

Professor Passmore does not take the scientific argument beyond this Darwinian point. He merely concludes that although mankind may never be perfect, men (and perhaps women) might well try to do better. But it is worth our while noting how far the views of Darwin and Galton, as well as of Marx and Trotsky, might be connected with the scientific evidence available to us.

In the first place today we are faced with the collapse of Lamarckian assumptions. Their infinite scope for wish fulfilment and dictatorial exploitation, priestly and secular, is lost. This leaves the mystical and also the political perfectibilist without his old scientific ground to stand on. In the second place, our ideas about natural selection make Darwin's argument look very shaky. Today we do not see natural selection working just "for the good of each being". On the contrary, we see it often subordinating the individual to the needs of the community and the requirements of the breeding system. We also see it operating within a framework which chemically and mechanically is most refractory. For example, we have to put up with twenty-three chromosomes: is this a magic number? Is homozygosity the perfect state of man, or even of woman?

Perhaps the most striking change in our beliefs concerns uniformity. The notion of a community or a species which is entirely without differences, individual or racial, social or sexual, implies utter stability and utter stagnation. It has always been abominable. It has now also become inconceivable. How should we get on without our genetic load?

Where then will the perfectibilist take his last stand? The environment would seem to be his safest refuge. Man has learnt to control his physical environment. He has indeed frequently been heard to boast of his unique powers in this respect. But as he has not learnt to control his genetic environment, which depends on his own breeding in quality or quantity, his physical accomplishment has become a destructive asset. We cannot therefore hope for a speedy millenium. But neither, fortunately, need we fear it.

Professor Passmore does not say these things. But he is sceptical enough to approve of them. The only fault in his book is that it lacks arrangement and therefore continuity. His work was not planned. It swept its author along. It turned out to be an encyclopaedia which takes him and us through the burrows and warrens of error and fraud, following each new rabbit that he uncovers and pursuing it to the last indefatigable but fatiguing footnote. It may be a long time before anybody pursues these things further or in such small print.

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Botanical Walkabout

Allan Cunningham: Botanist and Explorer. By W. G. McMinn. Pp. 147+4 plates. (Melbourne University: Carlton, Victoria; International Scholarly Book Services: London, December 1970.) \$4.20; £2.00.

THE huge unexplored continent of Australia of the nineteenth century offering a challenging, unique flora and fauna sets the background for W. G. McMinn's study of Allan Cunningham, undoubtedly one of Australia's greatest botanical collectors. The author in his preface disclaims any attempt to assess or analyse Cunningham's scientific ability, but on the other hand makes no apology for offering a study of the man. Although Allan Cunningham is portrayed with great sympathy and feeling the effect is a rather formal historical work containing considerable information on early exploration in Australia.

The author shows excellent insight into the mind and character of the systematic naturalist, and readers from disciplines other than botany may be interested and enjoy this study. As a readable botanical narrative, however, it is a disappointment, for little use is made of Cunningham's detailed and fascinating botanical journals. In comparison with Ida Lee's *Early Explorers in Australia*, I feel there is a lack of balance between explorer and botanist.

The introductory chapters read well, describing Allan Cunningham as an insecure young man lacking in self assurance, attributable to his rather humble background. Following his contact with and commission by Sir Joseph Banks to make botanical collections for Kew, his confidence gradually grew into scholarly diffidence and quiet unexpansiveness. Later chapters outline his exploration, detailing, perhaps too fully, his travels and recounting his thoughts, activities and achievements as a botanical collector but superficially. The gradual growth of confidence with experience and success turned, with failing health, to disillusionment and discontent. Some of the journeys could have been presented more clearly by the inclusion of more and better maps.

In the final chapter the author, in summarizing Cunningham's character, comments on his diligence and industry by referring to the tireless walks in search of orchids, and his careful follow up of the results achieved at Kew with his seeds and seedlings; and on his sensitivity by reference to his writing on *Acacia podolyriaefolia*. These generalizations, although undoubtedly derived from Cunningham's journals, are insufficiently exemplified in the principal part of the work. It is a pity that McMinn did not expand the botanical aspect of this study a little more fully,

because as a result one is left with a feeling that the work lacks depth. The extensive references and bibliography clearly indicate exhaustive research and will be undoubtedly of value to the student.

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Freshwater Sediments

Non-Marine Organic Geochemistry. By Frederick M. Swain. (Cambridge Earth Science Series.) Pp. xii+445. (Cambridge University: London, October 1970.) £10.00; \$32.50.

THIS volume gathers together many data on the nature and variation of organic matter in freshwater sediments that will be of use to organic geochemists working in widely differing fields. The book is, however, a good illustration of the difficulties—even for an experienced and well-regarded scientist—of writing a balanced, comprehensive review of a scientific field, which, if not undergoing explosive expansion, is certainly developing with vigour. Dr Swain's new book does not change the view that up to now the edited book, with chapters by a number of authors, has been the more successful presentation in the detailed discussion and evaluation of the different facets of organic geochemistry.

The first chapter of *Non-Marine Organic Geochemistry* is a necessary survey of organic materials in the geological environment, which is unfortunately marred, as are other chapters, by numerous errors in structural formulae. The more authoritative parts of the book, the chapters on bitumens, protein amino-acids, carbohydrates and organic pigments of non-marine sediments, comprising almost half of the text, rely heavily on the researches of Swain and his co-workers. These chapters carry most critical comment, although more contrasts could usefully have been made with, for example, the character and behaviour of organic materials in other environments. Chapters on field and laboratory analysis of organic materials and on the characteristics of non-marine sediments are also considerably influenced by the author's work. Away from Swain's chief interests, the book becomes much more a matter of report. The chapter on non-marine coals is weak, and so unbalanced in form and content that the contribution is misleading. Furthermore, many of the coals considered, particularly those of the paralic coal-fields, must certainly have been at least partly influenced by marine or near-marine conditions. The book also contains appendices giving solvent systems and R_f values for paper and thin-layer chromatography, thirty pages of references and adequate subject and author indices.