

FOREWORD

The mechanical behaviour of materials is of vital interest to many branches of engineering and technology. Although at one time physicists were interested in this subject, at present its study is pursued mainly by metallurgists and mechanical engineers. However, the recent focus on topological defects etc., made some of us wonder whether the time was ripe for physicists to renew their interest in mechanical properties. In order to explore this, a Discussion Meeting was held at the Reactor Research Centre, Kalpakkam on February 7, 8 and 9, 1983. The Meeting was sponsored by the Indian Academy of Sciences, the Department of Science and Technology, the Defence Metallurgical Research Laboratory and the Department of Atomic Energy. About 70 scientists belonging to various disciplines took part.

We present in this volume the written version of the talks given at the Meeting, the record of the discussions that followed the oral presentations, and of the Panel Discussion that took place in the concluding session. Owing to restrictions of space, and in the interests of reasonable uniformity of style and notation, we have been forced to make (generally minor) editorial changes in the manuscripts submitted by the speakers, and on occasion, prune the material in places. While great care and pains have been taken to preserve the essential spirit of every point the authors have intended to make, we do accept the responsibility for the changes necessitated by the reasons stated.

The Meeting itself was quite lively and absorbing, with a variety of views expressed by people with varying specializations. In offering the Proceedings we hope that the excitement of the Meeting would be shared by a wider audience, and enthrust at least some physicists to enter this area.

The task of preparing the Proceedings for publication has been quite strenuous and could not have been accomplished but for the unstinted help and cooperation we have received from many. Particular mention should be made of G Ananthkrishna, B Purniah, Radha Ranganathan, V Sridhar, P Subba Rao and T D Sundarakshan. We also would like to express our personal indebtedness to Prof. S Ramaseshan for support and encouragement in organising the Discussion Meeting.

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