

colored fluorite in small cubic crystals is a common associate of the telluride. The rocks of the district are mostly granitic. The ores of high grade are successfully worked by smelting, rather than by milling.

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#### BOOK-REVIEWS.

*A Pocket Key to the Birds of the Northern United States.* By A. C. APGAR. Trenton, N. J., John L. Murphy. 50 p., 50 cents.

THIS small book, which can readily be carried in one's pocket, gives a simple, usable key which will enable a student of nature to determine the family and usually the genera of any of our northern birds. It will be especially valuable as a field book for one to carry in short excursions.

*The Soil in Relation to Health.* By H. A. MIERS, F. G. S., F. C. S., and R. CROSKY, D. P. H. New York, Macmillan & Co. 130 p., \$1.10.

As the result of the recent advance in matters of hygiene many short accounts of the hygienic characteristics of water and milk have been presented to the public. The suggestion of soil in relation to health is a somewhat new one. At the same time, it is perhaps as old as any in general estimation, for every one has some conception that certain kinds of soils are not healthful. In this little volume of 130 pages are collected all of the general facts known in relation to the hygiene of the soil. It is discussed especially in connection with the subjects of the water in the soil, the air in the soil and micro-organisms in the soil. The relation of the soil in the distribution of most important diseases is discussed, and the relation of ground water to all phenomena of health is considered carefully. In short, this little volume presents the factors which should be considered in determining the healthfulness of any locality, so far as concerns its soil.

*The Inadequacy of "Natural Selection."* By HERBERT SPENCER. New York, D. Appleton & Co.

In this little pamphlet have been republished the three essays on the subject of Weismannism published by Herbert Spencer in the *Contemporary Review* in 1893. These trenchant criticisms of Weismann's theory are well known and need no comment. In this form the essays form a valuable addition to any library on the subject of recent views of heredity.

*The Native Calendar of Mexico and Central America: A Study in Linguistics and Symbolism.* By DANIEL G. BRINTON, M.D., LL.D. Philadelphia, David McKay.

THERE is probably no question more important in American archaeology, and none more obscure, than that of the calendar in use by the natives of Mexico and Central America before the Spanish conquest. Up to the present time its solution has foiled every student, from Humboldt down.

In the essay before us the author does not take up the mathematical and astronomical problems involved, but aims to define the geographical extension of the calendar, its probable origin and its symbolic meaning. His results may be briefly stated. The same calendar system is shown to have prevailed among all the semi-civilized nations of Mexico and Central America; its origin, he inclines to think, was among that branch of the Mayan tribes which dwelt near the great ruins of Palenque and Ocozingo, and built those cities; and it arose at first not as a time-measure, but as a means of astrological divination, and only later was brought into relation to the luni-solar year-counts of the tribes who adopted it. Its essentially symbolic character is explained at considerable length; and the etymology of the day and month names

in the different languages is presented with greater fullness than has hitherto been attempted.

*A Theory of Development and Heredity.* By HENRY B. ORR. Ph. D. New York, Macmillan & Co. 255 p.

ANY new presentation of the subject of heredity is welcome, for in recent years biological discussion has become so intimately associated with this subject that there is a general impression among students that no further advance along the lines of biological truth is possible until this problem of heredity is in a measure solved. Prof. Orr, of Tulane University, has endeavored to give us a new view upon the subject of development and heredity. His theory, while not absolutely new, perhaps, is certainly fresh and novel in its applications, and in its association of facts somewhat widely distinct and hitherto kept separate.

The theory of Prof. Orr has in it some of the features of Weismann, inasmuch as it is based upon the supposed continuity of germ plasm, but differs radically from Weismann's theory in assuming the possible and, indeed, the necessary modification of this germ plasm, by the conditions surrounding the adult. The theory is in reality an expansion of the old statement of Haeckel that heredity is memory. The phenomena of heredity and development are based by Prof. Orr wholly upon the nervous system of organisms, and this nervous system he traces through the lower organisms, and even extends it through the vegetable kingdom, thus finding the essential features of the nervous system co-existent with life. Heredity is habit; the germ substance is continuous from generation to generation, and its nervous factors remember. Great stress is placed upon the known facts of the acquirement through habit of reflex actions by the nervous system of the higher vertebrates, and a similar action is supposed to be possessed in all protoplasm. The theory assumes that protoplasm, like other matter, is extremely plastic and undergoes physical or molecular modifications with every action of the environment upon it. Acquired characters of the adult affect all the protoplasm of the body, including the germ plasm, and form thus the most important basis of modification and development. The theory, in short, is an attempt to show that heredity is due to slow modifications of the nervous system of the germ plasm, produced upon it by changed conditions, and applies equally to the body protoplasm or the germ plasm.

The view of Prof. Orr is suggestive, but it is doubtful if it explains very much. If Weismann's theory became popular and spread all over the world rapidly because of its simplicity and ready comprehension, it is safe to say that Prof. Orr's theory will not have a like history. The theory itself is a little more difficult to understand than it is to understand heredity without it, for to explain everything by a nervous system whose very presence is, in lower organisms, a matter of hypothesis, does not advance us very much on the line of simplicity. If Prof. Orr's theory is true, it is certain that biologists are not ready for it, because it relegates the whole subject of heredity and development to that one branch of biology of which we professedly know least, namely, that of mind. In spite of this, the discussion of Prof. Orr is full of suggestion, and will undoubtedly repay thorough reading and careful thought on the part of any student of nature.

*Method and Results.* By THOMAS H. HUXLEY. New York, D. Appleton & Co. 8vo., \$1.25.

THIS book is the first of a series of nine bearing the general title of "Collected Essays," in which Prof. Huxley intends to gather together his scattered essays and addresses in a permanent form. One of the essays in this volume relates to Descartes' "Discourse on Method," and is designed to set forth Prof. Huxley's own views as to the right method of scientific investigation; while the other