

Special issue on Disaster Materials

FOREWORD

A new section for materials science was launched by the Indian Science Congress Association at the 78th Science Congress held at Indore in January 1991. In line with the theme of the Indore Congress on “Coping with Natural Disasters: An Integrated Approach” it was decided that the topic for the symposium in the Materials Science Section would be “Disaster-resistant Materials”. This area is yet to be coherently studied. With reference to conditions that pertain to disaster situations there are aspects, related to the design of components and structures as well as the basic understanding of materials deformation and failure mechanisms, that need to be investigated in depth in the way substantial knowledge has been generated for conventional materials engineering. We had five invited presentations in the materials science symposium which dealt with the following topics:

1. Dynamic fracture mechanics—A scientific tool for the prevention of catastrophic failure,
2. Behaviour of materials under shock loading conditions,
3. Earthquake hazards for cross-country pipelines,
4. Materials and methods of construction to resist the effects of cyclones and
5. Fire-retardant materials.

The keynote address concerned itself with the basic issues of materials deformation and fracture under impulsive loading conditions. Manuscripts based on these invited presentations are put together in this special issue which, it is earnestly hoped, will stimulate more extensive work in this field in our country.

If the materials development effort is to lead to actual and reliable use of the new materials in service, it is important that methods of standardization are established. Organized endeavour in regard to standardization in the area of advanced materials is only beginning to take shape the world over. In recognition of the importance of this topic, included in this issue, is a paper on Standardization for advanced materials: experience and strategies for the future by Kamal Hossain who made a presentation at a special meeting held in New Delhi in November 1991.

P Rama Rao
President (1990–91)
Materials Science Section, ISCA and
Editor, Bulletin of Materials Science