NATIONAL RESEARCH COUNCIL OF CANADA

SOME ASPECTS OF FRICTION AND WEAR IN MECHANICAL ENGINEERING (RAILWAY PROBLEMS)

SUMMARY OF PROCEEDINGS CONFERENCE HELD AT QUEEN'S UNIVERSITY, KINGSTON, ONTARIO, JUNE 20 AND 21, 1962

OTTAWA

NOVEMBER 1962

SOME ASPECTS OF FRICTION AND WEAR IN MECHANICAL ENGINEERING

(Railway Problems)

Queen's University, Kingston, Ontario June 20 and 21, 1962

June 19 - Evening - Reception - McLaughlin Hall

June 20 - Morning Session - Dunning Hall Chairman: W.B. Rice, Queen's University

Introductory Remarks

D.C. MacPhail, National Research Council, Ottawa

The Scanning Electron Microscope

D. Atack, Pulp and Paper Research Institute of Canada, Montreal ... (Frontispiece)

Afternoon Session - Dunning Hall Chairman: J.G. Dick, Canadian Bronze Co. Ltd. and Sir George Williams' University, Montreal

> Evening - Reception and Banquet - Royal Military College of Canada, Kingston

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Morning Session - Dunning Hall June 21 THE ANALYTICAL MECHANICS OF FRICTION, WEAR AND CONTACT (Sponsored by the Engineering Institute of Canada Committee on Technical Operations) Chairman: A.R. Edis, McGill University, Montreal Frictional Mechanisms of Rolling and Sliding over Wood D. Atack, Pulp and Paper Research Institute of Canada, Montreal 101 The Dynamics of a Viscoelastic Wear Particle Between Sliding Surfaces W.D. May, Pulp and Paper Research Institute of Canada, Montreal (Abstract) 129 Friction of Rubbers A.D. Dingle, Dunlop Research Centre, Toronto (Abstract) 131 Some Frictional Problems in Aircraft Mechanisms and Controls D.R. Wright, Canadair Limited, Montreal Some Problems of Friction and Wear with Aircraft Tires J. Carruthers, Trans-Canada Air Lines, Montreal 133 Operating Experience with Roller Bearings on Freight Car Axles D.H. Page, Quebec North Shore and Labrador Railway, Sept-Iles, Quebec (Abstract) 143 Some Problems in the Theory of Rolling Contact O.J. Horger, Timken Roller Bearing Company, Canton, Ohio

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Afternoon Session - Dunning Hall FRICTION AND WEAR IN RELATION TO MECHANICAL ENGINEERING RESEARCH Chairman: A. Lightbody, Canadian Pacific Railway, Montreal The Use of Measured Bearing Loads in Estimating the Life of Roller Bearings J. Thivierge, Canadian National Railways, Montreal 145 Lubrication and the Contamination of Surfaces I.E. Puddington, National Research Council, 155 Observations of the Seasonal Fluctuation of Brake Shoe and Wheel Wear on Passenger Cars with Composition Brake Shoes C.W. Parker, Canadian Pacific Railway, Montreal 163 The Lateral Wear of Rails on Curves G.V. Tordion, Laval University, Quebec An Application of Statistics to the Spectrographic Determination of Wear Metals in Diesel Engine Lubricating Oil M.A. Pinney, The Pennsylvania Railroad Company, Altoona, Pa. 173 Summary and Comments W.M. Keller, Association of American Railroads, Chicago 177

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