

A CHEAP ROCK POLISHING MACHINE

A SMALL high-speed carborundum wheel, clamped to one of our work tables, has long been used for its obvious purposes. It may interest those geologists and paleontologists who have not stumbled on to the same fact to know that this machine offers a most efficient and rapid method of obtaining a polished section of a rock or a fossil. My attention was first called to this use of the machine during a conference with Mr. Robert Harvie on the organic identification of some obscure markings in a calcareous sandstone. By splitting the rock in an ordinary screw press and holding the desired portion of the exposed face against the side of the wheel, for which purpose there is a convenient rest, three flat sections were made and studied in as many minutes. The method is somewhat crude, but efficient, and may have wide application. A higher polish could be secured by using wheels of differing degrees of fineness.

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GEOLOGICAL SURVEY OF CANADA

THE SMITHSONIAN PHYSICAL TABLES

TO THE EDITOR OF SCIENCE: The Smithsonian Institution has just published a new edition of the Smithsonian Physical Tables, corrected and slightly modified from the sixth revised edition. Requests have come from certain educational institutions for separate copies of certain individual tables for the use of students in laboratories. If there is likely to be a considerable demand for such separates, the institution will have them printed on stiff paper and distributed at cost to those who desire them. With a view to ascertaining the probable demand for separate tables, it is requested that readers of SCIENCE inform the institution which tables they would desire in separate form and the number of copies of each they would require. All tables for which the probable demand of this kind reaches 100 copies will be reprinted separately. The tables may be consulted in nearly all of the larger libraries.

C. D. WALCOTT,
Secretary

SCIENTIFIC BOOKS

Temperatur und Lebensvorgänge. VON ARISTIDES KANITZ. Verlag von Gebrüder Borntraeger, Berlin. s.s. 175 mit 11 textfiguren. 1915.

"Temperatur und Lebensvorgänge" is the first of a series of biochemical monographs (*Die Biochemie in Einzeldarstellungen*), written by specialists, to be published by Gebrüder Borntraeger under the editorship of Aristides Kanitz. The series will treat of biological chemistry in its broadest sense and is comparable to the English monographs on Biochemistry edited by Plimmer and Hopkins.

It has been known for a long time that temperature has a very great influence on life processes, but only within recent years has a quantitative study been made and the values obtained compared with the effect of temperature on various physical and chemical processes. According to Kanitz the first quantitative studies were made by Clausens in 1890 on the carbon dioxide production of seedlings and the results interpreted by van't Hoff in terms of his rule—that the velocity of chemical reactions increases two- to three-fold for every ten degrees rise in temperature. Since that time many quantitative temperature investigations have been carried out with special reference to van't Hoff's rule or the RGT (*Reaktionsgeschwindigkeit*) rule as Kanitz prefers to call it. These investigations are systematically recorded in the book, which is unusually complete. Often the original data are given and always the value of Q_{10} , which indicates the rate of increase of any physiological process for a 10° C. rise of temperature. References are made to 363 original papers and the book contains both a subject and an author's index, besides a table of contents, so that any subject may be found with the greatest ease. The effect of temperature on various rhythmic processes, as heart beat, breathing, contractile vacuoles and contraction of medusæ; on the rate of the nerve impulse, muscle contraction, electromotive force of bioelectric currents, geotropic and phototropic reactions, protoplasmic streaming, permeability, effect of poisons, the length of life, rate of

growth, and various metabolic processes of plants and animals are all considered. Many observations are of the author's own work and all are discussed with reference to the RGT rule. Indeed, one wishes that the effect of temperature on purely physical processes was more fully considered. There is of course no doubt but that the main effect of temperature on life processes is to be explained in terms of its effect on chemical reactions, nevertheless, there are irregularities in the temperature coefficients of biological processes which must be explained as the result of temperature changing two processes at the same time, and not merely the velocity of some chain of chemical reactions. It is the exception rather than the rule which should now claim the attention of physiologists.

It is always a great convenience to have the results of some one subject of investigation collected and tabulated by a competent investigator and this book will serve as an excellent reference work to the physiologist and biochemist interested in temperature and as a guide to future research along that line.

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Geologia Elementar, preparada com referencia especial aos Estudantes Brasileiros e á Geologia do Brazil. Por JOHN C. BRANNER. Second edition, Francisco Alves et Cia, 166 Rua do Ouvidor, Rio de Janeiro, Brazil.

The second edition of this excellent handbook, not only for Brazilian students as the title states, but of Brazilian geology, brings up to date in 396 pages of text the matter presented in the first edition of the year 1906. Perhaps no one now living in or outside of Brazil is so well prepared to write a regional geology text of this character as President Branner. The present edition is based upon the first, which was written in English and translated into Portuguese with the collaboration of the late Dr. Derby. The additional matter in the new edition was written in Portuguese by the author, and revised by Doctors Barreto and Lisboa. The subject-matter is systematically set forth with illustrations of

local geological peculiarities, among which the magnificent examples of weathered rocks, the coral banks of the coast and sandstone reefs of Pernambuco, the remarkable growths of the mangrove, the geological work of ants, and the striking evidences of a slightly elevated shore-line, form admirable subjects for didactic geology. Where Brazil is now wanting in evidences of important agencies of geological change, the author has very properly, in the interest of the student, introduced striking examples from foreign lands. The North American student of geology, even if he does not read Portuguese, will find the black-line maps illustrating the distribution of the geological formations of Brazil as they are at present known, the most serviceable at his command. The guide fossils representing the chief types in the Brazilian Upper Silurian, Devonian, Jurassic, Cretaceous and Tertiary deposits are set forth in line and stipple drawings which have the merit of distinctness. Numerous cross-sections show the understanding of the geological structure, in particular the coastwise portion of the country. President Branner has embodied the latest discoveries concerning the Permian glaciation in south Brazil, as well as the results of Dr. I. C. White's monographic work upon the "Geology of the Brazilian Coal Field." The footnotes give reference to the more important geological reports on the region, among which must not be forgotten the author's "Bibliography of the Geology of Brazil," in *Bulletin Geol. Soc. Amer.*, Vol. 20, p. 132, 1909.

The geological traveller bound to Brazil will find this work indispensable as a *vademecum*, and an additional incentive to gain command of the Portuguese tongue.

J. B. WOODWORTH

Irrigation in the United States. By RAY PALMER TEELE, M.A. D. Appleton and Company, 1915. Pp. 253.

The conquest by irrigation of the vast area of our country that lies under a low annual rainfall—approximately 20 inches and less—has become a matter of national interest. Our