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POSSIBILITIES IN THE DEVELOPMENT
OF THE IRON AND STEEL INDUSTRY
OTHER THAN FULLY INTEGRATED PLANTS^{1/}

by

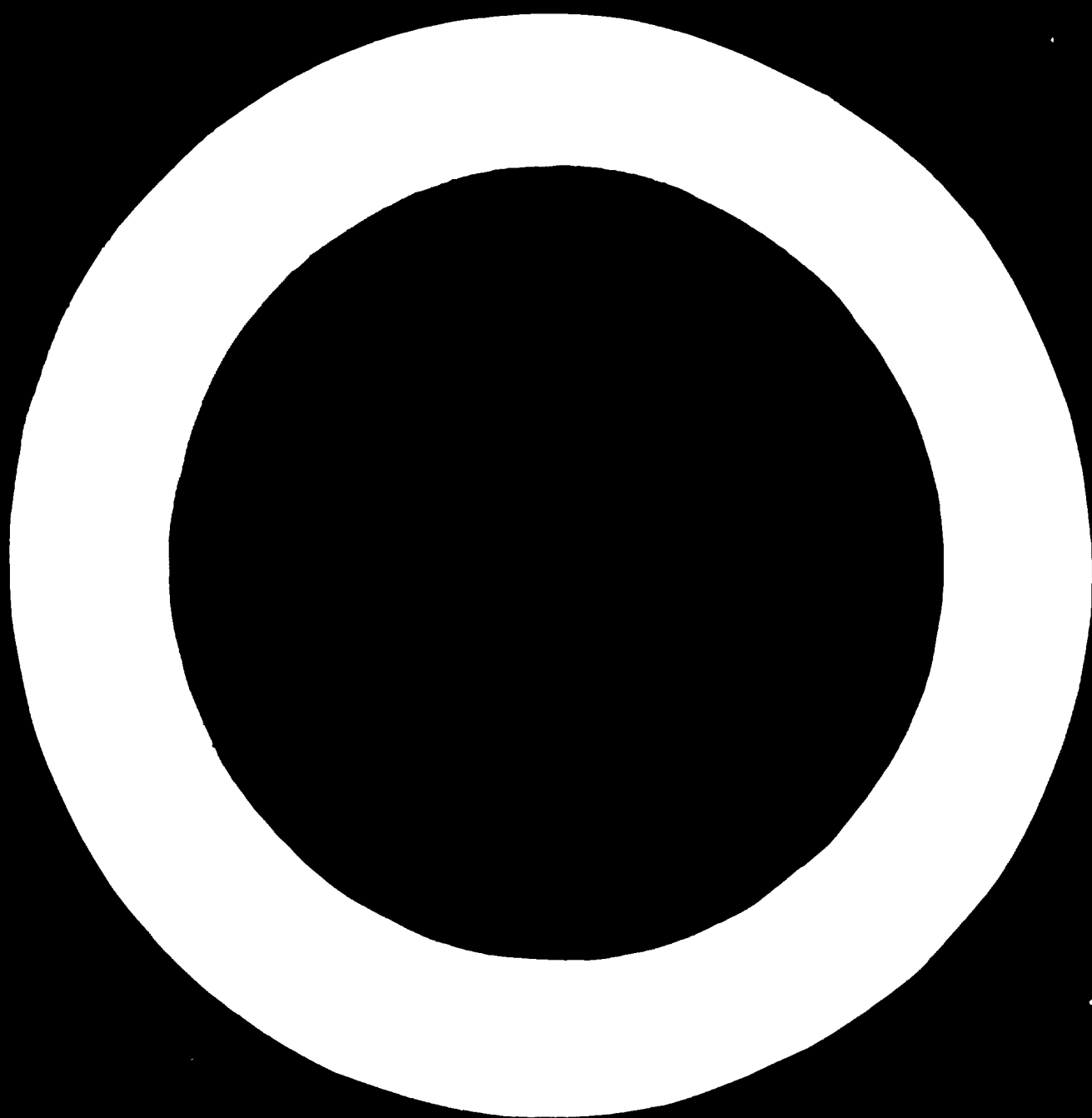
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SUMMARY

The experience of Canada's ten provinces, which are spread over a distance of 3,500 miles, and many of which are remote from integrated steel operations, is that as their economies develop industrially small non-integrated steel plants are built. As a result of the evolution of these plants in design and operating techniques they are now competing successfully in the same area as fully integrated plants. Parallels can be drawn between the emerging industrial economies of developing countries and the economies of Canada's provinces. The experience gained in the design, construction and operation of Canada's non-integrated mills provides useful guidelines for emerging industrial economies in determining the type of steel plant most suited to their needs.

* This is a summary of a paper issued under the same title as ID/WG.14/61.

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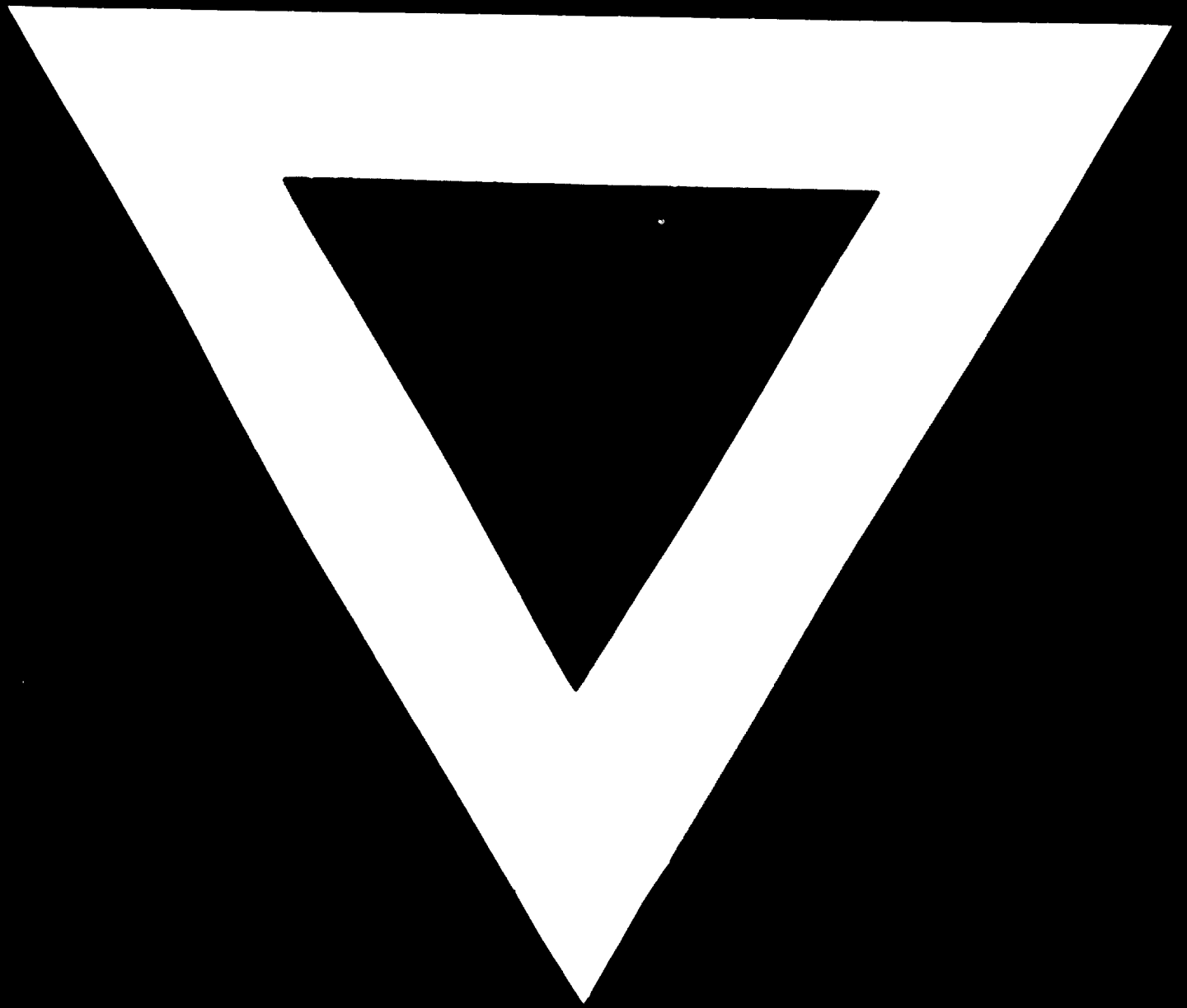


A short history of Canada's non-integrated steel industry is given along with detailed descriptions and plant layouts of some of the plants which it is thought might be of particular interest to developing countries. Four cases dealing with hypothetical situations are given along with plant layouts for these non-integrated plants ranging in tonnage from 50,000 tons per year to 300,000 tons per year of finished product and covering a product range from wire rods through bars and light structurals to plate, skelp and strip. Typical capital and operating costs drawn from Canadian and U.S. experience are given.

Although all of the non-integrated Canadian steel plants use steel scrap as their source of raw material, serious consideration is being given to the utilization of directly reduced melting stock in electric arc furnaces as a substitute for or supplement to steel scrap. Two possible methods of producing such material are outlined with capital and operating costs drawn from published data being given.

Under North American conditions, capital costs per annual net ton of product will vary from \$60 to \$120 for bar mills depending upon the size and product line of the mill. Conversion cost for melting steel scrap will be about \$18 per ton plus 2.2 man hours per ton of continuously cast billets, while rolling conversion costs will be about \$5.50 per net ton of product plus 1.8 man hours per ton. The conversion cost of ore to directly reduced electric arc furnace feed will be of the order of \$10 to \$12 per net ton of Fe contained in the product with metallization varying from 85% to 95% depending upon the process and raw materials.





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