

add much to the book, particularly should some of the problems be from this standpoint.

G. A. HULETT.

Principles of Chemical Geology. By JAMES VINCENT ELSDEN. London and New York: Whittaker & Co., 1910. pp. vi+220. Cloth.

The title of this book is somewhat misleading, for it is not a general treatise on chemical geology. It is really and professedly an attempt to apply the theory of equilibrium to geological problems, and therefore it covers a well-defined but limited field. The specific questions to which modern physico-chemical ideas and principles are applicable are discussed with some detail in an elementary way, with abundant illustrations of their applicability and a wealth of references to literature. Such themes as viscosity, diffusion, surface tension, vapor pressure, eutectics and solid solutions are considered, and their bearing upon the magma and its solidification are clearly treated. The work of men like LeChatelier, Arrhenius, Doelter, Vogt, Ostwald, van't Hoff and Morozewicz is fully discussed, that of van't Hoff upon the Stassfurt salts being given considerable prominence. English and American workers are also extensively cited, showing that the author has gone quite thoroughly over the available literature. There are, here and there, minor errors in purely chemical and mineralogical matters, but they are so few that they do not lessen the value of the book to any serious extent. The volume will certainly be most helpful to many progressive geologists, for magmatic problems are coming more and more into the field of physical chemistry. What happens when molten rock solidifies, or when a bed of rock salt or gypsum is deposited from solution? Questions like these must be handled by modern methods, and the philosophical geologist can no longer be content with the chemistry of thirty years ago.

F. W. CLARKE.

Beiträge zu einer Kolloidchemie des Lebens. VON RAPHAEL ED. LIESEGANG. Dresden: Verlag von Theodor Steinkopff, 1909. 148 pp. Price, 4 mks.

This is a collection of heterogeneous experiments dealing with the formation of precipitation membranes of various phosphates, silver chloride, copper ferrocyanide, etc., in gelatin, which are supposed to, and possibly do in some particulars, parallel the processes of formation of membranes, growth, partial permeability, and resorption, occurring in living cells.

The experiments are not planned apparently with any definite end in view nor is any explanation given of some of the results. An idea of the scope of the experiments, of which there are one to several included under each heading, may be obtained from a partial list of the chapter headings of Part I, pp. 1-77. "Apparent membrane effects; the passage of circles of diffusion through each other; speed of diffusion; the apparent

attraction of diffusion circles; rhythmic after-diffusion; carbon dioxide development in gelatin; apposition and intersusception; the acid theory of osteomalacia; the growth of hollow bones; rachitis; calcium phosphate membranes; pressure effects; bone architectonics; hydrogen peroxide and gelatin; researches on nucleic acid." The second part of 78 pages contains more protocols with suggestions of their possible bearing on bone formation, muscle contraction, conduction, etc.

It is sufficient to give a list of the chapter headings and the number of pages to show the necessarily superficial, incomplete and incoördinate character of the work. Almost any one of the titles mentioned would require for any adequate treatment a book of at least the size of this one.

The book can not be recommended as an example of what a scientific work should be, but rather, in the reviewer's opinion, as an excellent example of what it should not be. There are no fundamental guiding principles for the experiments, there is no thorough working out of any one thing to see whether the experiments reported really parallel vital phenomena except in a grossly superficial way. Even the title of the book, "Contributions to a Colloidal Chemistry of Life," strikes the reviewer as badly chosen to say the least, since in the first place, life is not to be explained by chemistry even taken as a whole, let alone that part of it dealing with the colloids, and in the second place it is still uncertain that colloids differ in any fundamental particular from non-colloids, so that a separate division of chemistry for them would appear certainly premature. It is possible that the author's industry in trying experiments of precipitation in gelatin, may enable some one to find among the experiments some stones which may be used in erecting a planned building, or he may find here some hints in shaping further work which may be useful but apart from this, the work has little value owing to its incoördinate and inconclusive character.

Any one who feels tempted to publish work of this kind should read any one of Darwin's books, or any book or paper of Claude Bernard, Lavoisier, Faraday, DuBois Raymond, van't Hoff, or any of the great men of science to get a standard of excellence. He will not find that these men publish hodge-podges of this kind, which, alas, are altogether too common in all branches of biological investigation.

ALBERT P. MATHEWS.

RECENT PUBLICATIONS.

ANDOUARD, A.: *Nouveaux éléments de pharmacie.* 8°, 1168 pp., 26 Fr.

ARTHUS, M.: *Elemente der Physiologischen Chemie.* 3 Aufl. Leipzig: 8°, 353 pp., 6, 75 M.

BAYLISS, W. M.: *Das Wesen der Enzymwirkung.* Dresden: T. Steinkopff. 3 M.