

## PREFACE

AN INTERNATIONAL conference on the theme of 'Multiple Deformation and Foliation Development' was held at the small fishing village of Bermagui on the south coast of New South Wales from 4 to 11 February 1984. The conference was organized by the Specialist Group in Tectonics and Structural Geology (SGTSG) of the Geological Society of Australia as one of their regular triennial conferences to discuss recent advances in structural geology. The Bermagui conference was the largest held so far, being attended by 118 people including 25 from Canada, England, Italy, New Zealand, Northern Ireland and U.S.A. Bermagui was chosen as the meeting place not only because of the spectacular outcrops in multiply deformed turbidites of low metamorphic grade, but also because these coastal exposures have been the training ground for many of Australia's structural geologists, and consequently have come to be regarded as 'type areas' for cleavage development and structural analysis. Recent work by C. McA. Powell and M. J. Rickard had suggested revisions to some earlier structural interpretations, and thus the scene was set for a lively meeting.

Seventy-eight papers were presented—48 as talks and 30 as posters. The posters were given extended access, first by brief introduction in a formal session and then by each paper remaining on display for three days inside the conference hall. Discussion of the posters was renewed at each morning and afternoon tea-break, and several debates continued long after formal sessions had finished. The programme was a balance of paper presentation and local field trips, with morning talks commonly followed by afternoon field trips.

Papers at the conference fell into three broad divisions, reflected in the layout of this volume, concerned with deformation in the ductile-and-brittle fields, and in the transition between the two. In the ductile field, problems addressed included analysis of multiply deformed terrains at both low- and high-metamorphic grades, discussion of the unreliability of foliations as a correlation tool, the formation (or even the recognition) of transected folds, and the development of cleavages, mylonites and porphyroblasts. Discussions in the ductile-to-brittle field covered the formation of cleavage under thin overburden, the sequential development of cleavages during thrusting, basement controls on deformation of cover, and the importance of kinking in the latest stages of evolution of fold belts. Papers in the brittle field covered formation of joints and veins and the role of hydraulic fracturing.



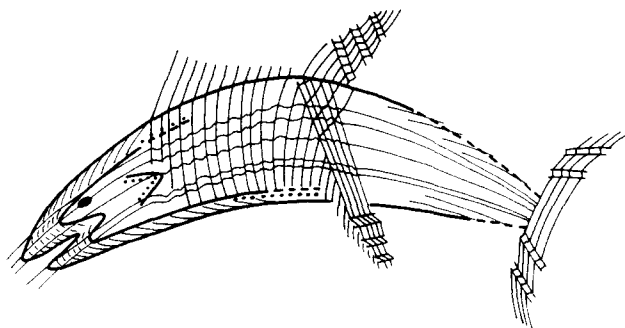
Organising committee for the Bermagui conference and the special editors of this volume. Left to right: Mike Rickard (President, Geological Society of Australia); Ron Vernon (Vice-Chairman, Specialist Group in Tectonics and Structural Geology [SGTSG]); Paul Hancock (editor, *Journal of Structural Geology*); Chris Powell (Chairman, SGTSG, and a special editor of this issue); Dick Glen (Secretary, SGTSG). Photograph—P. J. Conaghan.



Discussion of the origins of Bermagui structures continued in the field after introductory talks in the conference hall. Faces visible from left to right: John Ollie (Australia); Chris Powell (Australia); Anne Grunow (U.S.A.); Paul Hancock (background, England); Ian Dalziel (U.S.A.); Paul Williams (Canada); Mervyn Paterson (Australia); Tim Holst (U.S.A.); Massimo Coli (Italy); Tom Wright (U.S.A.). *Photograph—P. J. Conaghan.*



Chris Powell (Australia) explains the structure of recumbent  $F_1$  folds to, left to right: Vince Morand (Australia), Jean-Pierre Burg (France), Chris Wilson (Australia), Kingsley Mills (Australia), Bob Yates (U.S.A.) and John Ollie (Australia) with Paul Williams (Canada) looking on. *Photograph—P. J. Conaghan.*



The Bermagui tectonic fish (logo of the conference) contains all the structural elements of the region, and was the source of more than one interpretation.

Excursions after the conference went to the Cooma metamorphic complex to look at structures developed in the regional aureole of a granite, and to the Taemas area to look at stylolitic cleavages and folds in limestones deformed at low metamorphic grade.

Attendance of some overseas speakers was assisted by funds from the Australian–American Educational Foundation, Australian Academy of Science—25th IGC Fund, Geological Society of Australia, Aberfoyle Exploration Pty. Ltd., Anaconda Australia Inc., The Broken Hill Property Co. Ltd., Esso Australia Ltd., Consolidated Gold Fields Australia Ltd. and Western Mining Corporation. Macquarie University, the University of Sydney and the Geological Survey of New South Wales provided logistical support. In-conference catering was handled in superlative fashion by the local Country Women's Association.

This Special Issue, *Multiple Deformation in Ductile and Brittle Rocks*, contains 17 papers from the Bermagui meeting, as well as the abstracts of all papers presented. Papers have been arranged in three sections each of which is headed by one of the keynote lectures delivered at the conference. The themes embraced by the sections reflect the range and balance of topics addressed in the papers that were selected for this volume. To a greater or lesser extent they are all concerned with the processes and products of multiple deformation, mainly in ductile rocks but also in brittle and semi-brittle rocks.

We thank the many reviewers for the diligent and constructive way they approached their task, enabling us to bring this volume to press within about twelve months.

*P. L. Hancock*  
*C. McA. Powell*