

# "Tetsu-to-Hagané"

Vol. 64 No. 1, January, 1978

## Contents

|  |  |                            |     |
|--|--|----------------------------|-----|
| New Year Message.....  | S. KOBAYASHI....   | 1                          |     |
| <b>Review</b>  |  |                            |     |
| Production and Technology of Iron and Steel in Japan during 1977 .....                           | T. IKI...  | 3                          |     |
| <b>Technical Papers</b>  |  |                            |     |
| Removal of Fine Particles in Ores for Blast Furnace by   |  |                            |     |
| Pneumatic Classifier of Horizontal Type.....   | N. HATTA and J. KOKADO...                                      | 25                         |     |
| Effects of Electric and Magnetic Forces on the Solidified Structure .....                        | S. ASAI, K. YASUI, and I. MUCHI...                             | 34                         |     |
| Estimation of Solute Concentration Distribution Accompanied by                                   |  |                            |     |
| Interdendritic Solidification.....   | K. WATANABE...   | 42                         |     |
| Effect of Nitrogen Content on Deep Drawability of Rimmed Low Carbon                              |  |                            |     |
| Cold Rolled Steel Sheet.....   | M. TAKAHASHI, A. OKAMOTO, S. INO, and T. NAKATA...             | 52                         |     |
| The Effect of Warm Tensile Working on the Stress Relaxation Value in the                         |  |                            |     |
| Carbon Steel .....   | N. NAKAZAKI, Y. KOIKE, and J. NAMEKATA...                      | 60                         |     |
| Heat Transfer Phenomena in the Immersion Cooling of Heated Steel                                 |  |                            |     |
| Plate and Influence of Water Stirring on Heat Transfer .....                                     | M. MITSUTSUKA and K. FUKUDA...                                 | 70                         |     |
| Static Tensile Properties of Mixed Structure of Martensite and Residual                          |  |                            |     |
| Ferrite in Ni-Cr-Mo Steels Containing Medium Carbon .....  | Y. TOMITA, S. OKI, and K. OKABAYASHI...                        | 78                         |     |
| Precipitation Hardening Produced by Ausaging of 245 kg/mm <sup>2</sup> Grade 18%Ni               |  |                            |     |
| Maraging Steels .....  | K. SOENO and T. KURODA...                                      | 88                         |     |
| Precipitation of Intermetallic Compounds in Austenite and Its Effects on                         |  |                            |     |
| Toughness of As-Quenched Martensite in 13%Ni Maraging Steel .....                                | K. HOSOMI, Y. ASHIDA, H. HATO, K. ISHIHARA, and H. NAKAMURA... | 95                         |     |
| The Effect of Second Phase Particles on the Tensile Properties of                                |  |                            |     |
| Ferritic Iron at Low Temperature.....  | R. HAMANO and K. TSUYA...                                      | 105                        |     |
| The Influence of Solution and Precipitation Behavior of M <sub>23</sub> (CB) <sub>6</sub> on the |  |                            |     |
| Hardenability of Boron Steels.....   | S. WATANABE, H. OHTANI, and T. KUNITAKE...                     | 113                        |     |
| <b>Technical Reports</b>   |  |                            |     |
| Reduction Test of Hematite Ore Powder by Gas Flowing High Pressure DTA                           |  |                            |     |
| Method .....   |  |                            |     |
| Y. NISHIKAWA, Y. UEDA, S. SAYAMA, S. UEDA, S. YOKOYAMA, and K. MAKINO...                         | 121  |                            |     |
| Mechanical Properties of 12%Cr Steel Forging for Large Steam Turbine                             |  |                            |     |
| M. KAWAI, K. KAWAGUCHI, H. YOSHIDA, E. KANAZAWA, and S. MITO...                                  | 128  |                            |     |
| <b>Commentary</b>  |  |                            |     |
| LNG Tank-Its Structure, the Materials and Welding Techniques                                     |  |                            |     |
| .....Y. OGAWA, M. SAKAMOTO, K. TOYOMASU, M. OHYAMA, M. FUKAGAWA,                                 |  |                            |     |
| and Y. SAIGA...  | 135  |                            |     |
| <b>Special Lecture</b>   |  |                            |     |
| Controlling Sulfide Shape with Rare Earth or Calcium during the Processing                       |  |                            |     |
| of Molten Steel .....  | K. SANBONGI...   | 145                        |     |
| <b>Report of the Joint Research Society of ISIJ</b>  |  |                            |     |
| Preparation and Quality Test of Minor Element Series B of Japanese                               |  |                            |     |
| Standards of Iron and Steel .....  | S. HARIMAYA...   | 155                        |     |
| <b>Review</b>  |  |                            |     |
| A Future Trend of Research and Development in Steel Industry of Japan...S. NAGASHIMA...          | 165  |                            |     |
| <b>Report</b>  |  |                            |     |
| Some Impressions in USA and Canada.....  | M. KANAO...  | 174                        |     |
| Abstracts.....   | 175, Library News.....   | 180, Notice to Member..... | N 1 |
| Proceedings of the Institute.....  | N 11   |                            |     |

*Overseas membership: Annual charge: ¥6000 (incl. postage), Initiation fee; ¥ 600*