Mineral Processing and the Environment

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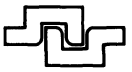

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Mineral Processing and the Environment

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To Maria, Christina and Aggeliki

In memory of my father A.S. Matis

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PREFACE

The present book is the outcome of an Advanced Study Institute meeting, which was held in the Riviera area of Varna, Bulgaria, at a marvellous setting from 18-30 August 1996 and was attended by 77 delegates from 18 countries from all over Europe (including the East).

This summer school brought together scientists, engineers and technologists currently involved in basic and applied research, mainly on different environmental aspects of mineral processing. The Institute covered subjects in four major areas:

a) fundamentals;
b) environmental pollution and prevention;
c) separation processes and
d) innovative techniques.

Mineral processing technologies have been applied for decades to the protection of the environment. Many application examples were given. Apart from the papers reproduced in this volume, several short oral communications were presented. Mention should be given to the (not printed) lecture of Prof. A. Abramov, where among other he highlighted the minimisation of the cyanide use.

Four working groups were also formed on the following topics: (i) liquid wastes, (ii) solid wastes, (iii) air wastes, and (iv) legal framework, leaded by Dr. Z. Sadowski, Dr. St. Gaidarjiev, Prof. G. Ozbayoglu, and Prof. A. Türkman respectively. The latter scientists, following extensive discussions of the groups, presented their interesting results during the last day's convention, which was concluded at the end by Prof. K.A. Matis and the Director, Dr. G.P. Gallios. Participants also had the opportunity to visit during a field trip the Rossen chalcopyrite processing plant, of the company Bourgas Copper Mines (near Bourgas, Bulgaria). Thanks are due to our hosts there engineers A. Pavlov and T. Zonkov.

Conference participants, whose interest and research projects are in this broad field of science and engineering, provided a well-informed discussion of the problems encountered, as well as possible directions of future technological developments. All the invited principal speakers and participants made this Institute possible, worthwhile and enjoyable. The fruitful formal and informal discussions that have taken place during these almost two weeks, would hopefully lead to scientific collaborations and common research proposals. It is hoped that this book is not only a good record of the presentations made,

analysing the state-of-the-art in the field, but will also be helpful for students, scientists and technologists working, in particular in mineral processing and environmental protection.

The sponsorship by the NATO Scientific and Environmental Affairs Division is gratefully acknowledged and its Director Dr. L.V. da Cunha. The Editors are thanking for their advice the members of the Organising Committee, Prof. C.A.C. Sequeira, and Prof. R.H. Yoon (at the early preparative stages); and particularly, Dr. St. Gaidarjief, who helped tirelessly in Bulgaria. Also, they would like to thank very much the co-Director of the ASI, Dr. Z. Sadowski for his effort and help throughout the meeting. Many thanks are also due to the members of the Laboratory of General & Inorganic Chemical Technology - Department of Chemistry at the Aristotle University of Thessaloniki - namely Ms. A. Valtadorou (during the organisation) and Messrs. P. Zarbos and S. Lambrakopoulos; last but certainly not least the help of Dr. T. Vaimakis is acknowledged.

Thessaloniki, February 1998

The Editors