

### Linear Algebra and Matrix Theory

By Prof. Robert R. Stoll. (International Series in Pure and Applied Mathematics.) Pp. xv+272. (London: McGraw-Hill Publishing Co., Ltd., 1952.) 51s.

THERE are numerous books on the theory of matrices, and an author, in making an addition to these, must show considerable justification. In the book under review Prof. R. R. Stoll presents the theory "against the background of modern algebra", and this indeed amply justifies the work. Here we do not find new results, but rather an orderly presentation of known material on the strict basis of postulates and definitions. This does not mean that the book is written in an atmosphere of abstraction. Numerous examples are given, and in several places a study of a particular algebraic system leads naturally to the formal abstract definition.

The book opens with a determinant-free method for solving systems of linear equations. The coefficient field is arbitrary. Next comes the theory of finite-dimensional vector spaces as far as the notions of direct sum and quotient space. There is an elegant postulational approach to the theory of determinants (not the computational theory), and bilinear and quadratic functions are presented, in the modern style, as examples of functions with arguments in a vector space over a given field. A good deal of the text is naturally concerned with linear transformations on a vector space and canonical representations of these. Here again the modern geometrical approach is taken, namely, that the transformation rather than its matrix representation is the basic idea. The last chapter deals with unitary and Euclidean vector spaces, and includes an unusually thorough treatment of normal transformations.

The outstanding attraction of Prof. Stoll's book is the blending of the modern and old in algebra, and from this point of view it should prove valuable as a text-book. L. S. G.

**The Story of the Poltergeist Down the Centuries**  
By Hereward Carrington and Nandor Fodor. Pp. 216. (London: Rider and Co., 1953.) 16s. net.

THE substance of this work was originally published in 1935, and it has now been augmented and revised to meet current demands. The first section of the book consists of a chronological list of poltergeist cases, good, bad and indifferent, beginning in A.D. 355 and ending in 1949. Later sections contain brief accounts of some famous cases such as that of the Bell Witch and the Transylvanian Jinn; to these has been added (for no reason that I can discover) an account of the so-called 'talking mongoose' which was investigated, according to Mr. H. Carrington, "by a number of sceptical and competent witnesses", although, as a matter of fact, no serious inquiry was possible owing to the conditions existing at the time. Finally, the psychoanalytic approach to the problem is examined by Dr. Nandor Fodor, whose contribution may seem to some to complicate a situation which is often, although by no means always, much simpler than the reader is led to suppose.

Although the list here compiled does not appear to be in any way complete, it seems curious that, with so many slighter cases included, the authors did not see fit to mention the cases at Dibbesdorf, at Canvey Island (the Smagge case), the eighteenth-century Livingston case and the curious Aztec image case narrated by Rider Haggard. Moreover, some of

the entries suggest that the authors are not well acquainted with a few of the instances they list, and the references are often incomplete or faulty. Thus, although the case of the Curé of Ars is listed, there is no suggestion that the evidence for anything supernormal is of the flimsiest, although this is perhaps atoned for by the appearance under A.D. 1324 of the famous 'greislie Gaist' of Alais who was, for some reason, excluded from the earlier form of this volume. E. J. DINGWALL

### The Wealth of India

A Dictionary of Indian Raw Materials and Industrial Products. Raw Materials, Vol. 3: D-E. (With Index to Volumes 1-3.) Pp. xx+236+xxx+22 plates. (New Delhi: Council of Scientific and Industrial Research, 1952.) Rs. 18.

THE cordial welcome already accorded to the first two volumes of this Dictionary (see *Nature*, 168, 618; 1951) is sure to be extended to this third volume containing the subjects D-E. It fully maintains the standard of the preceding volumes, and it is lavishly illustrated with fifty plates, many of them coloured, and more than one hundred and fifty line-drawings. With the gradual exhaustion of the world's mineral resources, increasing interest is being shown in plant products, and no country is richer in these than India. Interest in the subject-matter of this volume will not be confined to Indian men of science and industrialists, since many of the products described occur also in other tropical and sub-tropical countries. Of the numerous excellent fully documented articles, particular attention may be directed to those on the diamond, emerald, the valuable *Dendrocalamus* species (bamboos), used in the manufacture of paper, and that on *Elettaria cardamomum*, the source of cardamom seeds and oil of cardamom. A very full account is given also of the various species of eucalypts which have been successfully introduced from Australia. The value of this volume is enhanced by an index covering also the previous two volumes. The low price (27s.) should ensure a wide circulation. J. L. SIMONSEN

### The Subject Index to Periodicals, 1952

Issued by the Library Association. Pp. xii+336. (London: Library Association, 1953.) 105s.

THE "Subject Index to Periodicals, 1952" maintains the earlier appearance which was achieved the previous year. As before, it excludes highly specialized scientific and technical periodicals, as well as United States and Canadian publications. It is limited to periodicals in English, mostly those issued in Great Britain, and is particularly useful in covering the proceedings and transactions of local societies concerned with archaeology, natural history, etc. It is intended essentially for the general reader, but since the field covered is reasonable rather than exhaustive or comprehensive, the value of the "Index" depends somewhat on the experience and imagination of the user; it can, however, equally set the novice on the right trail, but is best regarded rather as pathfinder—a guide to the point where the trail can be picked up and followed, rather than as a finishing-point in itself. Some thirty-seven further periodicals are now covered, but another twenty-two are either no longer indexed or have ceased publication. The "Index" is compiled on the plan of the 'dictionary catalogue', with annotations where desirable and free use of cross-references. The customary high standard of production is fully maintained.