

EXTENSION SERIES No. 44
ENGINEERING EXTENSION DEPARTMENT

PROCEEDINGS
OF THE
TWENTY-FIFTH ANNUAL ROAD SCHOOL
HELD AT
PURDUE UNIVERSITY
January 23-27, 1939

Compiled and Edited by
BEN H. PETTY
Professor of Highway Engineering

PURDUE UNIVERSITY
Lafayette, Indiana



**GROUP OF PURDUE OFFICIALS AND GUEST SPEAKERS AT THE
25TH ANNUAL ROAD SCHOOL**

Front row, left to right: A. A. Potter, Dean of the Schools of Engineering at Purdue; David E. Ross, President of the University's Board of Trustees; Prof. Frank C. Hockema, Assistant to the President of the University; J. L. Harrison, Senior Highway Engineer, United States Bureau of Public Roads; and Robert B. Brooks, Consulting Engineer and Member of the Missouri State Highway Commission.

Rear row: Prof. Ben H. Petty, Road School Chairman; Prof. R. B. Wiley, Head of Purdue's School of Civil Engineering; George E. Martin, New York, Chairman of the 1915-17, 1920 Schools; R. C. Yeoman, Chicago, Chairman of the 1918-19 Schools; W. J. Hedley, Construction Engineer, Wabash Railroad; and Prof. W. A. Knapp, Assistant Dean of Engineering.

TABLE OF CONTENTS

	PAGE
Preface.....	5
Some Road School Facts.....	7
Program.....	9
Papers—	
Some Indiana Road Problems, by M. Clifford Townsend, Governor, State of Indiana, Indianapolis.....	15
The Co-operative Highway Research Project, by W. K. Hatt, Former Director, Joint Highway Research Project, Purdue University..	19
Ride and Live, by Paul G. Hoffman, President, The Studebaker Corporation, South Bend, Indiana.....	31
Handling Earthwork Efficiently, by J. L. Harrison, Senior Highway Engineer, U. S. Bureau of Public Roads, Washington, D. C.....	37
Beyond the Two-Lane Road, by H. E. Surman, Engineer of Design, Illinois Department of Highways, Springfield, Illinois.....	50
Beyond the Two-Lane Road, by M. R. Keefe, Chief Engineer, State Highway Commission of Indiana, Indianapolis.....	58
Remedies for Traffic Congestion in Metropolitan Districts, by Robert B. Brooks, Consulting Engineer and Member of Missouri State Highway Commission, St. Louis, Missouri.....	61
Road Stabilization with Bituminous Materials, by F. V. Reagel, Engineer of Materials, Missouri State Highway Department, Jefferson City, Missouri.....	75
Stabilization by Use of Chemicals, by R. B. Traver, Onondaga County Road Superintendent, Syracuse, New York.....	85
Road Stabilization with Portland Cement, by Bert Myers, Engineer of Materials and Tests, Iowa State Highway Commission, Ames, Iowa.....	93
Stabilizing Gravel and Stone Roads with Tar, by Ralph Witt, St. Joseph County Road Supervisor, South Bend, Indiana.....	100
A General Discussion of Road Stabilization, by W. T. Spencer, Field Engineer of Tests, State Highway Commission of Indiana, In- dianapolis.....	103
Highway Embankment Construction Procedure, by K. B. Woods, Assistant Director, Joint Highway Research Project, Purdue University.....	105
Fundamentals of Specifications, by W. J. Boatright, Engineer of Specifications, State Highway Commission of Indiana, In- dianapolis.....	112
Fundamentals of Specifications, by Asher W. Gray, Wabash County Surveyor, Wabash, Indiana.....	121
Indiana State and County Co-operation on Road Construction and Reconstruction, by Joe Wysong, Engineer, County Relations, State Highway Commission of Indiana, Indianapolis.....	123
Road Drainage, by G. P. Springer, Assistant Professor of Civil En- gineering, Purdue University.....	131

	PAGE
Drainage Laws and Procedures, by Arthur Call, Attorney, Anderson, Indiana.....	137
Repairing Old Bridges, by A. J. Rader, Porter County Road Supervisor, Chesterton, Indiana.....	147
Repairing Old Bridges, by Earl R. Smith, Gibson County Road Supervisor, Princeton, Indiana.....	148
Cleaning and Straightening Waterways at Bridges and Culverts, by Arthur Buerkle, Tippecanoe County Surveyor, Lafayette, Indiana.....	150
Cleaning and Straightening Waterways at Bridges and Culverts, by Gil C. Winslow, Hancock County Surveyor, Greenfield, Indiana.....	153
A Program of Earth Road Improvement, by J. C. Eckert, Ripley County Surveyor and Road Supervisor, Osgood, Indiana.....	154
Operation of Stone Quarries and Crushing Plants, by Ray Colglazier, Washington County Surveyor and Road Supervisor, Salem, Indiana.....	158
WPA Work on County Road Projects, by D. W. Hufferd, Supervisor, Division of Operations, Third District, WPA, Lafayette, Indiana.....	162
Operating a County Garage, by Oscar H. Fuller, Hancock County Road Supervisor, Greenfield, Indiana.....	165
Mapping Airplanes and Their Future, by Talbert Abrams, President, Abrams Aerial Survey Corporation, Lansing, Michigan.....	166
Publications of the Engineering Extension Department.....	177