

Psychological Development

Birth to Maturity. A study in psychological development. Jerome Kagan and Howard A. Moss. Wiley, New York, 1962. xiii + 381 pp. Illus. \$8.50.

When first-class psychologists mine the lode of a systematic and diligently executed longitudinal study of human development, the yield is a valuable and unique contribution to our knowledge of psychological growth during the formative years.

This book reports an investigation whose subjects were 89 individuals born between 1929 and 1939 and enrolled at birth in the longitudinal assessment program initiated at the Fels Research Institute (Antioch College, Yellow Springs, Ohio) by its long-time director, Lester W. Sontag. Observational, psychometric, and interview data were collected regularly for each child and his family until the child reached adolescence. A thoroughgoing adult assessment of 71 of these subjects was conducted when they were between the ages of 19 and 29.

The division of labor between the authors was planned to assure the independence of the childhood data from the adult data. One author scored the longitudinal records, while the other conducted and evaluated the adult assessments in ignorance of the childhood material from his subjects.

The principal characteristics which were scrutinized are passivity and dependency, aggression, achievement, sexuality, and social interaction. Stability and change of these characteristics over time are examined, and their relations to the child-rearing practices of the mother and to social features of the individual's family are analyzed. Although motivation is the central topic, attention is given also to intellectual functioning and cognitive style.

Sex differences dominate the findings. And considerations of sex-typing, sex-role identification, and social definitions of sex appropriateness dominate the authors' interpretations. The data point to the importance of the social sex appropriateness of a given class of behaviors in determining the likelihood that it will remain stable in a person's repertoire.

The authors are of course aware that chance factors played a part in producing some of their "significant" cor-

relation coefficients—thousands were computed—and they buttress their conclusions from these coefficients by reporting some independent replications of their own with respect to some analyses and also by reporting consonant findings from the research of others. In any wide-ranging exploratory study of this sort, however, the need for cross-validation is paramount. The research holds such relevance for much current psychological thinking that we may hope it will find independent replication.

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Engineering Geology

Reviews in Engineering Geology. vol.

1. Thomas Fluhr and Robert F. Leggett, Eds. Geological Society of America, New York, 1962. vii + 286 pp. Illus. Plates. \$7.

This is the first volume of a review series planned by the Division on Engineering Geology of the Geological Society of America. The foreword invites criticism of the volume, and in fact the division should give careful consideration to the concept before publishing more of the volumes. A review volume on such a broad and diversified field as engineering geology is almost certain to lack continuity of approach and technique, but this effort suffers more from this than many review volumes. I suspect that the editors were faced with choosing from many articles, few of which were written specifically for the volume, and that a clear editorial policy was never established.

Eight articles are included: engineering seismology (Neumann), Portland-cement concrete petrology (Mielenz), sand and gravel (Lenhart), radioactive waste disposal (de Laguna), rock bolting (Thomas), photographic analysis in engineering geology (Mollard), Soviet publications in engineering soil science (Drashevskaya), and engineering aspects of sediment transport (Brunn). I counted 483 references cited, an impressive number. Unfortunately most of the articles appear to have been written about 1958, and they were not updated prior to publication.

But how many of these topics will interest the reader? The foreword claims the book is intended for use by members of the division, with the hope and expectation that its appeal will be somewhat broader.

Some of the articles are of general interest (I particularly enjoyed de Laguna's), but many others are either too limited or too technical for the general geologic reader. And none of the contributors is very critical about the literature in his special field. This is especially frustrating in the review of recent Russian publications—the titles are impressive, but are the articles any good?

Future volumes in this series would profit from the establishment of some guidelines with respect to purpose and approach. As an alternative to this type of broad spectrum review volume, I strongly suggest a series that considers topics one at a time—that is, a volume of this size devoted to sediment transport, or radioactive waste disposal, or concrete reactions. The Highway Research Board's volume on landslides (1958) is an example of how successful this approach can be.

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History of Medicine

The Growth of Medical Thought. Lester S. King. University of Chicago Press, Chicago, Ill., 1963. xii + 254 pp. \$5.50.

Lester King wishes to examine the historical development of ideas concerned with the causes of disease and to relate these ideas to contemporary philosophical tendencies and scientific achievements. He has given attention mainly to selected episodes and to outstanding personalities, foremost among which are Hippocratic medicine, Galen, Paracelsus, Friedrich Hoffmann, and the founders of cellular pathology. There are, however, limitations to the episodic treatment of the history of science and medicine, and this book illustrates them fully.

Presumably the central theme or themes of any work should serve to unite the threads of an extended argument. The author's theme seems to be the changing and developing "patterns

of medical doctrine," but his central argument is not at all clear. One gains from the frequent philosophical excursions of this work a renewed acquaintance with the fact that medical thought does change and that it has tended to become more rigorous and more objective.

One also learns that many factors (observation, experimentation, quantification, reason) contribute to the formation of sound scientific methodology. Unfortunately, what one does not learn is what it is that makes a repetition of these truisms useful. The episodic approach compounds and perhaps even induces this situation, for the author never really tells us what our lesson should be. This story emerges only painfully, and as the result of the reader's own efforts, from the innumerable scattered pieces. These pieces, incidentally, are often colored by passages of extraordinary cleverness, such as that which traces Galen's acrimoniousness to a "chromosomal legacy from his mother" (p. 44).

The episodes are complete and interesting narratives in themselves and, depending upon the subject, are based upon the best secondary studies or upon thorough readings in the primary sources. *The Growth of Medical Thought* is not a work of historical scholarship, but this seems not to have been the author's intention. However, each unit is so independent that it usurps attention from the whole and again abuses the principal aim of the work. It is thus difficult to welcome the volume, for its original and philosophical motive is wholly obscured and its historical foundations exist only to serve its philosophy.

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Notes

Multilingual Glossary

Elsevier's Dictionary of General Physics in Six Languages: English/American, French, Spanish, Italian, Dutch, and German (Elsevier, New York, 1962. 859 pp. \$22.50), compiled by W. E. Clason, lists 3409 terms used in various branches of physics. The entries, primarily compound nouns, adjectives, and combinations thereof, are

briefly defined and followed by their foreign-language equivalents. Reverse indexes are provided for each foreign language. This glossary is up to the high standards set by Clason in other polyglot dictionaries. According to the publisher's note, the planning has "been guided by certain principles proposed by UNESCO."

One can agree with the compiler's statement that "no explanatory dictionary of physics can aspire to be both comprehensive and up-to-date." However, acronyms (such as *maser* and *laser*) and concepts (such as metrology, magnetohydrodynamics, power, and reference standards) should have been included, and the inclusion of verbal phrases that are frequently used in physics would also have been useful. Furthermore, since physicists are interested in research efforts in the U.S.S.R., listing the equivalent Russian terms would have enhanced the compilation's value. The publisher's practice of issuing Russian supplements has not proved very satisfactory because of the time lag, the additional expense, and the inconvenience of using the supplements.

Despite these shortcomings, this polyglot dictionary (one of the few recent ones in general physics) is well adapted for use by physicists who are not too conversant with foreign languages and by technical translators, reference librarians, and students.

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Astronomy

Yearbook of Astronomy, 1963 (Eyre and Spottiswoode, London, 1962; Norton, New York, 1963. 222 pp. Paper, \$3.50), edited by J. G. Porter and Patrick Moore, is designed to give general information on current astronomical events for the "practising amateur and the arm-chair astronomer." It contains a series of star charts with notes on astronomical phenomena for each month. Half of the book consists of short articles on such topics as eye-pieces, problems of Mars, and recent advances in astronomy. These serve as short introductions to many fields of astronomy. The information on events is relatively complete and includes positions of planets, lists of eclipses, meteor showers, and expected comet returns. It does not provide information on occultations or on the phenomena

of Jupiter's satellites. A serious drawback is that the star charts do not have coordinate systems and the stars are not labeled. Thus, the telescopic objects listed in the book cannot be found without recourse to some other reference source.

I do not think the book is a very good guide for observers. Better and more complete information is available elsewhere. The short articles are at best rather sketchy surveys. The book suffers from lack of an index, and its price is excessively high for a paperback.

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Ceramics

Science of Ceramics [(vol. 1) Academic Press, New York, 1962. 334 pp. Illus. \$11.50], edited by G. H. Stewart, is the proceedings of a conference held at Oxford in June 1961 under the auspices of the British Ceramic Society and the Nederlandse Keramische Vereniging. The volume includes 23 papers, 20 in English and 3 in German.

The title is somewhat misleading since the scientific content and technical level of the papers vary widely. The papers range from reviews of basic phenomena such as sintering through reports of original research on phenomena and techniques, and they include brief reports on technical applications of raw materials and ceramic products. No attempt has been made to edit the collection into a coherent whole or to provide a uniform scientific and technical level. Seven papers are concerned with sintering, reaction kinetics, and firing processes, two papers with glazes, four papers with experimental techniques, five papers with the preparation and characteristics of raw materials, three papers with particular properties, and two papers with the formulation and application of specific products.

Professional ceramists will find the book worthwhile both for specific content and as an indication of the range and scope of current ceramic science in western Europe. The book is not recommended for the reader who wants or expects a coherent presentation of the science of ceramics.

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