
Introduction

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Introduction

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The proposal for a Discussion Meeting on sedimentary basins arose from the realization that although there is a wealth of new concepts on horizontal movement of the Earth's crust, vertical movements had been relatively neglected, despite their great importance as a source of fluids – water, oil, and hydrocarbon gases – which are of such high importance to mankind. Basin development as a function of sedimentary loading has long been discussed; other basins are related to major tension faults; others again are suspected of being due to deep flow compensating for orogenic crustal uplift.

During the last two decades deep drilling by industry, particularly offshore, has provided a wealth of accurate statistical information on sedimentary basins, and has provided also reference sections to which seismic data can be related. A review of the new information was felt to be overdue.

The selection of authors and subjects was designed to provide statistics and a history of a range of sedimentary basins that were known to considerable depths, the aim being to illustrate the history of subsidence, depositional rates, sedimentary facies, thermal régime and also their relation to crustal structures. A considerable geographical range was attempted at the same time, recognizing, however, that at a two day meeting only a minimal sampling was possible.

The first two papers describe the accumulation of the sedimentary prism on the Atlantic margin west of the French coast, the relations of oceanic and continental crust, and the effects of oceanic opening. The third and fourth deal with the Mesozoic and Tertiary sedimentational history in Aquitaine and North-west Australia, followed by two papers on the North Sea, an internal sedimentary basin developed from the Upper Palaeozoic to the present time, and a general review of the fault control of sedimentary basins in northwest Europe.

The Upper Palaeozoic basins of the United States, the Permian–Miocene Zagros basin of Iran, the Palaeozoic–Mesozoic Alberta basin and the Arctic basin of northern Canada provide a range of cases of specific intracontinental sedimentary basins, all of them of major economic importance. More general papers cover Carboniferous basins of northern Europe and the less well documented Precambrian basins.

The final group of papers review the problem of the mechanism of subsidence, particularly in relation to modern concepts of global structure.

The organizers, on behalf of the Royal Society, are grateful to the authors for this account of a very varied collection of sedimentary basins, and of the problem of their development in time and space.