vulnerable to much simpler objections; these have recently been summarized by H. Bondi[2].

Prof. Jordan has earned recognition as a pioneer in questioning previously accepted interpretations of the conservation laws of physics; but, so far as his specific suggestions are concerned, even the most sympathetic reader will recoil from the thought of the particular cosmic phenomena he mentions being manifestations of processes so utterly different from those required to account for apparently closely allied phenomena. If the reader is an astrophysicist he will know that these particular phenomena are in any event well on the way to explanation by current astrophysical theory.

It is the case that the subsequent but independent work of Bondi and T. Gold and of F. Hoyle also started from a reconsideration of conservation laws and also requires the notion of continuing creation. But the existence of these common features tends to be deceptive, rather than otherwise, in considering the respective contributions to cosmological thought. The merits of Jordan's suggestions can be judged on their own, but only after he has taken the trouble to explore their potentialities, as he has done in this book. While Jordan himself presents the work as a preliminary account of something worthy of further pursuit, the reader will almost certainly get the impression that the author is now fighting a rearguard action.

W. H. McCrea

[1] *Nature*, **164**, 637 (1949).
[2] "Cosmology", 163 (1952).

MANUAL OF PAPER CHROMATOGRAPHY

Paper Chromatography

A Laboratory Manual. By Richard J. Block, Raymond LeStrange and Gunter Zweig. Pp. x+195. (New York: Academic Press, Inc.; London: Academic Books, Ltd., 1952.) 4.50 dollars.

PAPER chromatography is now a standard technique in the laboratories of biologists, biochemists and chemists, and its considerable importance has been recognized by publication of two previous monographs[1,2] on the subject. This volume differs from its predecessors in being a laboratory manual, and as such it is a very welcome addition to the group.

The manual contains chapters on theory, general methods and quantitative methods, followed by chapters on applications in each of the major fields of biochemistry. The chapter on theory is very brief, as might be expected in a laboratory manual, and that on general methods is rather scrappily presented. The later chapters provide a fund of detailed information on specific applications with many comprehensive tables of R_F values. Much of this material is presented in a manner which makes reference to the original literature unnecessary. This is a valuable feature, as the original literature is so scattered.

Though the book contains a valuable fund of information, its presentation leaves something to be desired. The publishers claim, on the dust cover of the book, that its purpose is "the discussion and evaluation of the more important techniques developed in paper chromatography"; the most serious criticism of the book is that such discussion and evaluation are so frequently lacking. Though twenty-two solvents for the separation of amino-acids are described, their relative merits are not discussed; and, though five different methods of preparation of the ninhydrin reagent are given, the need for such variation is not mentioned. This lack of the critical approach may be bound up with the format of the book. The chapters are divided by very numerous and sometimes systematic subheadings. A fair degree of subdivision is essential in a book of this kind to assist in rapid location of specific information, and this is a useful aspect of the later chapters, but the method is here taken to excess and often leads to cumbersome treatment. A more discursive approach would frequently yield a more critical and informative text.

The manual covers the field of paper chromatography very comprehensively, but there are some unfortunate omissions. Most of the later sections of the book are well endowed with tables of R_F values; but those in the sections on amino-acids and sugars seem inadequate. Of twenty-two solvents described for the separation of amino-acids, R_F values are given for only three. It is a pity that there is no mention of partition chromatography in columns, which is such a useful adjunct to paper chromatography, especially where one is concerned with isolation or quantitative estimation of substances. There is also little mention of the valuable work on separation of peptides, or the fruitful marriage between paper chromatography and the isotopic tracer technique. There is a brief description of paper electrophoresis.

The book contains many useful illustrations, but Figs. 1 and 2 of Chapter 12 appear to have been interchanged, and the value of the two colour plates would be increased by fuller description of their contents. In association with Plate 1, a map of two-dimensional separation of amino-acids would be a useful addition. The apparatus illustrated in Figs. 5 and 6 of Chapter 3 could have been ascribed to Dent and co-workers, who first devised them[3,4].

In spite of these criticisms, which it is hoped will be taken in a constructive sense, the book will be of great value to anyone working in this field.

G. Leaf

[1] Cramer, F., "Papierchromatographie" (1953).
[2] Balston, J. N., and Talbot, B. E., "A Guide to Filter Paper and Cellulose Powder Chromatography" (London and Maidstone, 1952).
[3] Dent, C. E., *Biochem. J.*, **43**, 169 (1948).
[4] Dent, C. E., Datta, S., and Harris, H., *Biochem. J.*, **46**, xlii (1950).

INTRODUCTION TO HUMAN PHYSIOLOGY

The Living Body

A Text in Human Physiology. By Prof. Charles Herbert Best and Prof. Norman Burke Taylor. Third edition. Pp. viii+792+16 plates. (New York: Henry Holt and Co.; London: Chapman and Hall, Ltd., 1952.) 37*s*. 6*d*. net.

THIS is an excellent book which could be used as an introduction to the subject of physiology by any type of student, and, after having mastered its contents, the larger kind of handbook should not be so overwhelming as it is sometimes said to be. The only objection to it appears to be in the nature of the first chapter, which gives a précis of the science of chemistry.

Now it is a truism that the start of any book is one of the most difficult of the hurdles which an author encounters on his course, and the awkward-