OUR BOOK SHELF.

La Statique chimique basée sur les deux Principes fondamentaux de la Thermodynamique. By E. Ariès. Pp. viii+251. (Paris: A. Hermann, 1904.) Price 10 francs.

Die heterogenen Gleichgewichte vom Standpunkte der Phasenlehre. Zweites Heft, erster Teil. By H. W. Bakhuis Roozeboom. Pp. xii+467. (Brunswick: F. Vieweg and Son, 1904.) Price 12.50 marks.

THE two volumes under review are concerned with the application of thermodynamics to the problems of general chemistry, but are yet so different in material and in treatment that few points of resemblance may be found between them.

In the book by Lieut.-Colonel Ariès the mathematical derivation of the laws of equilibrium from the fundamental principles of thermodynamics are stated in the most abstract and general form with just sufficient exemplification to indicate the bearing of the deductions on the practical work of physical chemistry. The author uses as characteristic function the thermodynamic potential at constant pressure, and it may be said in a word that his deductions are as simple and concise as the case will allow, the introduction of useless conceptions and formulæ being scrupulously avoided. One noteworthy feature which might with advantage be imitated in other works on thermodynamics applied to chemistry is the postponement of the discussion of the perfect gas to a point in the last third of the volume. The student is only too apt in dealing with the involved formulæ of certain cases of chemical equilibrium to introduce unconsciously into his equations some result which has its origin in a consideration of perfect gases, thereby obtaining a simple result apparently general, but in reality not so. The temptation to do this is greatly lessened by the simplification of the perfect gas being delayed until the general formulæ are well developed. The book is well and clearly written, and those interested in mathematical chemistry will be thankful for this lucid exposition of the subject.

The first part of Prof. Roozeboom's book has already been noticed in NATURE. It dealt with the equilibria of systems of one component. The present volume deals with the equilibria of binary systems, though such is the wealth of material that it has been found necessary to reserve the discussion of many systems presenting special features for a subsequent volume. In contradistinction to the work of Colonel Ariès, there is scarcely a mathematical formula to be found in Prof. Roozeboom's treatise; the graphic method is used to the practical exclusion of others. In the present part there are 150 diagrams, chiefly of curves the coordinates of which are pressure, volume, temperature, and composition in some combination. As in the first part, the various equilibria are carefully classified according to the nature of the phases involved, and each class is discussed in detail with the most painstaking completeness, and with full reference to the original sources of the experimental work used in illustration. In general terms the volume may be said to deal with simple solutions, and no one whose interest lies in this direction can afford to dispense with the aid of such a valuable guide to the work already accomplished, and to the theory of the practical work still to be performed. J. W.

The Timbers of Commerce and their Identification. By H. Stone. Pp. xxviii+311. (London: William Rider and Son, Ltd., 1904.) Price 7*s.* 6*d.* net.

THIS work is sure to meet with a cordial reception and to be welcomed by all branches of the timber trade. The information contained in its pages is such that only an enthusiast and expert could bring together with the cooperation of others interested in the growth and utilisation of timber in every part of the globe. In all 247 different species are described, even to the minutest detail. In each case the specific name and authority are stated, and, wherever necessary, to avoid confusion, the synonyms have also been added. Then comes a list of the alternative names, or what we might call the common names. It is a well known fact that frequently one and the same kind of timber receives two different names, whereas two totally different species may be known by the same common name. The vernacular names in foreign languages, so far as they are not to be found in dictionaries, have also been quoted. Following this comes a paragraph dealing with physical characters, &c., such as recorded dry weight, hardness, taste, combustion, character of ash constituents, &c. The grain and bark are next described. The following paragraph deals with the uses to which the timber may be put. The colour is also given as a means of identification, and the anatomical characters, as seen in transverse and longitudinal sections, are fully described.

The author seems to have spared no pains in collecting and authenticating the vast amount of information and details necessary for the above purpose. A very valuable feature of the book are the illustrations, numbering 183 photomicrographs, which represent all the genera mentioned in the text, except where a single illustration serves for more than one genus. In most cases the photographs are taken from transverse sections, though in many cases longitudinal sections are also given. It is stated that the scale of magnification is three times the actual size, and is designed to show the appearance of a transverse section as seen by means of an ordinary hand lens. For those desiring further general information about wood a very useful bibliography is given at the end of the book. Also two appendices are added, which respectively describe the method and apparatus for measuring the amount of resistance in timber to impact and the absorption of water by a given area on any surface of a piece of wood.

At the beginning of the book a very interesting chapter, entitled "Practical Hints," is included, which we are sure will be read with much interest and profit by all those who work with wood. The index is a very complete one, and will render the book invaluable as a ready work of reference.

Verhandlungen der deutschen zoologischen Gesellschaft, for 1904. Pp. 252; illustrated. (Leipzig: Engelmann.) Price 11*s.* net.

THIS valuable publication contains the papers read at the twenty-fourth annual meeting of the society, held at Tübingen on May 24–26, 1904. The congress was opened by an address from Prof. Spengel, in which the society was congratulated on the good work it continued to produce, and especially on recent investigations on the structure of the Protozoa and on the relations of the nucleus to the general mass of protoplasm. To Prof. Blochmann was assigned the pleasant task of welcoming the society to Tübingen. The published papers are sixteen in number, in addition to which were numerous exhibits and demonstrations. Most of the former are of an extremely technical character, and to a large extent interesting chiefly to specialists. Among them we may refer to Prof. A. Brauer's account of recent investigations into the structure of the light-organs of the bony fishes, more especially of the deep-sea forms, in which the question of the relation of these structures to the lateral line system is discussed at considerable length. Dr. von Buttel-Reepen's article on the mode in which the larvæ of the honey-bee are made to assume a particular sex is also one of considerable importance. In the course