CONTENTS

Preface

H.K. MOFFATT

After-dinner speech

F. FITZGERALD

LIST OF PARTICIPANTS

S.D. LYMPANY, J.W. EVANS and R. MOREAU Magnetohydrodynamic effects in aluminum reduction cells	15
C. VIVES and R. RICOU Velocity and electromagnetic parameter measurements in the sump of aluminium alloy billets	24
D.G. MALCOLM Some physical measurements of velocity and position in metallurgical environments	33
H. BRANOVER and S. SUKORIANSKY Studies of MHD flows for application in metallurgy performed at Ben-Gurion University	37
D.C. LILLICRAP A technique for velocity measurements in coreless induction furnaces	46
C. TRAKAS, P. TABELING and J.P. CHABRERIE Turbulent flow measurements in an electromagnetic furnace	57
J.D. LAVERS and P.P. BIRINGER The influence of system geometry on the electromagnetic stirring forces in crucible induction melting furnaces	62
A. KIKUCHI, S. TANIGUCHI, T. TADAKI and S. MAEDA Fluid flow and mass transfer in the gas-liquid iron system with a laboratory-scale induction furnace	79
D.J. MOORE and J.C.R. HUNT Flow, turbulence and unsteadiness in coreless induction furnaces	93
D. DELAGE, R. ERNST and J. DRIOLE Induction melting in a cold crucible	108
S. KOANDA and Y.R. FAUTRELLE Modelling of coreless induction furnaces: some theoretical and experimental results	120
A. TSINOBER, E. KIT and M. TAITEL Induction velometry: some precise relations between turbulent velocity and electrical fields	129
F.R. BLOCK Experimental measuring techniques in continuous casting	136
H.S. MARR Electromagnetic stirring in continuous casting of steel	143
M. YAMAHIRO, I. FURUGAKI, T. OHASHI, T. HIRAOKA, H. FUJII and E. TAKEUCHI Electromagnetic stirring in continuous casting of pseudo-rimmed steel	154
T.S. NORRIS and G.R. ARMSTRONG A new approach to electromagnetic stirring during continuous casting of steel (ABSTRACT ONLY)	163
K.H. SPITZER, KH. TACKE and K. SCHWERDTFEGER Computation of three-dimensional velocity field in rotational electromagnetic stirring of continuously cast billets (ABSTRACT ONLY)	163
G. LESOULT, P. NEU and J.P. BIRAT Modelling of equiaxed solidification induced by electromagnetic stirring on a steel continuous caster	164
H.K. MOFFATT High frequency excitation of liquid metal systems	180
J. ETAY and M. GARNIER Some applications of high frequency magnetic field	190

A.J. MESTEL Levitation melting of metals	197
A.D. SNEYD Levitation of a liquid metal layer by a row of infinite parallel line currents	205
M. GARNIER and R. MOREAU Stability of molten metal free surfaces in the presence of an alternating magnetic field	211
Y. SUNDBERG Metallurgical aspects of induction stirring	217
S. ASAI, K. MIYAZAWA, T. FUKAYA and I. MUCHI Effects of electric and magnetic currents on solidification processes	224
O. LIELAUSIS, A. MIKELSONS, E. SHCHERBININ and Yu. GELFGAT Electric currents in molten metals and their interaction with a magnetic field	234
P. MARTY and A. ALEMANY Theoretical and experimental aspects of electromagnetic separation	245
J. SZEKELY On heat and fluid flow phenomena in electric melting and smelting operations	260
B. BOWMAN MHD effects in arc furnaces	272
L.A. BERTRAM and F.J. ZANNER Plasma and magnetohydrodynamic problems in vacuum consumable are remelting	283
R.E. CRAINE and J.G. ANDREWS The shape of the fusion boundary in an electromagnetically stirred weld pool	301
A.J.M. JANSEN Fluid motions induced by an electric current source	314
M.C. COOK and J.E. ALLEN The electromagnetic rotation of a liquid metal	333
Index of authors	