analysis of such possible environmental influences seems altogether too difficult technically unless and until the existence of a possible environmental factor is established as a fact.

Unfortunately this experiment can not be done on men, and spontaneous diabetes is rare in dogs. Since the chance is remote that the required animal material will be obtained in any given laboratory, it seemed wise to "broadcast" this suggestion so that the hypothesis may be tested if and when suitable dog material becomes available somewhere in the world. Owing to the great importance of such knowledge to men in general, it is suggested that all workers be prepared to avail themselves of or to turn over to colleagues any animal that would be suited for these experiments.

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TWO ADDITIONS TO THE HERPETOLOGICAL FAUNA OF RILEY COUNTY, KANSAS

SINCE two recent papers by Charles E. Burt[1] have listed the reptiles and amphibians of Riley County, Kansas, it seems worth while to call attention to two species hitherto unrecorded from this locality.

In the early fall of 1923 a specimen of the western hog-nosed snake, *Heterodon nasicus* Baird and Girard, was taken near Manhattan by a student and brought to the museum of the Kansas State Agricultural College. The specimen can not now be found, but since I examined it personally I am sure of the identification. This appears to be the easternmost Kansas record for this species.

The other new record is that of a western toad, *Bufo cognatus cognatus* (Say), which was collected July 12, 1928, five miles northeast of Manhattan not far from the Blue River. One individual, a large female, was picked up while crossing a small lane about 10:00 P. M. This locality appears to be on the eastern edge of the range of this species. Specimens of this form from Geary County, which adjoins Riley on the south, are preserved in the museum of the University of Kansas. No other records from the eastern third of the state are known to me at the present time.

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[1] "An Annotated List of the Amphibians and Reptiles of Riley County, Kansas," Occas. Papers Mus. Zool., Univ. Michigan, No. 189, 1927, pp. 1–9; and "A New Amphibian Record from Kansas, *Hyla phaeocrypta* (Cope)," SCIENCE, 1928, 67: 630–631.

SCIENTIFIC BOOKS

Études d'Histoire des Sciences Naturelles. I. *De Linné à Jussieu. Méthodes de la classification et idée de série en botanique et en zoologie (1740–1790).* Par HENRI DAUDIN (Paris, Librairie Felix Alcan), ii + 264 pp. Price 20 fr. II. *Cuvier et Lamarck. Les Classes Zoologiques et l'idée de série animale (1790–1830).* Par HENRI DAUDIN (Paris, Librairie Felix Alcan). Vol. 1, xiv + 460 pp.; vol. 2, 338 pp. 1926. Price 60 fr.

THE period of the initial systematic organization and classification of the plant and animal world is the last half of the eighteenth century. In this brief time of a half century the plant kingdom, barring the Protophyta, was fairly well classified along modern lines. The animal kingdom did not fare as well, largely because the anatomy of the invertebrates was so inadequately known. In this period two points of view were in more or less conflict: the one developed the "methodical" system, largely Aristotelian in origin, and the other the idea of seriation, which progressed from the scale idea of Bonnet to the dendritic concept of Donati. As investigation progressed the constant discovery of intermediate genera and species and the emergence of multiple liaisons for one group after another caused a marked tendency for a continuous weakening of the "methodical" concept, and it became less and less tenable as the concept of ramifying, or rather branching, series developed. The scale of being was, however, traced downward perhaps more often than upward, as in Buffon's primates.

A meticulous analysis of the work of the major contributors to systematics of this period fails to reveal any evidence, in either philosophical interpretation or in objective handling of the data of classification, that any one of them ever conceived the series as anything more than those of structural resemblances, valuable as guides to a natural system of classification. No statement of a genetic seriation or of genetic relationship emerges in this period. The data guiding their efforts to create a natural system and the very nature of their perplexities were, however, of basic value in the later contest between Cuvier and Lamarck, but transformism was not yet born.

The second work is a serious and scholarly treatise which seeks to evaluate the work of the two divergent French schools of biological interpretation represented by Cuvier and Lamarck, and thus to portray correctly the background of the transformist theory which historically preceded the Darwinian epoch in the development of evolutionary thought. Whatever was new in the theory of natural selection can be fairly assessed only when the content of French trans-

formism is adequately understood. To gain this understanding the author has made an analytical study of the ideas of these two leaders of French zoological thought, not only as expressed in their own formulations of their philosophical ideas as to the organization of, and changes in, the living world, but also as they emerge in, or appear to modify and direct their interpretation of, the structure and classification of animals.

Both schools worked under the limitations of the anatomical method. They were alike, though not equally, without comprehension of the magnitude, value and significance of the developmental phase of animals opened to them by the work of von Baer, and neither seems to have made any serious effort to utilize the then very imperfect microscope to enlarge his concept of the living world. Indeed it seems to have been in their view more of a toy than an instrument, and its revelations seem to have had a nuance of unreality about them. Ehrenberg had not yet published his "Infusionsthiere," and the monographs of O. F. Müller did not direct the French savants from grosser and seemingly more substantial objects of investigation.

Thus, to a large degree, both were without the immense incentive to the idea of progression which the unicellular structure of the Protista afforded to systematists working subsequent to the statement of the cell theory in 1838–39. The hand lens was an auxiliary only to dissection. The classical mode of zoological investigation was well intrenched, and the microscope itself was as yet hardly in a stage of development to invite its use as a primary instrument of exploration. The complexity of the microscopic world of life had not been realized, and the significance of the structural distinctions between Bacteria, Protozoa, Protophyta, microscopic Metazoa such as the Rotifera, Tardigrada, the smaller flatworms and the microscopic larval stages of the larger Metazoa, had not been made, largely because of a lack of cellular knowledge and its bearing on development. It is not strange that the little that was known was so little used when we recall the fact that the free-swimming larval Cercaria of the Trematoda were classified with the dinoflagellate *Ceratium* and that Ehrenberg even in the time of the second edition of the "Histoire Naturelle des Animaux sans Vertèbres" (1835–45) was still finding guts and sex glands in the Ciliata, and that Linnaeus had utilized the significant names of *Volvox* and *Chaos*, that *Vibrio* and the Nematodes were put together, and that a miscellaneous assemblage of quite unrelated organisms was included in the Infusoria, named not from their structure but from their breeding place.

Lamarck was early imbued with the idea of the seriation of the organic world, though he vigorously set forth the independence of the organic and the inorganic and also the distinctions of the plant and the animal series. In his later work the idea of a linear series gave way more and more to the dendritic concept in classification.

To Lamarck the maximum simplicity of microorganisms was of great significance, while the tendency on the part of Cuvier was to disparage the significance of their small size, to emphasize their complexities and resemblances to larger forms of life and to distribute them, for example, putting Vorticella with the Zoophytes. Of all the reforms in classification initiated by the work of Lamarck by far the most significant and brilliant one was the establishment of the Protozoa as a distinct phylum. This grew out of his recognition of the simplicity of at least some of the "Infusoria." The Rotifera caused him no little trouble, though he recognized their distinctions. An extended comparison of Cuvier's and of Lamarck's treatment of the Arthropoda is used to demonstrate more fully the divergence of their methods.

The author has done a great service to students of the history of biology by tracing in considerable detail the influences which the ideas of Cuvier with regard to "types" and of Lamarck with regard to "series" had upon their systems of classification and their respective evaluation of diagnostic characters. Of especial value is his development of the growth of the idea of seriation as expressed in the systematic work of Lamarck.

A useful annotated bibliography accompanies each of these treatises.

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REPORTS

REGISTRATION IN AMERICAN UNIVERSITIES

ACCORDING to an Associated Press dispatch an increase of 2 per cent. in enrolment, the smallest annual gain since the war, is shown in reports received by Dean Raymond Walters, of Swarthmore College, from 216 colleges and universities throughout the United States which are on the approved list of the Association of American Universities.

These reports, as presented in *School and Society* for December 15, 1928, show increases in 115 institutions and decreases in 101 institutions, comparing the November 1 registrations with those of a year ago.