astronomer—microbiologists and all scientists hungry for the recognition or applause their fellow scientists have so far withheld from them. Sometimes, too, to make a good story, inexperienced scientists are cajoled by interviewers into making presumptuous claims for their work, after which instead of withdrawing as gracefully as the situation allows they feel honour bound to stand by their ideas. □

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Collected receptors

G.L.E. Koch

Towards Understanding Receptors. Current Reviews in Biomedicine, 1. Edited by John W. Lamble. Pp.233. ISBN 0-444-80339-4. (Elsevier/North-Holland Biomedical: 1981.) \$25, £7.

RECEPTORS participate in a wide variety of cellular processes, ranging from intercellular communication to the absorption of nutrients from the environment. Indeed, the term "receptor" is used so widely that a universally acceptable definition is not possible, and perhaps the only necessary criterion is that the receptor should be a cellular constituent capable of binding a ligand and generating a response. However, even this leaves open the questions relating to natural and unnatural ligands and responses, and illustrates the importance of emphasizing the context in which the word is used.

In this book, it refers to the receptors which have interested pharmacologists for many decades, that is, those involved in the actions of hormones, transmitters, drugs and toxins. The book consists of over 30 relatively short articles which appeared originally in *Trends in Pharmacological Sciences*, and which relate to the role of receptors for such ligands as acetylcholine, noradrenaline, dopamine and opiates.

The brevity of the contributions permits a wide range of subjects to be covered, but it does mean that there is a tendency towards dogmatism and polemic. However, if one approaches the book as an introduction to the current status of a variety of subjects on receptors, one cannot fail to find it an enjoyable and profitable read. It is likely that with the ever-growing information explosion on specialized subjects, there will be an increasingly important role for books such as this, which serve as a halfway house between the popular *New Scientist* and the more weighty *Annual Reviews*. □

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Soil chemistry: an open book

T.S. West

The Chemistry of Soil Processes. Edited by D.J. Greenland and M.H.B. Hayes. Pp.714. ISBN 0-471-27693-6. (Wiley: 1981.) £37.85, \$89.85.

The Chemistry of Soil Processes is the companion volume to *The Chemistry of Soil Constituents*, published by Wiley in 1978 and edited by the same two distinguished soil scientists. These two volumes bear a close resemblance to Russell's definitive treatise, *Soil Conditions and Plant Growth* (10th Edn, Longmans, 1974), though as an edited work they cannot present the same comprehensive yet unified view. On the other hand I feel, like many others, that soil science is such a diverse subject and one that has expanded its boundaries to such an extent in recent years that no single author can really cover all of the topics involved. These days it is necessary to involve specialists who can treat each aspect in depth, as Greenland and Hayes have done.

A knowledge of the chemistry of soils is of importance to many scientists other than those entirely involved in soil work and, therefore, I find it particularly encouraging that the present volume is one that may readily be comprehended and appreciated by all chemists who have some knowledge of or interest in the biological sciences. The chemistry, too, is treated in such a way that it should be easily assimilated by specialists in other disciplines such as microbiology and geology. To most readers, therefore, this will be a fairly open book with easily recognized concepts and aims. It is well written and neatly illustrated, and I particularly applaud the avoidance of excessive use of mathematical manipulation by all of the authors.

The opening chapter — written, most appropriately, by the editors — is an excellent scene-setter for the following contributions. It traces the historical development of soil science through an overview of the subjects of pedology, soil chemistry, soil biology and soil physics. The following two chapters treat the movement of mobile components within the soil profile and precipitation phenomena, for example, the deposition of carbonates, sulphates, phosphates and aluminosilicates which all play an important role in most considerations of soil chemistry. Cation and anion exchange phenomena, which are so important in plant nutrition, and the fixation of added fertilizers are then considered separately by different authors, and this is followed by an extensive review of the adsorption of nutrients etc. by soil components such as clays and humic substances. A particularly well written account of redox phenomena describes the profound effect these have on soil chemistry and reactivity. These chapters lead on logically to four separate treat-

ments of the translocation of metal ions in soils, the fate of plant and animal residues, fertilizers and heavy metals in soils; finally, there is an account of the behaviour of pesticides in soils. The book is provided with excellent indexes of subject matter and authors.

The 13 contributors are all recognizably expert in their individual subjects and, whether or not it has arisen by careful planning or by happy coincidence, a rather unique, synoptic view of soil chemistry has emerged which is most unusual in a book with so many authors. The depth and treatment is entirely satisfactory and there appear to be few if any serious inconsistencies.

There is no doubt in my mind that this well-written book will be of the utmost value to all junior, and senior, students of soil science, and an invaluable aid to all who have to refer periodically to matters relating to soil chemistry. □

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An animated Earth

John Sutton

The Earth Generated and Anatomized: An Early Eighteenth Century Theory of the Earth. By William Hobbs. Edited by Roy Porter. Pp.158. ISBN 0-8014-1366-4. (British Museum (Natural History)/Cornell University Press: 1981.) £24.50, \$35. Paperback available from the BM(NH), £8.

WHEN opening a university geology department, Stanley Baldwin once compared geological research with the writing of detective stories. Bow Street runners played little part in the development of geology, but excise men certainly did, the most famous being members of the Peach family whose watch over a whisky-filled wreck off northern Scotland led to the discovery of fossils which first demonstrated the Palaeozoic connection of Scotland and North America. That discovery was made in the nineteenth century. Now Dr Porter brings to light a geologically-minded excise man from the early eighteenth century. His name is William Hobbs. He recorded the tides

● A paperback edition of *Somatic Selection and Adaptive Evolution* by Ted Steele (reviewed in *Nature* 288, 306; 1980) has recently become available in the USA. The book is published by the University of Chicago Press and costs \$5.95.