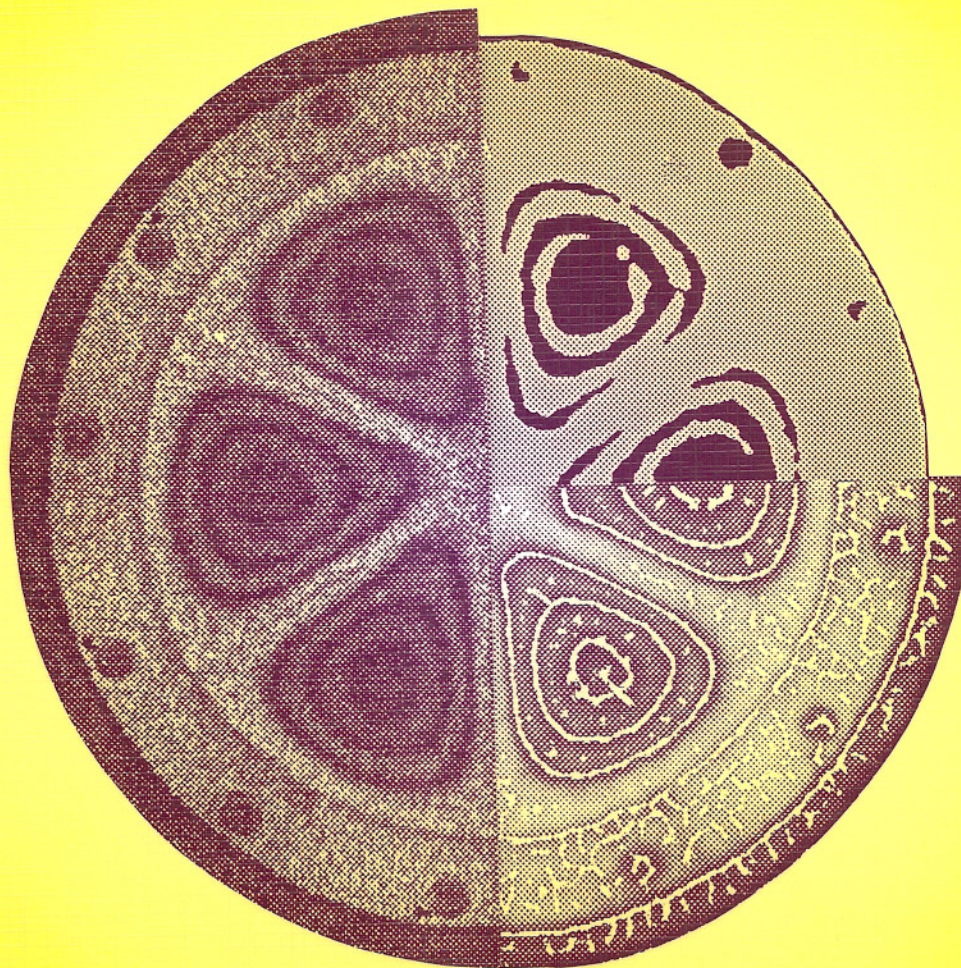


VOLUME 1

Recent Advances in Experimental Mechanics



J.F. Silva Gomes et al., editors

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Recent Advances in Experimental Mechanics

J.F.SILVA GOMES

Faculdade de Engenharia, Universidade do Porto, Portugal

F.B.BRANCO

I.S.T., Universidade Técnica de Lisboa, Portugal

F.MARTINS DE BRITO, J.GIL SARAIVA & M.LURDES EUSÉBIO

Laboratório Nacional de Engenharia Civil, Lisboa, Portugal

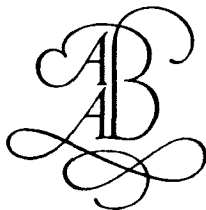
J.SOUSA CIRNE

Faculdade de Ciências e Tecnologia, Universidade de Coimbra, Portugal

A.CORREIA DA CRUZ

Instituto de Soldadura e Qualidade, Lisboa, Portugal

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Preface

Experimental Mechanics is a very broad field which is highly interdisciplinary in its applications, and in its scientific and technological background, being of major concern in measurements, quality control, destructive and non-destructive testing of materials and components, and in fundamental research. It is related to such diverse disciplines as physical and mechanical sciences, engineering, materials, electronic and computer sciences, biological and theoretical sciences, such as statistics, etc.

In spite of the upsurge in numerical techniques for structural analysis, during the last two decades, the subject of *Experimental Mechanics* remains alive all over the world, assisting in the solution of many important physical and engineering problems of concern of society today. Furthermore, the recent developments on computer-based techniques as well as laser-based optical methods, among many other modern technological advances, have added a new dimension to the field of *Experimental Mechanics*.

Following the tradition of the last forty years, the '10th International Conference on Experimental Mechanics' has been organized on behalf of the European Permanent Committee for Experimental Mechanics, in Lisbon-Portugal, 18-22 July 1994. This International Conference takes place at four years intervals, with the main objective of bringing scientists and engineers together to discuss and to promote the exchange of their experiences in research and development activities in *Experimental Mechanics*.

Interest in the conference was such that over 300 papers were offered for inclusion in the programme, and it was to the great regret of the Organizing Committee that room could not be found for more than 240 of these.

The papers accepted for presentation at the conference, are arranged in these Proceedings according to nine important themes: (1) Hybrid techniques in stress analysis; (2) Optical techniques in experimental mechanics; (3) Automatic data acquisition and processing; (4) Transient phenomena and vibration analysis; (5) Residual stresses; (6) Measurement of stresses and strains in hostile environments; (7) Quality control and testing of materials and components; (8) Fracture mechanics and fatigue and (9) Biomechanics.

We should like to express our thanks to the authors for their contributions and to the many reviewers for their time, efforts and constructive criticism of the manuscripts. Furthermore, we wish to express our gratitude to the sponsoring organizations for their commitment and support to this international gathering.

In addition, and on behalf of all the participants it is our pleasure to record our gratitude to the staff of the *Laboratório Nacional de Engenharia Civil*, whose tireless efforts made the conference such a success.

The editors

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