

Book Reviews

The psychology of ego-involvements: social attitudes & identifications. Muzafer Sherif and Hadley Cantril. New York: John Wiley; London: Chapman & Hall, 1947. Pp. viii + 525. \$6.00.

Two able social psychologists combine their talents to present a systematic development of the concept of ego-involvement, a problem which deserves much more attention than academic psychology has seen fit to accord it.

Regarding the ego as a constellation of attitudes which, from infancy on, are related to the "I," "me," "mine" experiences, the authors first provide a careful consideration of the concept of attitude. Significant is a constant effort to correlate everyday human phenomena with results from the laboratory. Rejecting any notion that the ego is an innate entity, considerable attention is given to its genetic development, for, as attitudes are learned (and they are learned), the ego is formed. Of especial importance is the turbulent period of adolescence, during which there is a "re-formation" of the ego which "has to be anchored securely and in a relatively high standing in relation to one's group. Whether this will be achieved by being assertive or submissive, by being individualistic or co-operative . . . will vary according to the demands and pressures of one's own reference group in general and membership group in particular" (p. 277). One sees here the repeated emphasis of the book in stressing the impact of the social environment on the development of the individual.

In rounding out their thesis, the authors range widely in gathering evidence from the fields of anthropology, delinquency and gang behavior, industry, the military, mental disorder, literature, and conclude with a belaboring of psychoanalysis; but at no time do they depart from a close correlation of all data with their systematic formulation.

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Colloid science, a symposium. E. K. Rideal, *et al.* Brooklyn, N. Y.: Chemical Publishing Co., 1947. Pp. x + 208. (Illustrated.) \$6.00.

Based on a postgraduate course sponsored by the Department of Colloid Science, Cambridge University, this book deals with the following chapters: "Surface Chemistry and Colloids" (insoluble monolayers; multilayers; foams; emulsions; the solid-liquid interface; electrokinetic phenomena; colloidal electrolytes) (52 pp.), "Thermodynamics and Colloidal Systems" (15 pp.), "The Study of Macromolecules by Ultracentrifuge Electrophoresis, and Diffusion Measurements" (15 pp.), "The Viscosity of Macromolecules in Solution" (37 pp.), "The Kinetic Theory of High Elasticity" (8 pp.), "Emulsions *in vivo*" (11 pp.), "The Study of Colloidal Systems by X-Ray Analysis" (15 pp.), "Membrane

Equilibrium" (8 pp.), "Infra-red Spectra and Colloids" (8 pp.), and "Vinyl Polymerization in the Liquid Phase" (19 pp.).

This formidable array of topics is treated in the space of 188 small pages. Except in the case of an article by Eirich on the viscosity macromolecules in solution, this limitation has led to an excessively condensed and rather sketchy presentation, however able and competent the various authors are.

Those familiar with the subject matter are hardly in need of reviews of this nature; much more thorough and scholarly treatments are readily available. Those not yet intimately familiar with the subject matter will hardly be able to obtain more than the most superficial instruction. The book will be of value primarily to those who happened to attend the symposium on which the book is based.

As a sign of the postwar resurrection of constructive scientific interest in Great Britain, the book is highly welcome; very few, however, will find it profitable to purchase this excessively high-priced book.

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Multiple factor analysis: a development and expansion of "The vectors of mind." L. L. Thurstone. Chicago: Univ. Chicago Press, 1947. Pp. xix + 535. (Illustrated.) \$7.50.

Since the early '30s many psychologists have recognized factor analysis as the most promising research tool for systematizing the chaos in the measurement of mental aptitudes and personality. It provides a statistical method for seeking the functional unities which could account for the complexly determined abilities, traits, and responses of human subjects. Dr. Thurstone and his colleagues developed a matrix formulation of the factor problem which is general enough to be applicable in many young fields of research such as learning, perception, aesthetics, social behavior, political science, meteorology, and public health. Enthusiasm for the method was accompanied by misinterpretations and by criticisms of the arbitrariness of alternate solutions.

To clarify the issues, Dr. Thurstone has expanded this revised treatise to double the size of *The vectors of mind* (1935). The lucid mathematical introduction to matrix theory remains as a great aid to the student. Fundamental factor problems are then discussed in detail, with geometrical models to aid the understanding of configuration, rotation of reference axes, and relations between hyperplane and cluster solutions.

A variety of factoring techniques are derived, and the computations illustrated with box problems to simplify discussion of the factors obtained from alternate solutions. This reveals the advantages and limitations of

the diagonal, grouping, bi-factor, centroid, and principal axes methods. Thurstone's preference is for the centroid method with subsequent rotation of axes to give simple structure, in terms of either correlated or independent factors.

Dr. Thurstone considers the question of sampling errors to be petty relative to the major conceptual problems. He now makes clear his conception of factor analysis, *not* as a method for statistical prediction of individual scores, but rather as a research method for refining and testing hypotheses about functional unities. Invariance of factor structure is thus more essential than invariance of factor loadings, which are altered by selection of variates.

The newly recognized study of second-order factors derived from first-order factors is cleverly illustrated and gives promise as a method of verifying hierarchies of generating influences.

Although there is no bibliography and little attempt to relate the discussion to other literature in the field, the neophyte will find clear guidance, and the experienced factorist will find provocative clarification of major issues concerning the uses of this versatile, though imperfect, research tool.

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Scientific Book Register

- ANDRUS, E. C., *et al.* (Eds.) *Advances in military medicine.* (Science in World War II: Office of Scientific Research and Development.) (Vols. I and II.) Boston: Atlantic-Little, Brown, 1948. Vol. I: Pp. liv + 472; Vol. II: Pp. xvii + 473-900. (Illustrated.) \$12.50 for set.
- BARNEY, IDA. *Catalogue of the positions and proper motions of 9092 stars: re-observation by photography of the Astronomische Gesellschaft Zone between declinations +15° and +20°, reduced to 1950.0 without applying proper motions.* (Transactions of the Astronomical Observatory, Yale Univ., Vol. 18.) New Haven, Conn.: Yale Univ. Observatory, 1947. Pp. 187.
- BEACH, FRANK A. *Hormones and behavior: a survey of interrelationships between endocrine secretions and patterns of overt response.* New York-London: Paul B. Hoeber, 1948. Pp. xiv + 368. \$6.50.
- BERLAND, LUCIEN. *Faune de France 47: hyménoptères tenthredinoides.* Paris: Paul Lechevalier, 1947. Pp. 496. (Illustrated.) 1,500 fr.
- CLIPPINGER, DONALD R. *Manual of quantitative analysis.* Boston: Ginn, 1947. Pp. vi + 339. \$3.50.
- COSSLETT, V. E. *The electron microscope.* (Introduction to Science 8.) London, Engl.: Sigma, 1947. Pp. viii + 128. (Illustrated.) 7s. 6d.
- DUTHIE, E. S. *Molecules against microbes.* (Introduction to Science 6.) London, Engl.: Sigma, 1947. Pp. 156. (Illustrated.) 6s.

- GAARENSTROOM, J. H., and DE JONGH, S. E. *Contribution to the knowledge of the influences of gonadotropic and sex hormones on the gonads of rats.* (Monographs on the Progress of Research in Holland During the War.) New York-Amsterdam: Elsevier, 1946. Pp. viii + 164. (Illustrated.) \$3.00.
- GOODALL, D. W., and GREGORY, F. G. *Chemical composition of plants as an index of their nutritional status.* (Technical Communication No. 17.) Penglais, Aberystwyth, Wales: Imperial Agricultural Bureaux, 1947. Pp. 168. 9/-.
- KENDALL, JAMES I. *Microscopic anatomy of vertebrates.* (3rd ed.) Philadelphia: Lea & Febiger, 1947. Pp. 354. (Illustrated.) \$6.00.
- KOWALKE, OTTO L. *Fundamentals in chemical process calculations.* New York: Macmillan, 1947. Pp. x + 158. (Illustrated.) \$2.80.
- MONTGOMERY, CAROL G. (Ed.) *Technique of microwave measurements.* (Massachusetts Institute of Technology Radiation Laboratory Series.) New York-London: McGraw-Hill, 1947. Pp. xix + 594. (Illustrated.) \$10.00.
- POWELL, C. F., and OCCHIALINI, G. P. S. *Nuclear physics in photographs: tracks of charged particles in photographic emulsions.* Oxford, Engl.: at the Clarendon Press; New York: Oxford Univ. Press, 1947. Pp. xii + 124. \$6.00.
- ROSEBURY, THEODOR. *Experimental air-borne infection.* (Microbiological Monographs, Society of American Bacteriologists.) Baltimore: Williams & Wilkins, 1947. Pp. ix + 222. (Illustrated.) \$4.00.
- SEATON, S. L., WELLS, H. W., and BERKNER, L. V. Pt. I: *Ionospheric research at College, Alaska, July, 1941-June, 1946*; Pt. II, SEATON, S. L., and MALICH, C. W. *Auroral research at College, Alaska, 1941-1944.* (Researches of Dept. of Terrestrial Magnetism, Vol. XII.) Washington, D. C.: Carnegie Institution of Washington, 1947. Pp. 397. (Illustrated.) \$1.85, paper; \$2.35, cloth.
- SIEGEL, C. L., and BELLMAN, R. *Transcendental numbers.* (Annals of Mathematics Studies, No. 16.) Princeton: Princeton Univ. Press; London: Geoffrey Cumberlege, 1947. Pp. iv + 74. \$1.50.
- SNOEK, J. L. *New developments in ferromagnetic materials: with introductory chapters on the statics and the dynamics of ferromagnetism.* (Monographs on the Progress of Research in Holland During the War.) New York-Amsterdam: Elsevier, 1947. Pp. viii + 136. \$2.50.
- STOUT, D. B. *San Blas Cuna acculturation: an introduction.* (Publications in Anthropology, No. 9.) New York: Viking Fund, 1947. Pp. 124. (Illustrated.) \$2.50.
- TELLER, JAMES DAVID. *Louis Agassiz, scientist and teacher.* (Education Series, No. 2.) Columbus: Ohio State Univ. Press, 1947. Pp. xi + 146.
- THIMANN, KENNETH V., and BEHNKE, JANE. *The use of auxins in the rooting of woody cuttings.* (Maria Moors Cabot Foundation, Publ. No. 1.) Petersham, Mass.: Harvard Forest, 1947. Pp. 272. \$1.00.