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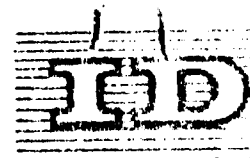
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Expert Group Meeting on the Utilization of  
Non-ferrous Scrap Metal in Developing Countries  
Vienna, Austria, 25 - 29 November 1969

PROBLEMS OF QUALITY  
IN PROCESSING SECONDARY NON-FERROUS SCRAP METAL

Addendum 1:

Pattern of Future Development of the Secondary Non-ferrous  
Metals Industries in Developing Countries <sup>1/</sup>

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Pattern of future development of the secondary non-ferrous metals industries in developing countries

In the foregoing chapters efforts have been made to explain the Technology of non-ferrous metal manufacture, its quality control and practical application taking aluminium and copper as the basis. The most commonly used metals, in present day civilisation are (1) Aluminium (2) Copper (3) Zinc (4) Lead and (5) Tin. These metals enter in any developing country either as a virgin metal to meet the local demands in various shapes and forms or infiltrate through various products of almost daily necessity. A large proportion of non-ferrous metals are accumulated due to scrapping of automobiles, railway components and other spares of industrial plants and machinery installed in a developing country. Although accurate statistics are not available yet it can be visualised that substantial quantity of non-ferrous metals remain utilised or go to waste such as (1) Tin in tin cans and containers of various types and shapes used for packing of food and other valuable materials, (2) Aluminium in the form of domestic utensils, (3) Aluminium alloys in the form of rejected automobile components (4) Copper in the form of clippings from electric cables and wires, (5) Copper base alloys such as railway wagon or coach bearing and other rejected industrial plant spares (6) Lead from lead products used for plumbing and sanitation purposes and also separating plates from rejected batteries. There is hardly any organised efforts for the collection, sorting and effective utilisation of these secondary metals partly due to lack of knowledge of the metals and their present day market value or price structures.

In this connection it will be interesting to note the upward trend of prices from the attached price-graphs of London Metal market quotations from 1850 to 1969 for some of the commonly used non-ferrous metals such as -

(1) Aluminium, (2) Copper, (3) Lead, (4) Zinc, (5) Tin. In the case of copper and Tin the price increase has been nearly 600%. This spiral ring of prices are bound to increase further in the very near future due to high rate of population and their efforts to maintain a definite standard of life in all the developing countries.

It is imperative therefore, that every effort should be made to make use of this hidden treasure in each of the developing countries. While the production of virgin metal has not been or cannot be intensified overnight yet due to the rapid process of civilization and need for modern amenities of life the consumption <sup>of</sup> non-ferrous metals are going up in leaps and bounds and as a natural corollary the prices are shooting up every day.

While to increase mine production needs heavy capital expenditure and time to fabricate heavy plant and machinery, it is comparatively much easier to recover secondary metals in any developing country with much less capital cost. In India there are large number of entrepreneurs who by investing only about Rs. 5000/- are producing about one ton of Copper and copper base alloys per month, employing about 5 direct men. The monthly revenue varies from 15,000 to Rs. 20,000/- .

An aluminium utensil manufacturing unit with a capital of Rs. 5,00,000/- produce about 30 tons of finished products per month employing about 50 men. The revenue per month comes to about Rs. 3,00,000/-. The essential and fundamental requirement is (a) to impart the required knowledge to the people who may be already in the trade in some form or other in the collection and re-selling of the metallic products and (b) by installing typical melting, refining and product manufacturing units by providing the

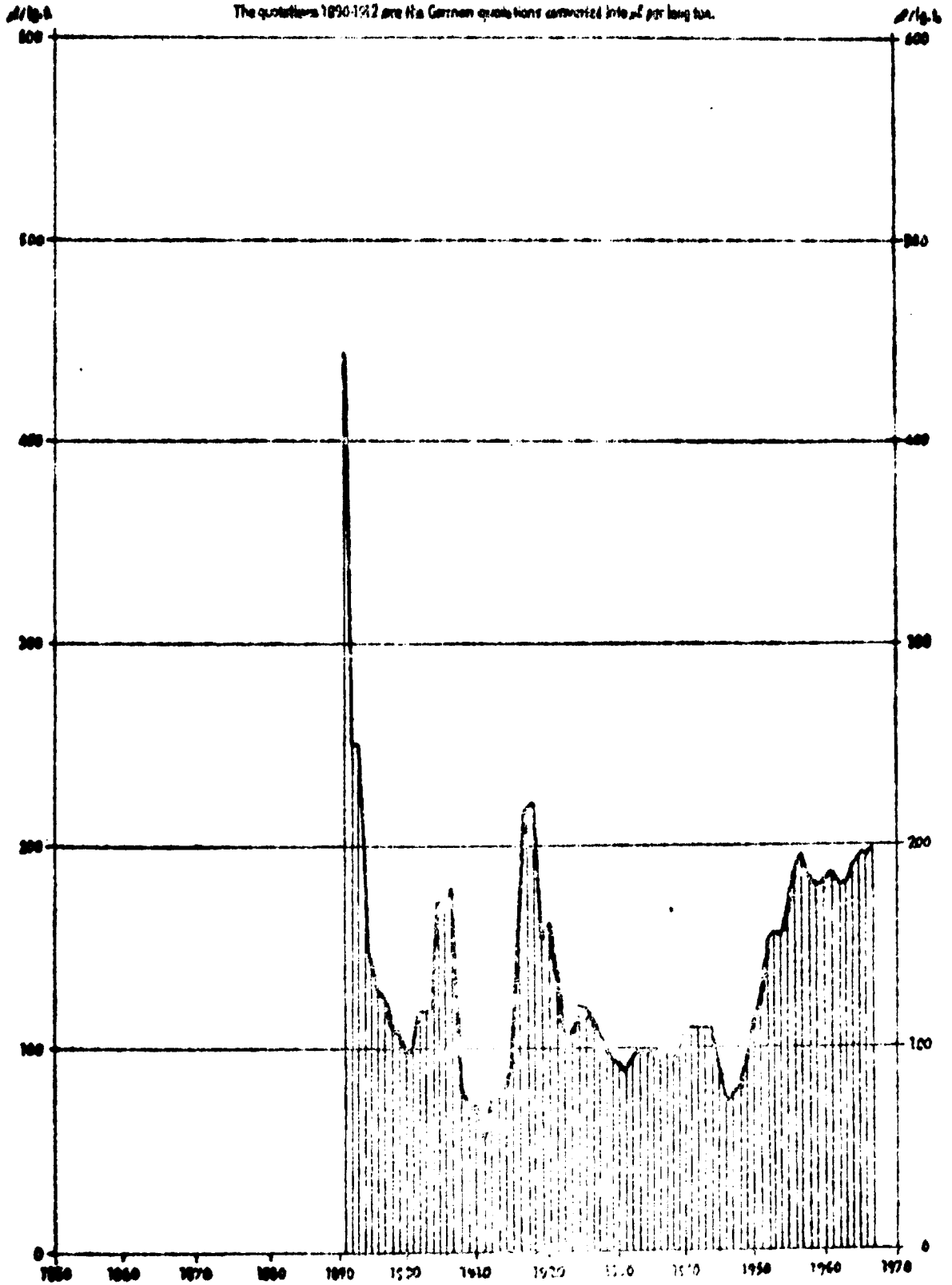
the necessary know-how for the effective utilization of the metal.

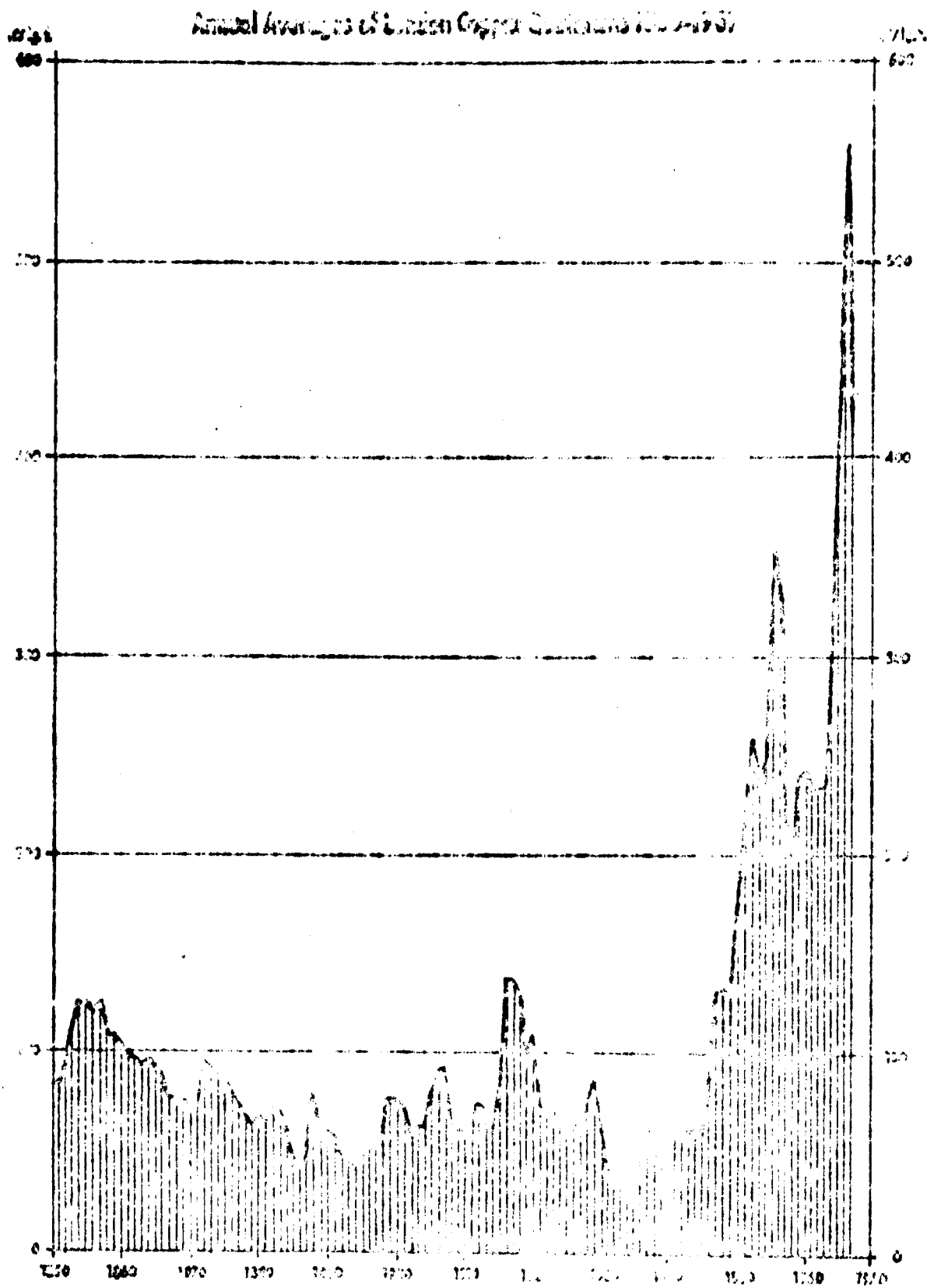
In this respect UNIDO can play an important role by (1) initiating sample survey for assessing the accumulation of various types of secondary non-ferrous metals and preparing feasibility report for their economic and effective utilization (2) Carrying out market survey, (3) Helping the local people to develop their own skill in setting up the industry on regional basis and also providing the necessary training facilities in the factories of highly developed countries.

The capital cost of setting up melting or a refining unit for non-ferrous metals is rather negligible compared to the value of the finished metals that can be turned out from such a plant. This will not only open up new avenues of employment for the local people but the products can be exported to industrially developed countries at price much cheaper than even virgin metal and thus helping the developing nations to earn more and more foreign exchange for their further development activities.

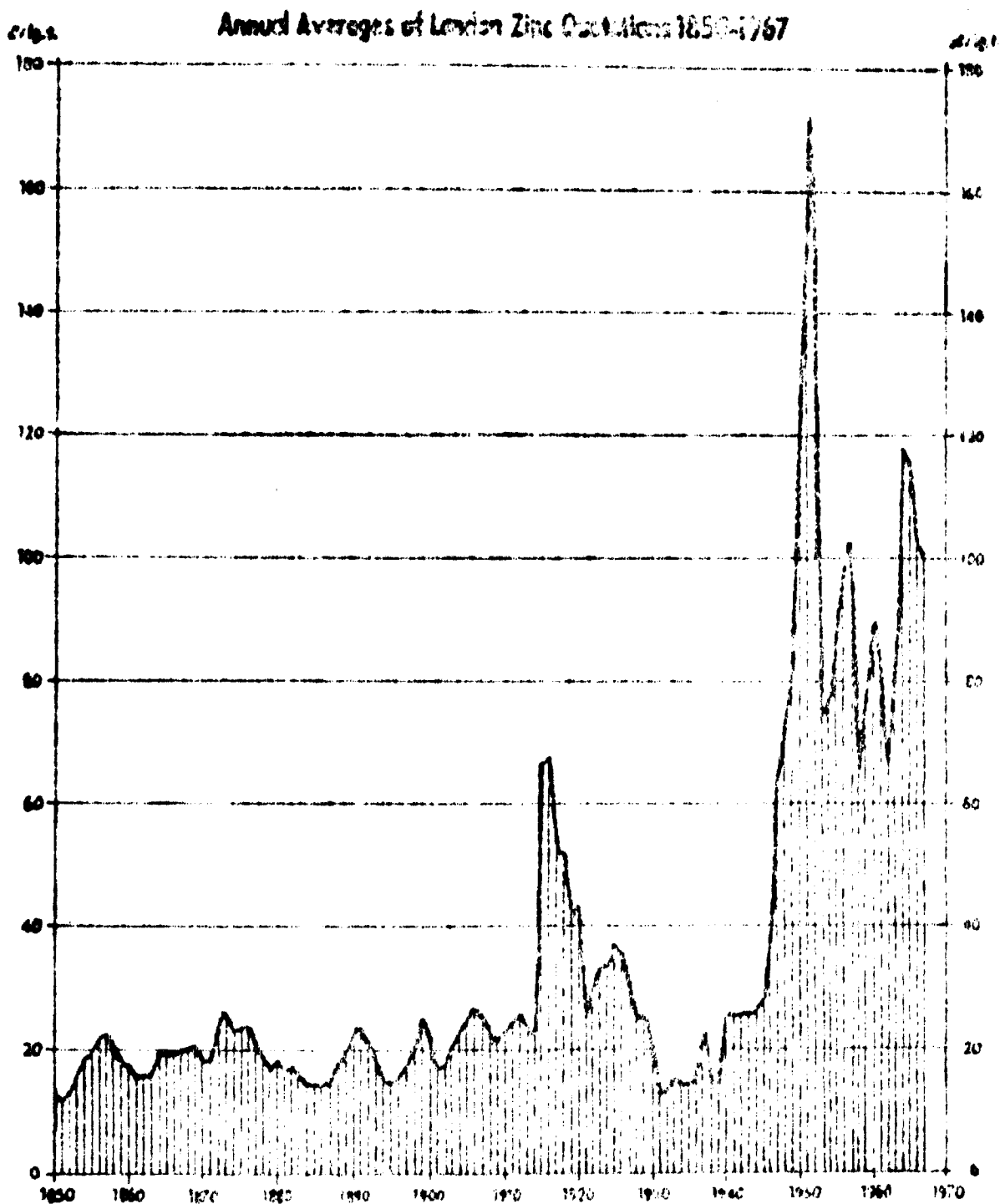
### Annual Averages of London Aluminium Quotations 1890-1967

The quotations 1890-1912 are the German quotations converted into  $\mu\text{c}$  per long ton.









### Annual Averages of London Lead Quotations 1850-1967

