

Introduction

The sixteenth ASTM National Symposium on Fracture Mechanics, held in Columbus, Ohio, in August 1983, was conceived two years previously at the fourteenth symposium in Los Angeles. The latter was attended by several Battelle staff members, all of whom had been and continued to be greatly impressed by the number and enthusiasm of the attendees at this series of annual symposia.

Upon learning that the sites subsequent to the fifteenth symposium were not committed (the fifteenth symposium having been scheduled for the University of Maryland), the Battelle group decided to propose that the sixteenth symposium be held at their home institution. An organizing committee was promptly formed, institute support obtained, and a formal request submitted to the series sponsor, ASTM Committee E-24 on Fracture Testing. Earnest planning began when acceptance from Committee E-24 was formally received in November 1981.

The organizing committee consisted of nine individuals. In addition to the undersigned, they were Brian Leis, Samuel Smith, Charles Marschall, and Gery Wilkowski of Battelle's Columbus Laboratories; Richard Hoagland and Carl Popelar of The Ohio State University; and David Broek, Fracture Research, of Columbus. The very able clerical assistance given to the committee by Ms. Louisa Ronan of Battelle should also be recognized along with management support as represented by David Snediker and Fred Milford. Each of the aforementioned individuals played an important role in the success of the symposium.

The first major decision of the organizing committee was to set the symposium date. While constrained to the middle months of 1983, complete flexibility within that period was possible. As appropriate for a technical meeting, the search was made on a scientific basis. It included (1) determining the schedules of competing conferences, (2) assessing the availability of hotel and other lodging space in Columbus, (3) correlating the attendances at the preceding symposia with the dates on which they were held, and (4) investigating the Columbus weather records to find the most climatically favorable time. Items (1), (2), and (4) clearly pointed to mid-May. But, as the previous symposia held at that time had attracted significantly less than average attendances, the next best choice was adopted. Thus the sixteenth symposium came to be scheduled, and eventually held, on 15–17 August 1983.

The organizing committee was eager to adopt innovative ideas for the conduct of the symposium. Its two main goals were to maximize the technical level and to ensure ample opportunities for informal interactions among the attendees. The committee recognized, however, that this would have to be done while still preserving the traditions of this series of symposia. For the latter reason, an open call for papers was timed to coincide with the fifteenth symposium. In line with the main goals, special invitations were given to a number of outstanding technical people to have them participate in one capacity or another. While too many to list individually here, we would be remiss indeed to not specifically mention two key contributors. These were, firstly, the stimulating invited keynote lecture on the evolution of fracture mechanics by Professor George T. Hahn of Vanderbilt University, and, secondly, the informative banquet talk by Jules Duga of Battelle on the economic impact of fracture.

Some 56 papers were selected for presentation. The selection was based upon technical content and relevance to the theme of the symposium as evidenced in three to five page summaries that included key figures and references. (Bound copies of the summaries were made available to the symposium participants through the courtesy of Battelle's Columbus Laboratories.) The selected papers fitted nicely into eight sessions:

1. Elastoplastic analyses.
2. Linear elastic analyses.
3. Temperature and environment effects.
4. Elastoplastic experiments.
5. Fatigue crack growth.
6. Applications.
7. Dynamic fracture mechanics.
8. Basic considerations.

In addition to the formal sessions, two workshop sessions were also held. These were the Workshop on High Temperature Crack Growth and Fracture, organized by A. Saxena and V. Kumar, and the Workshop on Nonlinear and Dynamic Fracture Mechanics, organized by M. F. Kanninen and C. H. Popelar.

To conclude, we are pleased to have been associated with this distinguished series of symposia for many reasons. Firstly, we are happy to have been able to organize and conduct a technical meeting where about 130 individuals enriched themselves both technically, through hearing so many fine papers, and socially, through improved associations with their colleagues in fracture mechanics. Secondly, having Professor Jerry Swedlow of Carnegie-Mellon University be specially honored for his contributions to ASTM at the symposium banquet was a distinct pleasure to us as well as to his many friends. Thirdly, we are glad to have helped in producing this Special Technical Pub-

lication, which will take its place with its predecessors in this illustrious series of volumes. Finally, we are proud to have helped continue the tradition of these annual symposia which, at the time of this writing, are being scheduled through its twentieth year. May it continue to grow and prosper!

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