Russian Challenge

The Role of Speech in the Regulation of Normal and Abnormal Behavior. A. R. Luria. J. Tizard, Ed. Pergamon, New York, 1961. 100 pp. $8.50.

This little lithographed book consists of the text and illustrations of three lectures given at University College, London, in 1957–58, by A. R. Luria, one of the best known and most distinguished Russian psychologists. The lectures were devoted to the empirical examination of the role of speech in the regulation of nonlanguage behavior. The nonlanguage behavior dealt with throughout the book was ordinarily a simple, voluntary motor response made in the presence of an auditory or visual signal as a result of verbal preinstruction (for example, "Press when the light comes on"; "Press every third time the bell rings"). This elementary situation was utilized to explore the extent to which subjects (children and persons with brain pathology) could use, first other persons; and then their own, verbalizations to bring their motor behavior into the desired relationship with events in the experimental situation. The ingenuity shown by the investigators in the analysis and development of extensive programs of research must command respect and admiration from psychological research workers everywhere. In many ways the work is reminiscent of the basic study of classical conditioning and its ramifications, made by Pavlov and his students. Results of scores of experiments are presented to illustrate and support current Russian conceptions of (i) the formation of higher mental processes, (ii) the emergence of speech as a regulatory mechanism, and (iii) the modifications of the role played by speech as a result of brain pathology.

For the reader with a command of Russian, the current references cited will prove valuable; for the reader without Russian, this book is virtually the only source for much of the material. Unfortunately, the details of many of the experiments are sparse and the results are illustrated rather than documented in the statistical fashion approved in current Western psychology. This should furnish no deterrent to the interested research worker, however. As C. A. Mace points out in his foreword, the book now makes replication of these studies possible, and it is to be hoped that many workers will rise to the challenge of the ideas expressed in the lectures and that they will systematically replicate and extend the experimental work reported.

The book should furnish excitement and stimulation for research workers in the psychology of language for some time to come.

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Paleozoic Questions

Geologie von Bayern. Adolf Wurm. Borntraeger, Berlin, 1961. xvii + 554 pp. Illus. + maps. DM. 96

Adolf Wurm, professor emeritus at the University of Würzburg, has devoted most of his life to the geological investigation of Bayern, or Bavaria, the second largest state of prewar Germany (about three-fourths the size of New York State). Geologically Bavaria includes orogenic areas of Paleozoic as well as of alpine age and was therefore predestined for an early leading role in the solution of Paleozoic stratigraphic and tectonic questions.

The first edition of this book was published in 1925. Since then much work has been done, and many new detailed maps have come out. Wurm has done a very commendable piece of work in completely re-editing his original monograph. He consulted and listed over 1000 references, a large proportion of which appeared after publication of the first edition. The volume is dedicated to C. W. von Gümbel, the father of Bavarian geology.

Bavaria is the "type locality" or "lieu of origin" of various new rock names (for example, Gümbel's name, *keratophyre*), of tectonic periods (for example, Variscan orogeny), and of many important new fossils, mainly of Paleozoic age. It also played an early and a leading role in the solution of geologic problems in Germany and in Europe as a whole, although it never attained the fame of the Swiss Alps.

The arrangement of the text is logical and the book is well organized. The major sections are as follows: A brief introduction with a valuable review of the history of geological work in Bavaria (10 pages); a detailed description of the major areas of Bavaria—the Frankenwald, the Fichtelgebirge, and the northern Oberpfälzer Wald [each area is first described stratigraphically (pages 11 to 362) and later tectonically]; tectonic description of the last two areas (pages 435 to 447) follows an intermission, which is an elaborate description and discussion of the Münchberger gneis (pages 362 to 424). The lengthy treatment is well worthwhile since this gneis area has been mentioned and described in many basic papers on the granite problem.

The last part of Wurm's book consists of short chapters on special stratigraphic and tectonic problems, on the state of geophysical exploration (2 pages only), on the morphology of Bavaria (pages 463 to 488), and on mineral deposits (pages 489 to 540). This part is of particular value, since it mentions various basic publications and discussions which appear to be entirely unknown to the English-speaking geologist.

The list of localities at the end of the book is complete, whereas the index of subject matter is very incomplete with regard to both subject names and page numbers. The text is remarkably free of errors, and the figures are clear and well drawn.

As a whole, this book is an admirably complete handbook of one of the geologically best studied areas of Europe. It can be highly recommended to everyone who is interested in regional geology, or in basic problems of general geology.

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Reduced Status

The Ciliated Protozoa. Characterization, classification, and guide to the literature. John O. Corliss. Pergamon, New York, 1961. 310 pp. Illus. + plates. $12.

The author of this monograph is, needless to say, a specialist on ciliate taxonomy. He is, moreover, one of the few remaining protozoologists with patience enough to search the literature to the point of exhaustion (both of the literature and the author, and not infrequently of the reader). No work of this type is expected to be fascinating reading, and this one is no exception.

The first two parts deal with a modified scheme of classification, in which he places the Ciliates and the Suctoria together into a single class, the Ciliata.

His reasons for reducing the Suctoria to ordinal status are convincingly based upon the infraciliature, considered by him to be structures of "stable" importance. His proposed scheme will, I believe, be generally well received by protozoologists. Critical discussion of all valid genera of ciliates is given, and these genera are placed in the present scheme of classification. The third part of the monograph deals largely with a survey of the literature on ciliates—structural, functional, genetical, and biochemical.

For his citations Corliss has chosen approximately 1700 (out of his estimated 10,000 to 12,000) original papers, for which complete bibliographic references are given. This incredible number provides the serious student of protozoology with a key to virtually all that has been done with, and to, ciliated protozoans up to the immediate present.

This little book is in no sense a text, but it will be valued as a reference to references. The illustrations are excellent, diagrammatic, and far too few.

I suppose it is too much to hope that others with the competence and inclination of Corliss will complete the series with monographs on the other subphyla of Protozoa.

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Ciba Symposium

Quinones in Electron Transport. G. E. W. Wolstenholme and Cecilia M. O'Connor, Eds. Little, Brown, Boston, Mass., 1961. xii + 453 pp. $11.

This important Ciba symposium was proposed by Karl Folkers of Merck & Co., for the purpose of discussing some of the new quinones being discovered in animals, microorganisms, and higher plants. As he says, "Nobody anticipated that the Liverpool studies on Vitamin A deficiency in rats, and the Wisconsin studies on lipid extracts of beef heart mitochondria which function in the electron transport activities of certain particles, would build a bridge into the field of photosynthesis of higher plants." It was Crane's studies on coenzyme Q_{10} in mitochondrial electron transport which led him and others to find related quinones in plants and to suggest that they may have a corresponding role in photosynthetic electron transport. As Folkers emphasizes, the new discoveries in this rapidly developing field open a never-ending expansion of new problems.

The volume opens with a discussion by R. A. Morton of the University of Liverpool on the isolation and characterization of ubiquinone (coenzyme Q_{10}), and this report is amplified by F. L. Crane of the University of Texas. The chemistry of ubiquinone and related compounds is discussed by O. Isler and his associates of Hoffmann-LaRoche of Basle. Folkers and his associates at Merck, Sharp & Dohme Research Laboratories describe organic and biological studies. All this information is then well summarized by David Green of the University of Wisconsin in discussing electron transport by means of ubiquinone.

The coenzyme Q group consists of 2, 3-dimethy-5-methylbenzoquinones with an unsaturated isoprenoid side chain in the 6 position, with from 6 to 10 isoprenoid units. When these units are 10, the compound is coenzyme Q_{10}, and because of its wide distribution in living material, is given the appropriate name "ubiquinone."

The symposium considers the biosynthesis of the Q coenzymes and their relationship to such fat-soluble vitamins as A and K. An important study by L. W. Wattenberg of the University of Minnesota, on the effects of ubiquinone and menadinone on oxidative enzymes in normal and neoplastic cells, suggests the possibility of applying some of the growing knowledge on ubiquinone to our understanding and control of malignant growth. A contribution by Norman Bishop of Florida State University clarifies the role of quinones in the electron transport system of photosynthesis.

The symposium was enlivened by vigorous discussion. It is clear that much verifiable information is now being obtained on some of the amazingly complex intermolecular reactions occurring within plant and animal cells which are involved in energy production and are dependent upon electron transport. The wide range and distribution of the coenzyme Q series suggests many potentially useful applications in the control of biological functioning. Here is an interesting example of how the essential unity of biological activity can be demonstrated even as the over-all science of biology becomes split ever more widely into narrow specialties. Equally interesting is the way in which basic scientific information on a detailed problem of biology can be brought together on an international level by good-willed cooperation between major drug companies and universities.

As Folkers emphasizes in closing, agreement on nomenclature for this important series of quinone compounds is essential. The good humor of this symposium is indicated by Folkers' closing tribute to F. L. Crane's dedication to science by having isolated one of the quinones from his Christmas tree!

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Inherited Personality?

National Character and National Stereotypes. vol. 1 of Confluence: Surveys of Research in the Social Sciences. H. C. J. Duijker and N. H. Frijda. Humanities Press, New York, 1961. xi + 238 pp. $4.50.

Throughout the 19th century and down to World War I there was a lively tradition of writing about the character of foreign nations and races. Perhaps the greatest work in this tradition is de Tocqueville's *Democracy in America*. In these studies "character" might be defined by any feature of society or culture such as politics, manners, even climate and geography, but in most there was at least the suggestion that national differences rest fundamentally on the distinctive psychological properties of ethnic and racial groups. More than that, these differences were assumed to be inborn and hereditary. Obviously such assumptions lent themselves to abuse. One could take them more lightly when they rested on nothing more than casual observation. As psychological measurement became more precise, however, the opportunity for abuse was greatly increased. Inevitably there were attempts to use intelligence tests to prove "scientifically" that Negroes were genetically inferior to whites. After World War I, psychology commendably purged itself of this aberration, as Otto Klineberg and others used these same tests to show rather dramatically how dangerous it is to make any assumptions about inborn and racial psychological differences.

Under the impact of this research, and in keeping with the liberal spirit of the 1920's and 1930's, the study of group differences in personality was widely regarded as smacking of racism, and it virtually disappeared as a field for serious investigation. In the United States during World War II a group of anthropologists, notably Ruth Benedict and Margaret Mead, reintroduced stud-