particles by virtue of its unusual power of discrimination and high stopping power. Its property of continuous sensitivity makes possible the accumulation of rare particles and 'events'. The emulsion is, however, not a very powerful technique for the study of the neutral unstable particles because of the lack of time correlation ; and its chemical complexity can cause ambiguity in interpretation. The newly developed bubble chambers seem to combine most of the desirable features of both the nuclear emulsion and the Wilson chamber (apart from cost !), and, moreover, can operate at a speed appropriate to the rapid pulse-rate and high background of the great accelerators. Nevertheless, the nuclear emulsion technique still seems to be the technique most suited to the study of ultra-short-lived particles, in consequence of the extreme fineness of the photographic grain, and of certain aspects of the interaction of cosmic-ray particles of very great energies.

The book opens with a well-documented and illustrated history of the use of the photographic emulsion in nuclear physics and the steps which led to the production of the nuclear emulsion. There follow excellent sections on the basic technical features of emulsions, the range-energy relations, and the measurement of specific ionization and scattering, quantities of considerable importance in the emulsion technique. These sections are beautifully written and illustrated, and will be of great value in the training of research workers. Most of the rest of the book is concerned with the elementary particles, electrons and photons, μ-mesons, π-mesons, K-mesons, hyperons, protons and antiprotons ; but there are also quite long sections devoted to hypernuclei, interactions in the energy-range 10^2–10^9 MeV., and heavy nuclei in the primary cosmic radiation. Fundamental discoveries made by use of the technique, for example, the π- and τ-mesons, heavy primaries and hypernuclei, are fully described, and with the original photographs serve as a reminder of the achievements of British physicists in the exciting early post-war years. In all there are 190 plates, superbly chosen and reproduced, and numerous excellent figures to illustrate the text. The text is a clear account of many of the technical aspects of the use of nuclear emulsion in the high-energy field and of modern high-energy nuclear physics. There are a few small errors, but on the whole the book is singularly free from error.

This magnificent volume can be most warmly recommended to anyone interested in nuclear physics, and is a worthy tribute to the part played by the nuclear emulsion technique in the study of the elementary particles. It is also a brilliant tribute to the research school of which the authors are distinguished members. G. D. Rochester

ORIGIN AND DEVELOPMENT OF LIFE

You and the Universe

By Dr. N. J. Berrill. Pp. viii+215. (London : Dobson Books, Ltd., 1959.) 18*s*. net.

Prof. N. J. Berrill has produced a tantalizing book. In it he sets out to show the origin of life, the way it has developed and the place it holds in an evolving universe.

The task is not beyond him and many readers would agree that, with impeccable prose, crystal-clear thinking and considerable scholarship, in this volume he leaves a stimulating picture of the one-ness of life and the whole-ness of the universe.

The theme is developed in an evolutionary sequence to show how scientific knowledge and thought eventually widen out to find common ground with spiritual insight and belief. Yet as soon as the author reaches a point where a philosophy which is spiritually satisfying might emerge, he breaks off as if at the end of his tether.

The result is a book which, because of the almost poetic style in which the biological and astronomical material is presented, could be hard going for the general reader whose learning is now adjusted to the superlative illustrative diagrams, photographs and models used by the B.B.C. in its current research series on television. The student with some knowledge of biology will be left somewhat frustrated because the end leads to unsatisfying whimpers rather than a statement of sustaining revelations and beliefs.

This is a disappointment, because, without question, Berrill has out-of-the-ordinary gifts in presenting ideas through the written word. He should use them to finish this book.

Whether "You and the Universe" is improved by the extracts from Walt Whitman which launch each chapter will depend on taste. Certainly, the physical presentation will not be to everyone's liking. T. H. Hawkins

STRAIGHT-LINE DATA ANALYSIS

Analysis of Straight-Line Data

By Prof. Forman S. Acton. (Wiley Publication in Applied Statistics.) Pp. xiii+267. (New York : John Wiley and Sons, Inc. ; London : Chapman and Hall, Ltd., 1959.) 72*s*. net.

Prof. Acton demonstrates that a book the object of which is utilitarian can also be attractive to the reader, perhaps mainly because of the freshness of his style and his insistence on keeping close to real experimental problems. He is interested in answering the questions that experimenters need to ask, and early makes plain his attitude by stating : "If we waited for all the epsilons and deltas to be supplied before we used techniques that statistical common sense suggests, we would be technical paupers". His second chapter is probably the best systematic account yet available of the classical problem of simple regression, with its many ramifications in respect of errors and limits for different estimates ; it should be read by all who imagine that they have nothing more to learn about these techniques.

In another major chapter, the frequently evaded topic of regression with both variates subject to error is discussed, and the similarities and differences between various practical situations are considered. The methods proposed owe much to Tukey, but Acton's own contribution is evident. Acton's presentation is distinctive among statistical texts for the blunt common sense of his recognition that the duty of the practising statistician is not simply to construct models, to test hypotheses, or to make decisions in accordance with abstract principles ; he must interpret numerical data in whatever manner may be most appropriate to their source and their intended