chipping sparrow, but still the latter quit nesting in my yard before the former commenced.

I put up boxes which were formerly occupied by bluebirds. As soon as the sparrows nested in my yard they took possession of these boxes; and when the blue birds came they did not have the grit or strength to turn the intruders out, and they went elsewhere to nest. After nesting time they are seldom seen in the city during the summer. Very clearly the sparrows have driven the blue birds out of this part of the city, and possibly the chippees; but if they have affected any other kinds, my obervation has not been keen enough to detect it, though I have had my attention directed to it for years. F. A. SAMPSON.

Sedalia, Mo., July 25.

On Maya Chronology.

IN a former communication, answering Professor Cyrus Thomas's "Brief Study of the Palenque Tablet," I stated that the theory brought forward by Professor Förstemann, that the Dresden Codex does not count the days from the first of the given month but from the last of the preceding month, is to be put aside. Professor Förstemann's theory is based on the supposition that the calendar system of the Dresden Codex was the same as that which prevailed in Yucatan at the time of Bishop Landa's writing. This supposition, however, is an erroneous one. In the "Zeitschrift für Ethnologie," Vol. XXIII., I have shown that the priests who wrote down the Dresden Codex did not begin their years with the signs *kan, muluc, ix, cauac,* as in Landa's time, but with the signs *been, e'tznab, akbal, lamat,* exactly corresponding to the signs used by the Mexicans to designate their respective years. Beginning the years in this manner, the day 4 *ahau*, 8 *cumku*, is really the eighth day of the month *cumku* in the *been* or "cane" years, and conformingly all the other dates throughout the whole Dresden Codex.

I wish to call attention to a passage of the Chilam Balam of Mani which seems to confirm my opinion. It is said there (Brinton, Maya Chronicles, p. 98): "In the Katun, 13 *Ahau*, Ahpula died. It was in the course of the sixth year before the ending of the katun, as the counting of the years was in the east, and (the year) 4 *Kan* seated upon the throne, on the 18th day of (the month) *Zip*, on the day 9 *Fruix*, Ahpula died." Now it occurs only when beginning the count with the first day of the month, that a day 9 *Fruix* is the 18th day of the month *Zip*. And, indeed, in the year that begins with the day 4 *Kan*, the day 9 *Fruix* is the 18th day of the month *Zip* — beginning the count with the first.

Here, therefore, we have the same designation of a date by the sign of the day and the position it holds in the number of twenty, or a Maya month, as in the Dresden Codex. It seems scarcely probable that the natural manner of counting seen in the passage of the Chilam Balam, quoted above, should be replaced in the Dresden Codex by another and wholly unintelligible one.

DR. ED. SELER.

Steglitz, July 24, 1892.

The Palenque Tablet.

ALLOW me to say in reply to Dr. Seler that I did not "follow Dr. Förstemann" in regard to the peculiar method of counting days in the Dresden Codex. I had discovered this peculiarity before I was aware that anyone else had noticed it, and have now an unpublished article on the series, — Pls. 46–50, — based on that method, which was prepared some time ago. While at work on this paper the thought occurred to me that the series might be based, as Dr. Seler supposes, on a calendar in which the years commenced with *Been, Ezanab, Akbal, and Lamat*, and a table was prepared on this theory.

I quote from that paper my reply to the suggestion. After noting the fact that the count began with the last day of the month, I remark, "It might be argued from this that the years and months began with what have been considered the last days, but for the fact that all the historical evidence is against such a conclusion, and, as can be shown, a full and complete explanation of this series can be given without resorting to this theory."

There are also some difficulties in the way of this theory. Pushing back the series one day is a very simple process; but it will sometimes throw dates in the five added days which do not belong there, and would break the continuity of the Katunes and cycles. Moreover, I think this custom of counting from the last day of the month will explain the reason for commencing the numbering of the Katunes with 13.

I think it quite probable that, if Dr. Seler will attempt to trace out on his theory the three long series on Plates 46–50, each running through 104 years, he will find that it will fail to work. If not, then it is immaterial, except as regards the succession of the epochs, whether we count the commencing days the last or first of the month.

As this theory is wholly unnecessary to explain the peculiarities of this Codex, and as Plates 25–28 appear to be based on the method of counting from the last day of the month, I see no good reason for adopting it.

Dr. Seler thinks my statement that day-numbers were not attached to month-symbols on Plates 48 and 50 of the Dresden Codex when the number was 20, is erroneous, and calls attention to certain characters which he believes are symbols for this number. The little characters he alludes to are certainly present, and, as they are not parts of the month characters, may be intended to denote the fact that the month is completed. But it is difficult to explain on his supposition the fact that the symbol on Plate 48 to which this sign is attached is that of the month *Yax*, when the date is 11 *Eb*, the twentieth day of *Chen;* and one of those on Plate 50 is the symbol for the month *Pop*, when the date is 11 *Ik*, the twentieth day of *Cumhu*. In other words, the symbol in each case is of the month following and not that to which the twenty days apply. His explanation therefore fails to solve the difficulty, and cannot as yet be accepted as fully satisfactory; nevertheless, it must be admitted that these added characters have some reference to the completion of the month.

His interpretation of the open-hand symbol by *pax*, "to beat," appears to be erroneous, as there is nothing connected with it representing the phonetic element *p*. CYRUS THOMAS.

Smithsonian Institution, Washington, D.C.

BOOK-REVIEWS.

On the Modification of Organisms. By DAVID SYME. Melbourne, George Robertson & Co. 8°.

ON account of the many questions dealt with in this book, it is difficult to do justice to its contents within our limits. The prime object of Mr. Syme's clearly-written and forcible work is to show the falsity of the theory of natural selection, and to present another hypothesis to explain the cause of the modification of organisms. The greater part of the volume is taken up with criticisms of Darwin's statements and method of exposition, and the author's ideas as to the true cause of modifications are not brought forward till near the close of the work.

They are embodied in what may be styled the doctrine of "cellular intelligence." "The cell is the biological unit," Mr. Syme asserts. "It is the irreducible vital entity; it is the seat of life and energy; it is the key that unlocks the mystery of organic modifications" (p. 142). But it is more than this. It is the element which "feels, thinks, and wills" (p. 144). In other words, it is intelligent.

Startling as this doctrine is, the author does not hesitate to claim for it a wide application. In the movements of the stamens and pistils of flowers, the selection of grains of sand by rhizopods, and the healing of wounds, he sees the operation of this "cellular intelligence."

Modifications of organisms are brought about by the stimulating influence of external conditions. "These conditions, if uniform, pronounced, and prolonged, will, according to their nature, invariably incite the organism to change in a definite direction." Mr. Syme holds that modifications result from the action of the organism itself and not from any direct influence of environment. Hence he rejects the terms "use" and "disuse," which mean only "function and its absence," and prefers to say that modifica-

tions occur in accordance with the law of "effort and abstinence."

As to whether acquired characters are inherited, Mr. Syme offers no definite opinion; and hence the most important question in this connection remains unanswered. For, if modifications resulting from the response of an organism to new influences affect only the passing generation, it is difficult to understand how they can become fixed, as they certainly do.

It should be stated further that Mr. Syme avows a belief in the existence of "vital force," which is the cause of the phenomena of life and is inherent in the living cell. He asserts that Lewes's ridicule of this idea was due to his misunderstanding the questions involved.

Our space does not admit of more than a brief mention of Mr. Syme's objections to the theory of natural selection, but many of them deserve serious attention. The case of the relation of humble-bees to clover may be cited as an example. Darwin states that "humble-bees alone visit red clover, . . . hence we may infer as highly probable that if the whole genus of humble-bees became extinct or very rare in England, . . . the red clover would become very rare, or wholly disappear" (Origin of Species, Ed. 1880, p. 57). On this point Mr. Syme remarks: "Darwin says that *T. pratense* will not produce seed unless it has been visited by humble-bees. . . . But this is quite a mistake. Red clover seed had been grown and exported from New Zealand long before the humble-bee was introduced there; and I am informed by one of the leading Melbourne seedsmen that he has been supplied with this seed, grown in the western district of Victoria, for the last 17 years; although no humble-bees have ever been introduced into that colony" (p. 112). It does not seem possible that both these statements can be true.

Many similar facts regarding the relation of insects to the color and form of flowers, the results of cross-fertilization, and the significance of secondary sexual characters, are cited by Mr. Syme in his endeavor to prove the falsity and insufficiency of the theory of natural selection. F. W. T.

The Apodidæ. A morphological study. By H. M. BERNARD. *Nature Series.* London and New York, Macmillan & Co. 8°. $2.

THIS is an extremely interesting study of the Phyllopod crustaceans, *Apus*, *Lepidurus*, etc., with the view of using them as a key to solve the problem as to the origin of the crustacea and the true affinities between the different groups. His study has led the author to the conclusion that *Apus* is derived from a carnivorous annelid, whose five anterior segments have become ventrally bent over. He believes he has shown the trunk of *Apus* to be a true link between the many segmented annelids and the crustacean fewer-segmented body, that it exhibits a gradual transformation of the annelidan cuticle into the crustacean exo-skeleton, while the annelidan parapodia are shown to be capable of developing every form of crustacean limb, *Apus* supplying the clue. In short, he regards *Apus* as affording an almost ideal transition form between the annelids and crustacea. Further, he shows that if this is true for *Apus*, the long-contested *Limulus* or horse-shoe crab and the Trilobites must have had a similar origin. He concludes that while only one group of modern crustacea admits of derivation from the Trilobites, all the rest except *Limulus* can be deduced from the *Apodidæ*.

Whether this hypothesis be finally accepted or not, the author's discussion throws light on many contested points, and cannot fail to have a beneficial influence on future discussions and theories of classification of the animals to which it relates.

Lessons in Elementary Biology, By T. JEFFREY PARKER. London, Macmillan & Co. 8°. $2.25.

PROFESSOR PARKER, a well known pupil of Huxley and professor of zoology in the University of Otago, New Zealand, has endeavored in this work to give an account of the structure, physiology and life history of a series of typical organisms in the order of their increasing complexity. He begins with the unicellular organisms *Amœba*, *Hœmatococcus*, *Heteromita*, *Euglœna*, *Protomyxa*, *Mycetozoa*, *Saccharomyces*, and *Bacteria*. He then takes up those unicellular forms in which there is an increasing complexity, such as *Paramoccium*, *Foraminifera*, *Diatorus*, and *Mucor*.

Next come organisms, in which complexity is attained by cell multiplication, though with little differentiation, fungi, and algæ; then solid aggregates in which differentiation is a marked factor, such as *Hydra* and *Porpita*. From these he proceeds to polygordius, mosses, and ferns. About fifteen pages are given to the higher types, starfish, crayfish, mussel, and dogfish, and to the higher plants, and special discussions on cells and nuclei. Biogenesis, homogenesis, origin of species, etc., are discussed in special chapters. In general, little criticism is suggested by the facts stated. For the teacher it may be said to be wholly unfit for elementary work, properly so-called. The author revels in a truly Lankesterian pollysyllabic vocabulary, which the 13-page double-column index by no means fully explains. A very disproportionate amount of space is given to a few low types, and the pupil cannot obtain any general idea of the animal kingdom from the book without an amount of knowledge, insight, and study not to be expected of beginners. We should think the book well adapted to deter any student who was obliged to use it from taking any further interest in the study of biology, though an accomplished teacher might find it suggestive of what to avoid in his work.

AMONG THE PUBLISHERS.

THE Duke of Argyll will publish in the fall a book called "The Unseen Foundations of Society," which is described as an examination of the fallacies and failures of economic science due to neglected elements.

— The New York History Co., 132 Nassau St., N. Y., have just ready the second volume of the "Memorial History of the City of New York."

— Harry de Windt has written a book entitled "Siberia as It Is," which appears to be a defence of the Russian system of prison management, and is intended to be a reply to Mr. George Kennan and other travellers and writers who have attacked that administration as a system of "cruelties and atrocities which is a disgrace to a civilized country and to the nineteenth century."

— It is thought that it may be possible to bring out additional volumes of Freeman's "History of Sicily," so large is the mass of MSS. left by the historian. The MS. referring to the Norman conquest is practically complete, and would form a volume by itself. Besides all this, Freeman left more or less complete materials for a history of Rome down to the time of Mithridates; considerable fragments of a history of Greece; a work on King Pippin; a fragment of Henry I.; and some other manuscripts.

— W. B. Saunders, 913 Walnut Street, Philadelphia, have just ready "A New Pronouncing Dictionary of Medicine," by Dr. John M. Keating and Henry Hamilton. The work is a voluminous handbook of medical, surgical, and scientific terminology, containing concise explanations of the various terms used in medicine and the allied sciences, with phonetic pronunciation, etymology, etc.

— The F. A. Davis Company, Philadelphia, have just ready a new edition (the tenth) of the "Book on the Physician Himself, and things that concern his reputation and success," by Dr. D. W. Cathell, of Baltimore. The Davis Company will publish early in September "The New Pocket Medical Dictionary," compiled by Dr. David Braden Kyle from the latest authorities, and containing words recently introduced into medicine; also, addenda of abbreviations, affixes, list of diseases known by proper names, list of poisons and their antidotes, etc.

— The Clarenden Press has just issued a collection of the principal speeches delivered during the French Revolution, edited by Mr. H. Morse Stephens, the English historian of that period. The orators chosen are eleven in number, including Mirabeau, Barère, Danton, Robespierre, and St. Just. Prefixed to each is a life and explanatory comment; while a general introduction deals with