

years. Dr. Kinsey has had the able cooperation of the two specially trained co-authors, who have developed the requisite technique and skill required to obtain the basic data, and also of an excellent staff of assistants; the statistical computations employed in the presentation of the materials have been enormous.

The research "is a fact-finding survey in which an attempt is being made to discover what people do sexually and what factors account for differences in sexual behavior among individuals, and among various segments of the population." It was approached in a commendable and necessary attitude of absolute unconcern with, or lack of any preconception of, what is rare or common, what is normal or abnormal, or what is morally or socially significant. The aim has been to accumulate facts and to attempt to understand the principal factors involved in a motivation of the different behaviors. The accumulated data are magnificently documented in 173 graphic illustrations and 151 tables, followed by a final chapter containing 48 pages of clinical tables with explanations for their use, and an appendix of 27 pages of tables and computations on sample size; a bibliography of more than 600 titles is included. To suggest but a very small number of the topics among those discussed, one finds data relating to early sexual growth, total sexual outlet, premarital, marital and extramarital intercourse, masturbation, nocturnal emissions, homosexuality, and the relations of age, social level, religious backgrounds, and other factors to the various facets of the general problem.

The procedures involved in the investigation are carried out by direct questions in a personal interview during which the sexual history is recorded in an essentially unbreakable code form; no written questionnaire has been employed. The strictest confidence has been maintained invariably, and the successful rapport established between interviewer and subject is nothing short of phenomenal, eliciting information which would in many instances be measurably condemnatory of the individual. The 12,000 histories already in hand come from every state in the Union, from individuals representing an age range of 5-90 years, and from all social levels—inmates of penal institutions, the underworld in general, laborers, clerks, farmers, business executives, grade schools, high schools, colleges and universities, and such professional levels as lawyers, physicians, clergymen, college professors, psychiatrists, and others. Adequate samples of histories from all social levels and geographical areas are included and will be further sought among the 100,000 histories estimated to be required to complete a final adequate assay of the total population. The present volume is based upon approximately 5,300 histories of white males. Succeeding volumes will include behavior studies in the human female comparable to the present volume on the male, sex factors in marital adjustment, legal aspects of the sexual problem, heterosexual-homosexual balance, and others.

A review of a book frequently carries criticisms of its shortcomings perhaps relative to an ideal. However, one is so thoroughly impressed with the courage demonstrated in the pursuit of this most difficult problem, with the extensiveness of the materials, with the adequate statistical treatments, with the openmindedness with which the entire project has been carried on, with the consummate artistry required to gain the basic information, and with the tenacity exhibited in the collection and presentation of the facts revealing such an unappreciated variation in human behavior, that criticism

seems out of place. Some shortcomings and unfilled gaps do exist, but the authors themselves have pointed out many of them. The entire 800 pages are replete with data; what use will be made of these data remains for the acumen of the populace to demonstrate. The facts are now available, and in so effectively presenting them the authors are due the gratitude of all intelligent peoples interested in the advancement of knowledge.

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Vector and tensor analysis. Louis Brand. New York: John Wiley; London: Chapman & Hall, 1947. Pp. xvi + 439. \$5.50.

This book develops the algebra and calculus of vectors, motors, dyadics, tensors, and quaternions. There are extensive applications to geometry, including a chapter on the differential geometry of surfaces, to analytical mechanics, and to hydrodynamics. A tensorial treatment of electrodynamics, rotating electric machines, and relativity is reserved for a projected second volume. The range of subjects is so extensive that it is easier to point out a surprising omission, such as the representation of an arbitrary vector field in terms of its divergence and curl, than to detail the contents. The book emphasizes the main ideas rather than details of rigor; the treatment is clear, concise, and formal. A principle merit is the careful interrelation of the five disciplines presented. For example, covariant and contravariant components of vectors are introduced in the first chapter on vectors; base vectors are used throughout the chapter on tensors, and a tensor is defined as an invariant under arbitrary change of base vectors; homogeneous coordinates are introduced in the chapter on vector analysis and employed also in the development of motors; the development of vector analysis from quaternions and the alternate interpretation of three-term quaternions as real plane vectors or complex numbers is explained.

There are numerous excellent illustrations and applications set as problems. The reviewer feels that this book satisfies the needs of a serious student of mathematical physics in the five disciplines included and differential geometry as well.

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Differential and integral calculus: functions of one variable. Francis D. Murnaghan. Brooklyn, N. Y.: Remsen Press, 1947. Pp. x + 502. (Illustrated.)

This represents an attempt on the part of a front-rank mathematician to present the calculus as the mathematician always dreams it might be taught. The book fully justifies the author's statement that "the method used is radically different from that of the currently popular texts." The ϵ , δ process, nested sequences, the finite covering theorem, all the machinery which one usually associates with courses in advanced calculus, mathematical analysis, functions of a real variable are used throughout to build a genuine theory of the calculus. That the result is pretty formidable is fully realized by the author, who frequently admonishes the student to read hastily over the theory and start working the exercises. Of these there are over 1,200, many with hints for the student, for the author says experience has taught him that calculus can be