FOREWORD

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In 1953, Kawasaki Steel, which was an open-hearth mill at the time, blew in No. 1 blast furnace at Chiba Works. With this event, the company became Japan's first integrated blast-furnace steelmaker of the post-war era. Kawasaki Steel Technical Report published its first special issue on ironmaking in 1981, 28 years after the company began blast furnace operation.

The development of operating technology for the blast furnace originally began from empirical engineering. However, a deeper understanding of the processes in the blast furnace was at length gained as a result of repeated process analyses by chemical engineering methods and the examination of dismantled blast furnaces after Japan entered the low-growth era following the two Oil Crises. Kawasaki Steel experienced a number of difficult trials in blast furnace operation, but thanks to the accumulation of technical development in both hardware and software during this time, the company has progressed to the point where it can now present a substantial record of achievements in Japan and overseas, including the export of technology to foreign mills.

Since the 1980s, we have devoted much effort to the establishment of stable operation and the pursuit of economical operation of the blast furnace, with remarkable results. Considering the fact that control of the blast furnace process depends on means which are limited to changes in blast conditions, changes in the method of charging materials, and certain other factors, it is thought that the basis of blast furnace operation comprises improvement in the reliability of equipment and improvement in the level of total operation control.

Moreover, because the ironmaking division depends on overseas sources for its iron ore and coal raw materials, changes in the world political or economic situation can become the trigger for technical progress. In the coming era of mega-competition, which will undoubtedly be characterized by intense change, the ironmaking division is expected to promote technical development even more rapidly, and to contribute to the stabilization of the company's operations, which are ultimately based on the stable operation of the blast furnace.

This third special issue on ironmaking covers technical progress since the second special issue on ironmaking (Special Issue on Ironmaking Technology and Secondary Refining) in 1995, and presents a part of the results of various activities aimed at strengthening competitiveness, with emphasis on the reduction of raw material and fuel costs.

In closing, I trust that our readers will find this special issue interesting, and I ask for your continuing support and encouragement.