characteristic of the genus *Riberoia* Travassos, 1939. Comparison of Price's specimens with the description of *Riberoia ondatrae* by Beaver (1939) convinced me that Price and Beaver were dealing with the same species. *Cercaria thomasi McMullen,* 1938, then becomes a synonym of *Riberoia ondatrae* (Price, 1931) Price, 1942. Whether the genus *Riberoia* is correctly assigned to the family Cathaemasiidae Fuhrmann, 1928, cannot be judged with certainty because of the lack of information on the character of the excretory system of *Riberoia.* The diagnosis of the family Cathaemasiidae states that the excretory system is "Y"-shaped, without numerous branches. However, my recent examination of the excretory system of specimens of *Cathaemasia reticulata* (Wright 1879) shows that both stem and forks of the "Y" have numerous lateral branches.

Yamaguti has followed Dollfus (1939) in the partition of the family Troglotrematidae Braun, 1914. However, I believe that the two subfamilies Renicolinae and Collyriclinae do not belong in this family but should have the full family status that has been accorded them by others. The life-history of *Collyriclum* Kossack, 1911, is not known. This genus has small eggs, indicating that it does not belong with the Troglotrematidae. Its position under the skin of the host is not a character of sufficient importance to justify inclusion of the genus in the Troglotrematidae. Possibly it should be assigned family status in the Plagiorchioidea. The genus *Renicola* Cohn 1904 has a very unusual type of cercaria with a large tail with finfolds and also a peculiar excretory system so unlike that of any other known cercarial type as to suggest that the genus should be assigned to a separate family.

On page 929 *Sellacotyle mustelae* Wallace, 1932, is misnamed *Troglotrema mustelae, family Troglotrematidae.* However, *S. mustelae* appears on page 890 under the new subfamily Sellacotylinae which is properly placed, I believe, in the family Nanophyetidae Dollfus, 1939.

Whether Paragonimidae Dollfus, 1939, should stand as an independent family must await the results of further study. The cercaria of *Paragonimus* is microcercous and very similar to the cercariae of *Nanophyetes* and *Sellacotyle,* family Nanophyetidae. Moreover, the excretory systems of the respective cercariae are similar. It is true that in the adults of *Paragonimus* the excretory bladder is cylindrical, whereas it is saccular in the Nanophyetidae. However, in *Paragonimus* the bladder of the metacercaria is saccular, undergoing modification to cylindrical after the parasite enters the final host.

A number of typographical errors have been noted. These are incidental to bookmaking.

It must be recognized that the placing of any given taxa in a taxonomic system is a matter of judgment, and that the weights assigned to a set of characters may differ with the taxonomist. While there can be no full agreement about certain details of the system set forth by Yamaguti, he has, in my opinion, provided students of digenetic trematodes, both beginners and experts, with a very valuable tool. During the early phases of the identification process the use of this volume, because of its completeness, will obviate an extensive search through a widely scattered literature; but for the identification of species it will still be necessary to consult the original sources. There can be no doubt that this volume will greatly further the study of the Digenea.

The foreword is by E. W. Price, formerly head of helminthological investigations, Animal Disease and Parasite Research Branch, U.S. Agricultural Research Service.

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The Transvaal Ape-Man—Bearing Cave Deposits. Transvaal Museum Memoir No. 11. C. K. Brain. Transvaal Museum, Pretoria, Union of South Africa, 1958. 131 pp.

The discovery of abundant remains of australopithecines ("ape-men") in southern Africa has truly revolutionized many earlier views of human evolution. Hitherto only the first known site of Taung(s) in eastern Bechuanaland has received detailed geological study (by F. E. Peabody). In this publication C. K. Brain presents the first detailed analysis of the situation, mode of origin, stratigraphic structure, and cave-deposit sedimentation of the four other australopithecine sites, all in the Transvaal.

The study is in two main parts. The first section—essentially methodological—presents observations on dolomite caves, their origin by solution or subsidence, and the origin and nature of the cave fillings, both before development of a substantial surface connection (fillings such as stalactites, stalagmites, travertines, residual cave earths) and after development of such a connection (cemented breccias, and so on). The establishment of a condition of equilibrium with the surface permits an assessment of outside conditions through an analysis of the composition of the fossiliferous, cemented, surface-derived soils (breccias). A comparative base line is provided by present-day dolomite soils from regions of differing rainfall in southern Africa. The methods of breccia analysis, all of which have climatic implications, are based on (i) angularity of siliceous sand grains, (ii) percentage of carbonate cement, (iii) quantity of weathered dolomite fragments, (iv) breccia color, (v) grading of sediments, and (vi) ratio of chert to quartz grains.

The second part of the study constitutes a careful application of these methods of analysis to the four sites of Sterkfontein, Swartkrans and Kromdraai (near Krugersdorp) and the Makapan Limeworks (near Potgietersrust), in southern and central Transvaal. The combined result of these investigations indicates that the Sterkfontein accumulations covered an extensive dry phase (30 to 22 inches of rainfall); the Limeworks accumulation covered the end of a long, more intense dry phase; the Swartkrans accumulation covered a brief dry phase followed by somewhat damper conditions; and the Kromdraai accumulation covered a considerably wetter phase (about 40 inches of rainfall). The temporal relation of the sites, listed above in the order of their respective ages, is determined by the associated mammalian faunas. Brain regards the three older sites as all falling within a major dry interpluvial stage (with at least three separate peaks) and the youngest site (Kromdraai) as falling in a succeeding wetter pluvial stage. These climatic phases are tentatively tied to the Kageran/Kamasian interpluvial and the early Kamasian pluvial succession of the late Lower and early Middle Pleistocene. Since this succession is not yet clearly established in eastern Africa, where tectonics and faulting played an important role in creating and draining lakes, I feel that any such correlations must be regarded as provisional.

This meticulous and thorough study is a major contribution not only toward a clearer understanding of the australopithecine sites but also toward a more accurate conception of Pleistocene climates of a part of sub-Saharan Africa. The methods employed should have a broad usefulness both in Pleistocene geological and in prehistoric archeological studies.

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An Introduction to the Theory of Integration. Adriaan C. Zaanen. North-Holland, Amsterdam; Interscience, New York, 1958. ix + 254 pp. $7.25.

Since the publication in 1937 of Saks' now classic *Theory of Integration,* new trends have brought about a great deal of change. The set theoretical approach in measure and integration, already present in Saks' book, has become an essential part of the theory. The linear ap-

proach in functional analysis, introduced by Banach, has permeated most parts of analysis. The present book is an excellent introduction to the subject, with emphasis on the two trends just mentioned. The author, whose large monograph on linear analysis appeared in 1953, has used in the present volume a great deal of balance and restraint. The choice of topics and the structural economy are commendable. Through this book the student may have easy access to more general approaches to measure and integration, such as Bourbaki's or Carathédory's.

At the outset the equivalence of Zermelo's axiom of choice with those of Kuratowsky and Zorn is proved. The concept of measure is introduced as an additive set function in a semiring of sets. Emphasis is given to the extension process generating an exterior measure on a larger class of sets and then a new measure in the subclass of the corresponding measurable sets. The concept of integral is introduced as the Stone version of the Daniell integral. The very same process of extension mentioned above is here used, starting from any linear operator which satisfies a given set of axioms. The Lebesgue-Stieltjes integral is viewed as a particular case of the previous one, and space is given to Fubini's theorem. Normal linear spaces, Banach spaces, and Hilbert spaces are discussed, with emphasis on the fact that bounded linear functionals on a normal space themselves form a Banach space, the conjugate space. The Radon-Nikodym theorem is given for integrals, and the usual version for measures is deduced as a corollary.

Important complements and applications are given: change of variables in Lebesgue integrals; differentiation of integrals in abstract and Euclidean spaces; the Banach-Steinhaus theorem; unitary transformations in Hilbert spaces (in particular, Fourier transformations); and ergodic theory.

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World of Learning, 1958–59. Europa Publications, London, 1958. xiii + 1139 pp. $22.

This useful reference volume gives information on educational, technological, and cultural institutions in more than 100 countries. For each country, information is given about learned societies and research institutions (names, addresses, publications, principal officers, number of members, and sometimes names of members); libraries, museums, and art galleries (names, addresses, size and nature of collections, publications, names of officers, and sometimes a brief historical description); colleges and universities (names, locations, chief officers, enrollment, and sometimes names of professors).

It includes an introductory section on international agencies—UNESCO, the International Council of Scientific Unions, and others—and an index of institutions.

New Books

Advances in Virus Research. vol. VI. Kenneth M. Smith and Max A. Lauffer, Eds. Academic Press, New York, 1959. 390 pp. $10. Contents: "The purification of plant viruses" (R. L. Steere); "Biochemistry of plant virus infection" (C. A. Porter); "The spread of plant viruses" (L. Broadbent and C. Martini); "Physiological aspects of bacteriophage genetics" (S. Brenner); "Purification and properties of poliovirus" (F. L. Schaffer and C. E. Schwerdt); "Measles virus" (F. L. Black, M. Reissig, J. L. Melnick); "Kappa and related particles in *Paramecium*" (T. M. Sonneborn).

Annual Review of Entomology. vol. 4. Edward A. Steinhaus, Ed. Annual Reviews, Palo Alto, Calif., 1959. 467 pp. $7. Contents: "Insect blood cells" (V. B. Wigglesworth); "Culture of insect tissues" (M. F. Day and T. D. C. Grace); "Pheromones (Ectohormones) in insects" (P. Karlson and A. Butenandt); "Insect pigments" (R. I. T. Cromartie); "Taxonomic problems with closely related species" (W. J. Brown); "Ecology of Cerambycidae" (E. G. Linsley); "Biology of Aphids" (J. S. Kennedy and H. L. G. Stroyan); "The biology of parasitic hymenoptera" (R. L. Doutt); "Bioclimatic studies with insects" (P. S. Messenger); "Ethological studies of insect behavior" (G. P. Baerends); "Experimental host-parasite populations" (T. Burnett); "Biological control of weeds with insects" (C. B. Huffaker); "Microbial control of insect pests" (Y. Tanada); "On the mode of action of insecticides" (F. P. W. Winteringham and S. E. Lewis); "Biological assay of insecticide residues" (S. Nagasawa); "Deciduous fruit insects and their control" (M. M. Barnes); "Seed treatment as a method of insect control (W. H. Lange, Jr.); "Fleas and disease" (W. L. Jellison); "Insects and the epidemiology of malaria" (P. F. Russel).

Historian's Handbook. A key to the study and writing of history. Wood Gray *et al.* Houghton Mifflin, Boston, 1959. 58 pp. $1. The purpose of the *Handbook* is to introduce the college freshman and general reader to the nature of history and to offer ideas for effective study, to guide the advanced student when he prepares a term paper or thesis, and to serve as a reference manual.

Our Earth. The properties of our planet, how they were discovered, and how they came into being. Arthur Beiser. Dutton, New York, 1959. 123 pp. $3.25.

Preliminary Archaeological Investigations in the Sierra de Tamaulipas, Mexico. Transactions, vol. 48, pt. 6. Richard S. MacNeish. American Philosophical Soc., Philadelphia 6, 1958. 210 pp. $5.

Progress in Metal Physics. vol. 7. Bruce Chalmers and R. King, Eds. Pergamon, New York and London, 1958. 416 pp. $16. Contents: "Equilibrium, diffusion and imperfections in semi-conductors" (J. N. Hobstetter); "The physical metallurgy of titanium alloys" (R. I. Jaffee); "Thermodynamics and kinetics of martensitic transformations" (L. Kaufman and M. Cohen); "The stored energy of cold work" (A. L. Titchener); "The properties of metals at low temperatures" (H. M. Rosenberg).

Radioisotopes in Scientific Research. Proceedings of the International Conference held in Paris in September 1957 under the auspices of the United Nations Educational, Scientific and Cultural Organization. vol. I, *Research with Radioisotopes in Physics and Industry,* 782 pp., $22.50; vol. II, *Research with Radioisotopes in Chemistry and Geology,* 762 pp., $22.50; vol. III, *Research with Radioisotopes in Human and Animal Biology and Medicine,* 763 pp., $22.50; vol. IV, *Research with Radioisotopes in Plant Biology and Some General Problems.* 791 pp., $22.50 (vols. 1–4, $80 per set). R. C. Extermann, Ed. Pergamon, New York and London, 1958.

Reproduction and Infertility, Third Symposium. Colorado State University, Fort Collins, Colorado. Sponsored by the College of Veterinary Medicine and the Agricultural Experiment Station. F. X. Gassner, Ed. Pergamon, New York and London, 1958. 273 pp. $6.50.

River Basin Surveys Papers. Bull. 169. Inter-Agency Archeological Salvage Program No. 9–14. Frank H. H. Roberts, Jr., Ed. Smithsonian Institution, Washington, D.C., 1958 (order from Supt. of Documents, GPO, Washington 25). 401 pp. $3.25.

Safe Handling of Radio-isotopes. International Atomic Energy Agency, Vienna, Austria, 1958. 99 pp.

Semiconductor Abstracts. vol. IV, 1956 issue. Abstracts of literature on semiconducting and luminescent materials and their applications. Compiled by Battelle Memorial Inst.; sponsored by Electrochemical Soc., Inc. Wiley, New York, 1959. 456 pp. $12.

Statistical Quality Control. An introduction for management. Douglas H. W. Allan. Reinhold, New York; Chapman & Hall, London, 1959. 129 pp. $3.50.

A Taxonomic Study of the North American Licinini with Notes on the Old World Species of the Genus Diplocheila Brulle (*Coleoptera*). Memoirs, No. 16. George E. Ball. American Entomological Soc., Philadelphia, Pa., 1959. 263 pp. $10.

Textbook of Physiology and Biochemistry. George H. Bell, J. Norman Davidson, Harold Scarborough. Williams and Wilkins, Baltimore, ed. 4, 1959. 1066 pp.

Time, Life, and Man. The fossil record. R. A. Stirton. Wiley, New York; Chapman & Hall, London, 1959. 569 pp. $9.

Work Measurement. Virgil H. Rotroff. Reinhold, New York; Chapman & Hall, London, 1959. 203 pp. $4.85.