

o exist between the chemical constitution of a substance and the degree of its rotation. The fact that such relations do exist in the case of other optical properties, such as molecular refraction, dispersion, and magnetic rotation, no doubt gave rise to the expectation that some similar connection would be found in regard to this rotatory power. In the above cases the optical differences depend mainly on the nature and number of the elements composing the substance, though modified to a certain extent by the manner of combination. But here it seems to depend almost entirely on the mode of grouping. Such able experimenters as Guye, Chavanne, Walden, Tchúgaeff, Nasini, van 't Hoff, and in our own country Frankland and Crum Brown, have investigated the question. The problem has not yet been solved; but a number of suggestive results have been obtained which will no doubt lead to further research, and the clearing up of the relationships between composition and amount of rotation which unquestionably do exist.

J. H. G.

*Science and Faith; or Man as an Animal and Man as a Member of Society: with a Discussion of Animal Societies.* By Dr. Paul Topinard. Translated from the Author's Manuscript by Thomas J. McCormack. (London: Kegan Paul, Trench, Trübner and Co., Ltd., 1899.)

THE editors of the *Monist*, some four years ago, invited discussion on the main problems of the philosophy of science and the reconciliation of science and faith. This book is Dr. Topinard's answer—the longest and fullest received—to their question. Man is regarded from the standpoint of anthropology; at the outset a creature merely selfish, but ultimately actuated by the sense of duty to the community. Thus he is a battlefield of opposing influences, egoism and altruism. Can we then explain the development of the latter on scientific principles, or must we have recourse to some external influence or impulse; in other words, assign a part to faith. In a series of chapters the author sketches man's development, as a member not only of the animal kingdom, but also of societies, seeking to trace in the lower forms of life the rudiments both of structures and of ideas. Finally, he arrives at the conclusion that Science and Faith mutually exclude each other. This perhaps would be generally admitted, even by those who would maintain that neither science nor faith alone could give a complete explanation; for each investigates different aspects of the problem and by a different method. Thus far the two are exclusive; nevertheless both may be necessary in order to obtain complete knowledge. For on many minds a problem presses to which Dr. Topinard offers no reply, namely, "Why" is all this? What is the cause of all these phenomena? Of what kind of power are they an expression? To answer this, he might reply, is not the province of science. That may be true, but the question remains, and not a few hold that to ignore it is an arbitrary narrowing of the field of investigation. In other words, whether Dr. Topinard's book will or will not satisfy inquirers is very much a question of temperament. Grant certain postulates—for such they are, and not axioms—in regard to the field of investigation, and it will; repudiate them, and it will not. He maintains "that the two domains of science and faith are two contrary poles"; others will say that each is necessary if a globe is to be complete, and that a very large zone exists between the circumpolar regions in which each of these apparent opposites plays a part, now the one, now the other dominating. But the book is worth reading, whether we are or are not satisfied with its conclusions, whether we regard it as a real or only a forensic success.

*Who's Who.* 1900. *An Annual Biographical Dictionary.* Pp. xviii + 1002.

*The Englishwoman's Year-Book and Directory.* 1900. Edited by Emily James. Pp. xxi + 340. (London: Adam and Charles Black, 1900.)

"WHO'S WHO" is now in its fifty-second year of issue and as a handy work of reference containing biographical particulars and addresses of persons of greater or less prominence in science, art, and literature it stands alone. Tested by several years of use, the publication has been proved to be a dictionary of biography which can be referred to with confidence. Science is fairly well represented, every Fellow of the Royal Society from whom particulars could be obtained being included, and also other workers in the scientific world. A complete list of Fellows of the Royal Society is given among the useful miscellaneous information which precedes the biographical sketches. Curiosity induced us to see how many of these names also occur in the list of members of the Privy Council, and we found that although 25 of the 265 members of the Council have been admitted into the Royal Society, only two or three can with the most liberal interpretation be considered as engaged in scientific work.

"The Englishwoman's Year-Book" shows the numerous opportunities which now exist for women to exercise their activities, and testifies to the abundant use made of them during last year. There are fourteen sections, each concerned with opportunities and progress in a particular branch of work, among them being education, medicine, and science. Under the latter head is given lists of scientific articles and papers contributed by women to magazines and learned societies during last year, and also of women science lecturers and demonstrators. The volume should be of service in promoting the best interests of women by exhibiting their intellectual accomplishments.

*Le Phénomène de Zeeman.* Par A. Cotton. Pp. 100. (Paris: Georges Carré and C. Naud, 1899.)

THIS is the fifth number of the physical series of "Scientia," under which title is appearing a collection of handy volumes dealing with recent advances in science, and intended primarily to enable specialists in one department to keep themselves abreast of the times in regard to the work being done in other departments. A concise account of the Zeeman phenomenon will be valuable to many.

M. Cotton has limited his treatment to the experimental aspect of the phenomenon. He commences with a summary of recent progress in spectroscopy, and of the different causes which tend to modify the spectral rays. The history of Zeeman's discovery is then introduced, and in the next chapters M. Cotton discusses the changes in the rays emitted parallel and perpendicular to the lines of force, and the absorption effects dependent on the Zeeman phenomenon. In the last chapters M. Cotton describes the experiments of Righi, of Macaluso and Corbino, and of Voigt. The author is to be congratulated on the amount of information he has been able to convey in so small a compass.

*Dictionnaire des Termes de Médecine, Français-Anglais.* By H. de Méric. Pp. vi + 243. (London: Baillière, Tindall and Cox, 1899.)

THE English-French part of this dictionary has already been noticed (vol. lix. p. 484). We hardly see the necessity of giving, in a technical dictionary, the English equivalents of such common words as civilisation, classe, concave, doctrine, division, idée, intelligence, reptile, visage, nuit, and many others. This, however, will not make the volume any the less serviceable to physicians and students of medicine.