

From the calculation of the motion of matter subject to such conditions there emerge the laws of gravitation and electromagnetic attraction with which empirical observation has long made us familiar. They are no longer 'brute fact', but the consequence of the world's being rationally describable: 'the actual distribution of matter-in-motion in the universe is on the same footing as the laws of nature themselves'. A zero of time, at which matter was concentrated before it began its outward expansion, is also found.

Plato was content to describe his own cosmology as a 'likely tale', and it should be emphasised that Milne's scheme can claim no greater philosophical certainty, however one accounts for the fact that it seems to work. There is a logical fallacy in the assertion that it provides 'evidence of a most conclusive kind that the universe arose from a divine act, located in time'. This is to say that an initial assumption must be true because observation shows that its consequences are true. Moreover, it is surprising to find the question whether we can have real knowledge of what is beyond sense-experience, so much debated by philosophers, thus settled without discussion. We would agree that such knowledge can be reached if we start from observation of the sensible, but not from an abstract description in mathematical terms.

L.B.

HISTORICAL ASPECTS OF ORGANIC EVOLUTION. Phillip G. Fothergill. (London: Hollis & Carter; 35s.)

The idea of evolution, as Dr Fothergill says, is probably as old as the grass on the hillsides. It remained for Darwin, just under a century ago, to put forward the idea of organic evolution in a coherent form, backed by much observation and the weight of a mass of cumulative evidence drawn from many sources. In natural selection he also put forward a way in which species could change. The effect of his *Origin of Species* was immediate and enormous. The context of the process is historical, its implications are both philosophical and theological, and controversy, often bitter and often confused, has been carried on till the present day. Within a year T. H. Huxley was welcoming the idea as a stick for beating the Church, and the whole question has been since then an important one for Christians. Recently, in the Encyclical *Humani Generis*, the Pope reminded us that it is still open for research and discussion by experts, for and against, and asked for soberness and restraint in judgment.

Dr Fothergill's book, in view of all this, is particularly welcome, and as Lecturer in Botany in Durham University he speaks with authority. The first part of the book deals, chronologically, with the development of the idea from the time of early myths to the turn of the present century when it had become firmly established. The second part deals

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with cytogenetics, a study made possible by the rediscovery of Mendel's work on heredity in 1901. This part is more technical, for it goes into sufficient detail to make clear the relationship between genetics and modern causal theories of evolution. So the book puts the whole question into its historical context and also deals with the fundamentals of the subject sufficiently fully to provide information on which to base a balanced judgment. And indeed Dr Fothergill offers his work to intelligent laymen, teachers and professional biologists, for just that purpose.

Among other things, he relates the idea of evolution to the idea of change; he explains how the idea itself has evolved and is evolving and indicates probable future developments; he makes clear what is based on speculation, what on observation and what on experiment; and he shows how, as a working hypothesis, it has been invaluable to the biologist, giving order and unity to his work and stimulating further activity.

The book is sober, clear and well-documented, with a good index and a comprehensive bibliography. The author's personal attitude is stated in the introduction and enlarged on in a valuable epilogue; the body of the book deals objectively and fairly with all serious views as they developed. If any serious doubt obtains among Catholics, as Dr Fothergill thinks it may, whether a person holding any religious views is able to expound a scientific theory on a phenomenal and evidential level, this book, given a fair hearing, should remove it. Dr Fothergill apologises for any defects a reader may discover; he undertook a formidable task and any defects are insignificant compared with so much work done so well.

MARY BEAUMONT

THE SPIRITUAL ESPOUSALS. By Blessed Jan Van Ruysbroek. Translated from the Dutch with an introduction by Eric Colledge. (Faber and Faber; 18s.).

Abbot Cuthbert Butler wrote in *Western Mysticism*: 'It may with all probability be said that than him [Ruysbroek] there has been no greater contemplative; and certainly there has been no greater mystical writer'. A reading of Mr Colledge's translation of *The Spiritual Espousals* is on the whole calculated to confirm that judgment. But let it be said at once that *The Spiritual Espousals* (this seems to be the correct title, though the book has previously appeared in English under the title of *The Adornment of the Spiritual Marriage*) is not easy reading. Ruysbroek moves in a very rarefied atmosphere, and this work is a study of the highest union between God and man that may be reached on earth. It is a very carefully, even schematically, constructed work in