physics and chemistry. In the course of his introduction M. Ed. Bouty pays high tribute to the author's skill as an exponent of popular science, and it must be admitted that the anticipations so raised are not disappointed, for the explanations are clear, the analogies happily chosen, and the whole is written in a bright and interesting fashion.

Among the subjects dealt with are "L'ultramicroscopie" and "Le Mouvement Browien," "L'état colloïdal et la vie," "Le cycle de l'azote," and "Les Terres Rares." This last includes an interesting account of the applications of the so-called rare elements, and justifies to a considerable extent the dictum that "the only really rare bodies are those for which no practical applications are known."

(4) Prof. Goldhammer chooses as the basis of his treatment of dispersion that particular form of the theory first advanced in 1902 by M. Planck. In this book the theory is generalised and extended to conducting media with more than one absorption band. An investigation, in vectorial notation, of the vibration of Planck's resonator—the "Electrische Dipole"—is followed by the development of the theory in terms of this body. The theoretical results are then compared with the experimental data: gases and vapours, solutions, metals and various compounds all being considered. This portion of the book is especially commendable, being fully illustrated with tables of data and curves.

In the last chapter dispersion is considered from the point of view of the electron theory, the author, following J. J. Thomson, making no distinction between the bound and free electrons. It is concluded finally that, so far, this generalisation of Planck's theory is nowhere in antagonism with the results obtained by experiment. An excellent little treatise, being a notable addition to the literature of the subject.

(5) This is the second volume of a complete course of physics based on the notes of lectures delivered at the University of Lille. The work is to be completed in three volumes, of which the first and third are still in the press.

The thermodynamics is treated mathematically on the usual lines, a knowledge of partial differential coefficients being assumed. The ground covered is extensive, and the treatment rather uneven. For example, thermodynamic potential is dismissed in a single page, and the study of the solid state in a chapter of three pages, while, on the other hand, the section on univariant systems is particularly good. Interspersed in the text are a number of worked numerical examples.

Radiation is treated descriptively on modern lines, mathematical formulæ only being given. Nearly a third of this part of the book is devoted to the astrophysical aspects of the subject: an interesting section, but only inserted at the expense of the rest of the subject.

OUR BOOKSHELF.

Les Pyrénées Méditerranéennes, Etude de géographie biologique. By Prof. M. Sorre. Pp. 508+xi plates, 41 figures and a map. (Paris: Armand Colin. 1913.) Price 12 francs.

THIS book is not the outcome of a wholly new method of inquiry, but it is a more complete examination of local influences, past and present, acting in a defined area, than most works of a similar nature. The subject is treated historically, especially in relation to man's activity, from the earliest times, in altering or modifying the aspects and composition of the vegetation and in the development of animal life, in relation to advancing civilisation. It is a consolidation of knowledge obtained by workers in the various branches of research connected with life, animal and vegetable, and physical conditions.

The area under consideration comprises the eastern part of the Pyrenees from Andorra in the west and the whole of the low mountains, hills and plains falling therefrom to the east and to the south, to the sea. There are altitudes of nearly 10,000 feet, and the essentially alpine vegetation begins at about 8000 feet. Phytogeography plays an important part in the history of the human race and naturally occupies a large place in this book, where the results of Prof. Ch. Flahaut's investigations are largely drawn upon. The map shows the distribution of the characteristic trees of the successive zones, beginning with the purely littoral vegetation and followed by the evergreen oak and olive, the stone pine, the cork oak, hairy oak, beech, silver fir, Scotch pine, mountain pine, and the alpine zone.

The plates mostly illustrate *paysages* or scenery, and the figures physical conditions and phenomena. An idea of the arrangement of the matter may be obtained from the headings of the chapters:—I. Les Paysages. II. Le sol et les formes du Relief. III. Climat. IV. Les Eaux. V. Les formes de la Végétation Spontanée; and VI. to VII. Les Genres de Vie of the different regions, with a final chapter on La Vie de relations, son influence sur la Vie locale. W. B. H.

Travers' Golf Book. By Jerome D. Travers. Pp. xi+242+xlvi plates. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd., 1913.) Price 8*s.* 6*d.* net.

THIS book will prove interesting reading to all golfers, and especially to those who aim at being champions. Mr. Travers tells how he attained his expertness—simply by thoughtful, deliberate practice. He gives many valuable hints on stance and grip, and elucidates these by means of photographs of himself in all sorts of positions, and