MEETING OF THE ROYAL ASTRONOMICAL SOCIETY

Friday 1998 May 8th at 16h 00m
in the Scientific Societies’ Lecture Theatre, Savile Row

D. A. WILLIAMS, President
in the Chair

Secretaries: M. A. HAPGOOD
M. J. PENSTON

The President. This afternoon it gives me great pleasure to read the citation for Professor Robert Parker as we present him with the Gold Medal of the Society.

Robert Parker is Professor of Geophysics at the Institute of Geophysics and Planetary Physics (IGPP), University of California at San Diego. He has made many notable contributions to theoretical geophysics, particularly in the field of inverse methods. He first came to prominence, together with D. P. McKenzie, as one of the select group which introduced the concept of plate tectonics in 1967. Parker & McKenzie showed that the lithosphere of the North Pacific rotates rigidly as a single ‘paving slab’, in line with Morgan’s theoretical ideas, and extended the concept from a planar to a spherical geometry. Together with Oldenburg, Parker proposed a model for the thermal structure of the oceanic lithosphere which incorporated the effects of melting, and used it to explain the variation of bathymetry and heat flow across the mid-ocean rise.

One of Parker’s main interests has been the development of a proper theoretical treatment of electromagnetic induction in the Earth. Two problems were investigated in his PhD thesis — he supplied a mathematical treatment of magnetic flux reconnection in the Sun and the Earth’s core, and attempted to compute the electromagnetic fields produced by induction in the oceans, using a realistic bathymetry model. The latter attempt was well ahead of its time and the then available computing power, and the problem has still not been fully solved. When he moved to IGPP, Parker used the methods of Backus & Gilbert to give a linearised treatment of the electromagnetic induction problem. In a series of later papers, he went on to develop a complete theory for the 1D induction problem, and showed how to construct electrical conductivity profiles of different kinds from inaccurate and inadequate data — still the only non-linear inverse problem that has been solved directly.