some contributors turn their attention to quite other fields—to the domain of human culture built on a biological basis but not reducible to it (Theodosius Dobzhansky, Dorothy Lee, Ludwig von Bertalanffy), or to the characteristics of the esthetic experience (Gyorgy Kepes), or to the Zen experience and the disciplines of which it is the fruit, Daisetz Suzuki).

The volume concludes with a challenging summary and criticism of the papers of the conference by Walter Weisskopf and the replies to this analysis by a number of the contributors.

The papers which make up *New Knowledge in Human Values* present a wide divergence of views held by persons from a wide range of fields. The papers are short, trenchant, and well written. As Bronowski has discerned, there is a deep, underlying difference of attitude on the part of the contributors concerning how much the quest for a value orientation appropriate to modern man can be aided by empirical science. This is indeed a complex problem which must be worked through. It is a merit of this book to have exhibited the problem and laid before the reader some considerations relevant to the issue.

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An Introduction to Probability Theory and Its Application. vol. 1. William Feller. Wiley, New York; Chapman and Hall, London, ed. 2, 1957. xv + 461 pp. Illus. $10.75.

The first edition of this book was very successful, and this second edition should be even more so. Most books which attempt to develop probability theory rigorously are readable from the mathematician's standpoint but assume too much familiarity with recondite branches of mathematics to attract most physicists, engineers, or others needing probability and statistics as tools. They also tend to present abstract discussions largely devoid of applications.

The present book is rigorous but contains a wealth of illustrative material and examples relative to physics, genetics, contagious disease, card games, traffic and queuing problems, industrial quality control, chain reactions, engineering, and statistics. Most of the chapters include numerous problems, ranging from simple exercises to applications and extensions of the text.

This volume is restricted to discrete sample spaces. This is a severe limitation but one which permits the basic theory to be discussed without appeal to measure theory and allows advanced topics such as random walks and Markov processes to be included. A second volume, to include continuous sample spaces, general theory of random variables and their distributions, limit theorems, diffusion theory, and other topics, was promised in the first edition. It is hoped that it will be forthcoming soon.

The author suggests chapters 1 ("The sample space"), 5 ("Conditional probability. Stochastic independence"), 6 ("The binomial and the Poisson distributions"), and 9 ("Random variables; expectation") as a "beginner's course," with browsing in chapter 2 ("Elements of combinatorial analysis") to help develop technique. Chapter 3 ("Fluctuations in coin tossing and random walks") is entirely new and demonstrates some amazing results totally at variance with results expected on the basis of naive intuition. An example is that the probability of heads (or tails) being "in the lead," for a long series of tosses, for about 97.6 percent of the time is 0.20; for 99.4 percent of the time, 0.10. The fraction of the time "ahead" or "behind" is much closer to zero or 1 than to the "expected" value 0.5. With 10,000 tosses, with probability 0.5, there will be fewer than 68 returns to zero, and of these only half will be changes of lead. One wonders how many reasonable experimental results have been rejected as subject to systematic error or how many erroneous conclusions have been drawn because the experimenter did not know of the arc sine law.

Chapter 11 ("Integral valued variables. Generating functions") may be tackled after chapter 9 in an introductory course and is used in chapters 13 ("Recurrent events") and 12 ("Compound distributions. Branching processes"). Limit theorems and fluctuation theory are discussed in chapters 3, 8, and 10; Markov chains in 15 and 16; random walks in 3 and 14; stochastic processes (including "birth" and "death" processes, waiting lines and servicing problems, the Chapman-Kolmogoroff equations, and other topics) in 17 ("The simplest time-dependent stochastic problems"). Many chapters are on an advanced level; many are independent of the others; all are well written.

Some typographical errors were noted, in which exponents or subscripts were missing—for example, page 164 (1.1) where the exponent is omitted (this should be $-\frac{1}{2}x^2$ rather than $-\frac{1}{2}x$); the equation on page 164 (1.10) where y has not been squared; the equation on page 271 (2.5), where λ_2 has lost its subscript; and the equation on page 83 (6.8), where s in the exponent has also not been squared. (Is it chance that 2 has been left out in each case?)

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Systema Helminthum. vol. 1, parts 1 and 2. *The Digenetic Trematodes of Vertebrates.* Satyu Yamaguti. Interscience, New York, 1958. 1575 pp. Illus. $90.

This monumental work on the systematics of digenetic trematodes is the culmination of Satyu Yamaguti's many years of diligent study of actual specimens, and it is based on his exhaustive review of the pertinent, voluminous literature. On the basis that our knowledge of life-histories of Digenea is inadequate to permit the erection of a system based on natural relationships, the author has based his system on the "whole picture of morphological characteristics." Hence, except for orders, he has not dealt with taxa higher than families. He has presented keys and diagnoses for orders to genera and subgenera. In some families he has introduced tribes which are, for example, substantially equivalent to the sub-subfamilies used by Dubois for the strigeatoids. For each genus the type species is stated, followed usually by a list of species, and accompanied at times by notes on life-histories. The author has erected a few new families, many new subfamilies, some new tribes, and a few new genera.

Keys and diagnoses occupy part 1 (979 pages). Part 2 contains a very useful systematic review of the Digenea of vertebrates and their host relationships (36 pages); an extensive bibliography (216 pages); illustrations (109 plates with 1302 figures) done by the collotype process; and an index (131 pages).

The diagnoses have been especially prepared by the author and are based on first-hand information or on the literature. I believe that they are adequate. The keys are, of course, artificial. I have not tested them on specimens for workability. The figures have been reduced considerably, some of them to the point that a reading glass is required for a careful examination of details. With few exceptions there is a figure to illustrate a species of each genus. If possible, the type species is illustrated.

In the plates one error of mislabeling occurs. Figure 1069, plate 89, shows *Postharmostomum laruei* McIntosh but is labeled *P. noveboracense* McIntosh. I noted a few errors in the text—for example, *Riberoia ondatrae* (Price, 1931) Price, 1942, is assigned to the new genus *Pseudopsilostoma* (page 904) on the assumption that the species is not congeneric with *Riberoia* Travassos 1939, but on page 622 this species is referred to the new genus *Pseudopsilotrema* which is both a *nomen nudum* and a synonym of *Pseudopsilostoma.* I have personally examined Price's type and paratypes, including two series of frontal sections, and can vouch for the presence of the esophageal diverticula which are