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FOREWORD

At the invitation of the Colloid and Surface Chemistry Section of the Israel Chemical Society, the Fourth International Conference on Surface and Colloid Science, the 4th ICSCS, took place at the Mt. Scopus Campus of The Hebrew University, Jerusalem, from July 5 to 10, 1981. It was attended by 582 scientists from 24 countries: Australia, Austria, Belgium, Bulgaria, Canada, Denmark, Finland, France, F.R. Germany, Holland, Ireland, Israel, Italy, Japan, Mexico, Norway, South Africa, Spain, Sweden, Switzerland, United Kingdom, United States, Venezuela and Yugoslavia, with 62 members of their families.

The scientific program of the Conference included 318 contributed papers subdivided into 32 sessions: Characteristics of porous media, Macromolecules at interface (3 sessions), Crystallization and polymorphism (2), Microemulsions (3), Surface structure, Biological amphiphiles, Liquid interfaces (2), Polymerization at interfaces, Pharmaceutical and biological systems (3), Monomolecular films, Hydrosols (2), Colloid dynamics (4), Surface reactions, Adsorbed species and structure of surfaces, Properties of aerosol systems (2), Micellar systems (3), and Adsorption on solid surfaces (2); 14 Mini-Symposia: Polymeric microspheres, Nucleation and crystallization, Surface chemistry as a tool to study biological systems, Bile acids-biologically relevant amphiphiles, Surface and surface modification of fibers and polymers, Effects of amphiphiles on the interaction of enzymes with lipid substrates, Thermodynamic and stric aspects of macromolecules at interfaces, Drug containment, interaction and release, Vesicle-vesicle and vesicle-cell fusion, Aerosols in environmental systems, Liposomes: characteristics and their use as model membrane (2), Rheological and transport properties of interfacial layers, Liposomes as drug carriers and Detergency; and three Round-Table Discussions: How to optimize the use of detergents in biological studies, Are physical properties of lipids relevant to biological systems?, and Future prospects of drug delivery by liposomes. Each session was presided over by a chairperson and the symposia by the organizer(s), who stimulated and guided discussions. In addition to the session and symposia papers, the program included 19 invited papers, 18 of which appear in this issue of Pure and Applied Chemistry.

It is perhaps appropriate to say here a few words on this series of international conferences on colloid and surface science. For some twenty years, since the late 1950's, the Comite International des Derives Tensio-Actifs (CID) has held seven international congresses, the last in the Soviet Union in 1976. This international roof organization, however, was dissolved in 1978. The vacuum created by the discontinuation of the traditional CID congresses called for a greater involvement of the International Union of Pure and Applied Chemistry (IUPAC), and, indeed, the Third International Conference on Surface and Colloid Science was held under IUPAC sponsorship in Stockholm in 1978. What may be regarded as the First ICSCS in this series of Conferences, the one held in Budapest, Hungary, in 1975 was also IUPAC sponsored. The following meeting, which has become known as the Second ICSCS, was held in Puerto Rico in 1976, jointly with the 50th Colloid Symposium of the American Chemical Society.

The program of the 4th ICSCS was planned in recognition of the fact that colloid and surface science is in a period of transition. Though the dominant interest in the field remains among those in the area of solution chemistry of colloids, multi-component phase diagrams, rheology, phase separation, adsorption phenomena and surface reactions, surface and colloid science has vastly expanded in the last two decades. The expansion is essentially due to the growing understanding that a vast number of phenomena in many systems are occuring at interfaces, and are controlled by surface forces and surface reactions. It is thus obvious that the progress in a multidisciplinary field such as colloid and surface science depends greatly on developments in other fields of physics and chemistry, such as electron spectroscopy, reaction kinetics, dynamics, etc., in which many important advances have been made in recent years. As a consequence, new and promising areas of research in surface science were initiated on physical properties of surfaces, colloidal dispersions, electrical and hydrodynamic interactions of charged particles, nucleation, etc. Equally, the relevance of colloidal systems to biological processes can hardly be overestimated. Studies have been initiated in recent years aiming to solve the many complexities in the field, some arising from experimental difficulties others from characterizing biocolloids and analysing the parameters which control their behavior.

It is impossible to cover in form of invited lectures, if only partially, all the important aspects of surface and colloid science in one conference. The invited lectures, nevertheless, were spread over a rather wide spectrum of topics. There was an emphasis on those which were judged by the Scientific Committee of the Conference to be in the forefront of today's activities, rather than those already well established and thus in no need of extra encouragement. Some of the lectures pertain to broad, well-investigated fields of work, others to more particular, self-contained problems. Because of the diversity of topics covered we believe it to be impractical to attempt a classification of the communications included in this volume.

We did our best for an early publication of this volume with as little editing as possible. We hope it will serve to be a landmark for the future progress of colloid and surface science. We wish to express our deep appreciation to all authors who showed cooperation in the effort of early publication, and especially to Mr. P.D. Gujral, Assistant Secretary-Publications, of the International Union of Pure and Applied Chemistry, for his efficient handling of the manuscripts.

July 1981 The Editors

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A.S. Kertes
Conference Chairman

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