then only to the extent of about 30%. No lower grade contaminated alloys from borings and turnings and wrecked aircraft are used in high grade wrought products).

BRASS AND COPPER

6. Brass production on June 1, 1945 was also estimated at about 1600 Tons or 80% of a 2000 Ton capacity. Shortages here were attributable to the same general items for duralumin, except for the fact that there was no copper shortage. Zinc and Tin were harder to obtain. Scrap copper and brass and scrap zinc were used, - allocated to them. The brass was mainly 70-30 cartridge brass, although some gilding metal, probably for rotating bands, was observed. No continuous rolling mills, but there were several hot mills.

BRASS AND COPPER (cont'd.)

Consequently lead content of the brass was probably not too important. They said the Army allowed 2% lead in the brass, but on closer questioning said that the cartridge brass contained "only a trace of lead". Electrolytic zinc was used for brass, but they were uncertain how pure.

7. The brass and copper equipment was also good. There were two 3-high hot mills and four 2-high hot mills, and many 2-high cold rolling mills. Extrusion was done on the aluminum equipment, and drawing of cartridge cases. The only case drawn was 12.7 cm. Blanks for small arms sizes were sent to other manufacturers. These buildings were completely wrecked, some flooded, but the heavy equipment could generally be salvaged.

8. Brass and copper anodes were alloyed in or melted for shapes in coke-fired crucible furnaces. For rolling and extrusion, however, induction furnaces were used. Mill had four or five Ajax-Northrup type furnaces, 600 kg. each, thirteen Ajax-Wyatt type, 60 kg. each, and five Ajax-Wyatt type 120 kg. each. These brass furnaces were all wrecked.