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PREFACE

The third British Pharmaceutical Technology Conference took place last April and attracted participants from over sixteen different countries. In all 41 original research papers and plenary lectures were presented to an attentive international audience composed principally of scientists from major pharmaceutical companies. Representatives from European academic institutions were also well represented. Some of the papers presented at this important Conference are reproduced in this issue.

The Conference began with an excellent plenary lecture from Professor R. S. Langer of the Massachusetts Institute of Technology, U.S.A. In his stimulating and well delivered address, Professor Langer outlined his novel research on controlled release systems for macromolecules. He interestingly showed that with his controlled release system subjected to a magnetic field, up to 30 times more drug was released than when the magnetic field was discontinued. Thus release rates of insulin, for example, could be increased by external triggering using a magnetic device. This lecture was followed by the presentation of a number of research papers. B.Zierenberg from Boehringer Ingelheim KG, Germany,described a novel interferometric technique which he has used to determine the diffusion coefficient and the physico-chemical state of different drugs in a polyacrylate co-polymer carrier system. Solid dispersions of diazepam and P.E.G. 4000 were prepared by C.Anastasiadou and co-workers at the University of Paris-Sud, France. They prepared the solid dispersions seperately by the melting method and by coprecipitation. Co-precipitation resulted in a larger increase in dissolution rate. No reduction in dissolution rate was evident after 5 months storage at ambient temperature. Professor H. Rupprecht and co-workers at the Universities of Mainz and Regensburg, Germany, described a method they have developed for incorporating drugs directly into porous silica envelopes with controlled pore structure. A better control of drug release was achieved than from conventional non-soluble, hydrophilic porous matrices.

Dissolution properties of three commercially available sustained-release theophylline tablet preparations were examined and compared with controlled release tablets containing acrylic resins by Prof-

essor J. W. McGinity et al at the Drugs Dynamics Institute, Texas, U.S.A. Excellent flow properties, weight uniformity, drug content and dissolution rates were observed with all the experimental tablet formulations, which were prepared by direct compression.

Professor C.T. Rhodes of the University of Rhode Island presented two stimulating plenary lectures. The first was entitled "Contemporary Trends in Formulation and Production" and reviewed newer developments in formulation techniques. The second lecture concentrated on direct compression as a tabletting method. Professor Rhodes, in an entertaining lecture, expounded the virtues of direct compression but pointed out that the technique was not a panacia for all ills. Suppositories and powders featured prominently at the Conference. Professor D. J. W. Grant and co-workers from Nottingham University, U.K., presented data that showed that there were interactions between the constituents of fatty suppository bases and ketoprofen and metronidazole which affected drug release. In a second paper these workers also showed that rheological behaviour of fatty suppository bases affected the spreading of the suppositories which in turn affected in-vivo release of the two drugs. P. Ackermann and F.X. Fischer from Ciba-Geigy, Basel, Switzerland described a novel automated method for the determination of the melting behaviour of suppositories. The apparatus consisted of a long closed glass tube, one end of which was covered with a removable Teflon cover through which a metal rod passed connected to an inductive proximity detector with electric timer. The time taken for suppositories in the glass tube to melt at 37^{o} was measured by precise movement of the metal rod triggering the detector and so starting and stopping the electric timer. The results were found to be accurate and reproducible.

Novel methods for characterising powders were presented by a number of workers. F.Carli and co-workers at Farmitalia Carlo Erba, Italy, have developed a microcomputerised mercury porosimeter for measuring the particle size and surface area distribution of pharmaceutical powders. No particular treatment of the powders is required and a very wide range of particle sizes can be accommodated by the instrument (0.032 - 485μm). The apparatus will thus find great applicability within the pharmaceutical industry. Powder surfaces can be characterised by flow microcalorimetry, according to B.Bhatt and M.H. Rubinstein from Liverpool Polytechnic, U.K. They showed that surface roughness of particles and granules could be characterised by observing the shape of the adsorption profiles. Surface structure could be examined by the technique and the method was very useful for investigating the surface poisioning of drugs.

The physics of tablet compression is now attracting much attention both inside and outside the pharmaceutical industry. The Conferene discussed various aspects of research work in this field. The re-working potential of tableting excipients was discussed in a paper by S. Malkowska et al at Beechams Pharmaceuticals, Epsom, U.K. These workers found a reduction in compressibility and tensile strength of some direct compression excipients which they attributed to work hardening. Using a computerised Mayes hydraulic press, strain movements within the die of compacts maintained at constant stress were measured by D. N. Travers and co-workers at Leicester Poly-technic, U.K. The extent of elastic recovery after different holding times gave some useful practical information in predicting the behaviour of granulates at high compression rates.

All in all the three day Conference, which had been sponsored by the Solid Dosage Research Unit, 24 Menlove Gardens North, Liverpool L18 2EJ, U.K., achieved the aim of reviewing current thinking and research in the broad area of pharmaceutical technology. The Conference was conducted in a convivial and informal atmosphere and many contacts and friendships were made, with the result that the majority of delegates leaving on the final day expressed the wish to return to be present again at the 1984 Conference in Edinburgh.