in English, or been translated into that language. Its interest is scarcely less for the physiologist and for the botanist concerned with the problems of alterations and adaptations of structure. D. T. MacDougal.

New York Botanical Garden,
Bronx Park.

Lehrbuch der vergleichenden Entwicklungsgeschichte der wirbellosen Thiere. Allgemeiner Theil. Erste und Zweite Auflage. Zweite Lieferung. By E. Korschelt and K. Heider. Jena, Gustav Fisher. 1903.

The second instalment of the general part of Korschelt and Heider's 'Lehrbuch,' which has recently appeared, maintains the high standard of excellence which we have learned to expect from these authors. The instalment includes only the sixth chapter, that dealing with the maturation of the germ cells and with the phenomena of fertilization, but it runs to more than two hundred large octavo pages and contains over eighty figures. These numbers will give some idea of the comprehensiveness with which the subjects named have been treated, especially if it be remembered that not a little collateral material was considered in the first instalment of the work and is, therefore, omitted or merely referred to in the present part.

When all is of such general excellence it may seem invidious to make special mention of certain of the sections. In section IV., however, there is presented an admirable statement and discussion of the maturation divisions in their relation to the reduction question, and in its presentation certain new terms are introduced to indicate the three methods of maturation division recognized by Häcker. To the method, observed by Boveri in *Ascaris,* in which both the divisions of the chromosomes are longitudinal and in which, accordingly, there is no reduction division in the Weismannian sense, the term *eumitotic* is applied, since it is the method characteristic of ordinary somatic mitoses. For that method in which one of the chromosome divisions is transverse and the other longitudinal the term *pseudomitotic* is suggested, and this method is subdivided into a method of *post-reduction division* in which the so-called reduction division succeeds the equation division and a method of *præreduction division* in which the reduction division is the first to occur. The possibility of a fourth method in which both divisions are reduction divisions is admitted, but it is held that at present its occurrence is not proved.

An excellent section is also that on the maturation of parthenogenetic ova, in which the question of the development of ova with a subnormal number of chromosomes is considered.

As in the preceding instalment of the work the statement of facts is throughout thorough, clear and well arranged, and opportunity is taken to discuss fairly their bearing on general questions, sections of great interest being devoted to the significance of the numerical reduction of the chromosomes in maturation, to sex determination, to the significance of fertilization, and as an appendix there is added an excellent review of the theories of heredity and the allied theories of differentiation.

The figures are throughout well chosen and reproduced and there is an extensive bibliographical list. J. P. McM.

SCIENTIFIC JOURNALS AND ARTICLES.

The *American Anthropologist* for January–March (Vol. V., No. 1), recently published, contains an exceptionally large number of articles, in addition to the usual book reviews, periodical literature and anthropologic miscellanea. 'The Native Languages of California' are treated, with seven plates, by Drs. Roland B. Dixon and A. L. Kroeber, the classification of these interesting linguistic groups dealing with structural resemblances rather than with definite genetic relationships —the aim being to establish not linguistic families, but types of families. The illustrated article, 'Sheet-Copper from the Mounds is not necessarily of European Origin,' by Mr. Clarence B. Moore, with a discussion by Mr. Joseph D. McGuire and others, is an able presentation of both sides of a long-disputed question in American archeology. Bearing on the same theme is an article by Warren K. Moorehead, 'Are the Hopewell Copper Ob-

jects Prehistoric?' followed by 'Primitive Metal Working,' by C. C. Willoughby. The entire question of aboriginal American copper-working is debated and many new evidences brought out by specialists who have devoted much time to the study of the problem of prehistoric metal-working and in experimental work with primitive appliances. In 'American Indian Games (1902)' Mr. Stewart Culin, the recognized authority on this subject, presents his most recent conclusions. Dr. George Grant MacCurdy reviews the 'Progress in Anthropology at Peabody Museum, Yale University,' during the last few years, describing the field work conducted and the more important collections made. Some 'Parsee Religious Ceremonial Objects in the National Museum' are described, with illustrations, by Dr. I. M. Casanowicz, introducing his paper with a brief account of the Parsees and their religious beliefs. Dr. Frank Russell, in an article on 'Pima Annals,' describes some interesting tally-sticks of the Pimas of Arizona on which are kept mnemonic or pictographic records of events, such as battles or skirmishes, infrequent natural phenomena, relations with white people, festivals, killings during drinking bouts, etc. The four 'annals' described cover the years 1833–4, 1836–7, 1857–8 and 1881–2. Mr. Clark Wissler, in a paper on 'The Growth of Boys,' gives in tabular form a series of correlations for the annual increments, based on some 1,500 annual measurements of about 300 individuals of a private school for boys. Dr. Maurice Fishberg treats of pigmentation among the Jews, continuing from the last number of the journal his discussion of the 'Physical Anthropology of the Jews.' Mr. S. C. Simms describes, with an outline figure, a curious 'Wheel-shaped Stone Monument in Wyoming,' the former use of which is problematical. Mr. George F. Kunz presents a biographic sketch, with an excellent portrait, of the late Heber R. Bishop, and describes the remarkable jade collection which Mr. Bishop presented to the Metropolitan Museum of Art. The proceedings of the meeting of Section H of the American Association for the Advancement of Science, with it affiliated societies, at the Washington meeting, is given by Dr. George Grant MacCurdy, and the number closes with an account of the organization of the American Anthropological Association, with its constitution and a list of the officers and members.

The *American Anthropologist* is now published under the auspices of the new association, of which it is the official organ, as well as that of the Anthropological Society of Washington and the American Ethnological Society of New York.

SOCIETIES AND ACADEMIES.

THE ACADEMY OF SCIENCE OF ST. LOUIS.

AT the meeting of April 20, 1903, Professor J. A. Holmes gave an illustrated account of some of the efforts that are being made in the United States to preserve the forests and other natural features of the country, showing what is being done for the preservation of some of the great scenic features and particularly what the national government is doing in the way of national parks and forest reserves and in the protection of the forests on such reservations.

One person was elected to active membership.

At the meeting of May 4, 1903, Mr. H. A. Wheeler gave an account, illustrated by several lantern slides and some of the recently ejected material, of the active Mexican volcano Colima, of which he saw some of the recent eruptions. It was shown that the material now being ejected is a trachyte, or belongs to the acid series of lavas, while the basal plain of the volcano is of basalt, which is basic, resting upon volcanic tufa. It was pointed out that this sequence reverses the Richtofen order of volcanic discharges, from which it was considered probable that there have been other centers of lava outflow besides the now visible vents of Mt. Colima (active) and Mt. Zapotlan (inactive). Samples of the ash from the eruption of February 28, in the form of granules 1 to 2 mm. in diameter, which fell at Túxpan, some twenty-five miles from the crater, and which were secured by Pro-