

**SPECIAL PUBLICATION 110**

**29th Forum on the Geology of Industrial Minerals:  
Proceedings**

**LONG BEACH, CALIFORNIA  
APRIL 25-30, 1993**

**DAVID J. BEEBY, CHAIRMAN**

Edited by  
**MARIALENA TABILIO**  
and  
**DON L. DUPRAS**

**1995**

**CALIFORNIA DEPARTMENT OF CONSERVATION  
Division of Mines and Geology**

Sponsored by:

**CALIFORNIA DEPARTMENT OF CONSERVATION  
Division of Mines and Geology  
801 K Street, MS 08-38  
Sacramento, CA 95814-3531**

and

**UNITED STATES BUREAU OF MINES  
810 7th Street, N.W., MS-5209  
Washington, DC 20241**

**UB/TIB Hannover 89  
115 312 781**



# CONTENTS

	PAGE
PREFACE.....	vii
ACKNOWLEDGMENTS .....	ix
 <b>GENERAL TOPICS</b>	
Communication in Diversity Robert L. Bates .....	1
Biotechnology and Industrial Minerals Nelson R. Shaffer .....	5
Intravenous Geology Bobby J. Timmons .....	17
Flake Graphite and Zeolite Research Provides Potential Solutions to Domestic Problems L.J. Nicks, L.E. Schultze, E.G. Valdez .....	21
 <b>EASTERN UNITED STATES</b>	
Waste Material Resources in Virginia Palmer C. Sweet .....	29
 <b>WESTERN UNITED STATES</b>	
Production and Marketing of Perlite in the Western United States George S. Austin and James M. Barker .....	39
Geology of Western U.S. Talc Deposits Richard B. Berg .....	69
1992 Industrial Mineral Production in California and Nevada Fred V. Carrillo .....	81
Limestones of New Mexico and Adjoining Areas Suitable for Sulfur Removal in Coal-Fired Power Plants Frank E. Kottowski and Augustus K. Armstrong .....	87
 <b>CALIFORNIA</b>	
Mineral Land Classification in California Ralph Loyd, Robert Hill, and Russell Miller .....	101
California Mineral Education Foundation Conference Model: Changing Public Perception of the Mineral Industries Greg R. Wheeler .....	113
Pumice for Stone-washed and Acid-washed Textiles: Benton Pumice Beds, Mono County, California Gregg Wilkerson and Jerry Hoffer .....	119
Geology, Genesis and Mining of High Brightness, High Purity Limestone Deposits in the San Bernardino Mountains and Mojave Desert Area of Southern California Howard Brown .....	123
Geology, and Processing Facility, CalMat Co. Reliance Plant, Irwindale, California Edward D. Elkins and Thomas E. Wiegert .....	137
The Soledad Canyon Ilmenite Mine (P.W. Gillibrand Co.) San Gabriel Mountains, Southern California John C. Heter .....	145
Diatomaceous Earth Operation, Grefco, Inc., Lompoc, California David Jenkins .....	155
The Geology and Economic Development of Searles Lake Gail Moulton and Ken Santini .....	161

	PAGE
Geology and Mining of the Miocene Fish Creek Gypsum in Imperial County, California Roger D. Sharpe and Greg G. Cork .....	169
The Boron Open-Pit Mine at the Kramer Borate Deposit Joe W. Siefke .....	181
Geology of the Hector Mine Deposit R.D. Willette .....	189
The Mojave Desert Province, Southern California: Geologic Overview M.O. Woodburne .....	195
 <b>OREGON</b>	
Brine Mineral Occurrence in the Diablo Mountain Study Area, Oregon, and its Possible Significance to Pacific Rim Trade Thomas J. Peters, Dennis S. Kostick, and Michael F. Diggles .....	223
 <b>CANADA</b>	
30th Forum on the Geology of Industrial Minerals: Nova Scotia/New Brunswick, Canada John H. Fowler and Timothy C. Webb .....	241
Wollastonite in Québec Province, Canada Claude Hébert and Henri-Louis Jacob .....	245
Diamonds In Canada: An Overview Of Current Developments Robert Irvine and M. Boucher .....	253
Canada's Zero Effluent Potash Mine Brian V. Roulston .....	261
 <b>MEXICO</b>	
MEXICO: Opportunities in Industrial Minerals Armando Alatorre, Peter Harben, Hal McVey, and Ken Santini .....	269
APPENDIX 1: Poster Abstracts .....	313
APPENDIX 2: List of Registrants .....	347