

PREFACE

It is interesting to reflect on the fact that V.ICNAS (1976) was held in the year exactly 50 years after Bjerrum's introduction of the concept of ion pairs to account for the apparent weak electrolyte behaviour of 1:1 salts in the non-aqueous solvent liquid ammonia. After all these years the problems of ion-ion, ion-solvent and solvent-solvent interactions continue to dominate the discussions at successive ICNAS meetings, so much so that at V.ICNAS roughly 75% of the contributed papers were concerned with some aspect of solution structure.

The scope of the Conference was very wide and covered an area which could be broadly divided into; (A) reactions in non-aqueous solutions, (B1) thermodynamic and kinetic properties of non-aqueous solutions, (B2) examples of the use of spectroscopic techniques, (C) solutions in molten salts, and (D) metals in solution and liquid metal solutions. In the programming of the Conference 5 Plenary Lecturers were invited to present a review of work within each of these areas. A new departure in this series of Conferences was to invite 7 Section lecturers each to present either a review or a lecture on his own research interest. Each was given a period of 40 minutes, equal to that of two of the contributed papers, to allow him to develop his themes much more thoroughly. In making the invitations it was a deliberate policy of the Organising Committee to invite speakers who had not previously given a main lecture at one of the ICNAS meetings.

In an aside one contributor, Professor Alex. Popov, said that so often time passes far too quickly for the speaker but too slowly for the listener. We found no listener at V.ICNAS for whom time was found to hang heavily. Accordingly, all speakers must be congratulated for their very stimulating talks and also for strict adherence to their allocated times.

A major problem which has made itself very apparent at this Conference is that which concerns the terminology and identification of ion-pairing or coordination as used by different speakers. It was evident that, although different contributors may well have been discussing similar entities in solution, their use of different vocabularies and terminologies (mostly involving the use of traditional words) deriving from the approach and technique used, did not always establish rapport. For example the use of the word "coordination" to describe the interaction between an ion and its contiguous solvent molecules does not generate identical ideas, models or mechanisms in the minds of all hearers. Similarly the term "ion-pair", and the terms used to describe the various sub-species which have been proposed and identified very often become ambiguous when discussed by a number of workers. Much need of clarification of our vocabulary in this area is urgently required and we hope that as this Conference has high-lighted the problem it will soon become a prime consideration of those whose work covers aspects of solvation and ion-pairing.

Another feature which has made itself evident is that many and various techniques are now used in the study of ion-pair and ion-solvent interaction phenomena. Many of these investigation methods are based on macroscopic or thermodynamic properties and many on the observation of microscopic or molecular interactions (usually spectroscopic). Each technique looks at a solution system by the use of a different timescale which naturally places an extra dimension of difficulty upon the interpretation of the results, for one method cannot "see" precisely the same system as another method. Often this coupled with the vocabulary problem can lead workers to conflicting viewpoints when they should be providing supporting arguments derived from different sources.

In conclusion it is appropriate to thank the 140 participants for making V.ICNAS a most successful occasion, the Plenary and Section lecturers for their excellent contributions published in this volume, and the 74 speakers who presented an outstandingly good range of contributions the abstracts of which are published separately in the Conference booklet.