Book Reviews

The Liver and Cancer. A new cancer theory. Kaspar Blond. Wright, Bristol, England, 1955. (distrib. by Williams & Wilkins, Baltimore, Md.). x + 220 pp. $6.50.

Blond presents the following revolutionary theory.

1) Only hepatopathogens are cancerogenic. Impairment of the liver's detoxifying function is followed by a rise in portal pressure, dilatation of capillaries in the alimentary organs, stasis, congestion and reversal of the blood flow. The resulting clinical syndromes are gastritis, duodenitis, pancreatitis, peptic ulcer, cholecystitis, colitis, polyposis, hemorrhoids, and so forth. Via portocaval shunts, undetoxicated metabolites enter systemic circulation, and precancerous pathology develops also in organs drained by the venae cavae. Finally, in some precancerous area the toxic metabolites induce mutation, and cancer starts growing. If it is not severely damaged, the liver is more resistant to the mutagenic action of the toxic metabolites than are other organs; hence, the rarity of hepatomas.

2) As long as the liver detoxifies satisfactorily, cancer cannot develop, because it thrives only on toxic products of digestion. Because of the limited amount of toxic metabolites, as a rule only one primary tumor grows. After removal of a primary tumor, toxic metabolites become available for areas with metastatic cells up to then dormant. It is not cancer that kills but the liver's failure, and the liver frequently does fail before cancer has developed.

3) Combat of cancer requires prevention and cure of liver damage. Surgery, irradiation therapy, and immunization are of no avail. If the liver is cured, spontaneous tumor regression follows. Skin epithelioma cannot immunize against internal cancer, because skin epithelioma is a precancerous condition, not a cancer, and because cancer is not a bacterial or viral disease.

The theory is startling and fascinating for its simplicity and scope. There are no tests available to prove or to disprove the thesis that the liver starts and keeps the ball rolling. Being aware of this, Blond amasses a large body of clinical, experimental, statistical, and biochemical findings in agreement with, and in support of, his theory. It is circumstantial evidence. Not all of his interpretations are convincing, but some are more probable than the currently accepted explanations. I feel gratified that within 2 years my own book, *Cancer in Man,* has inspired this surgeon in London to discuss it thoroughly, to accept some conclusions, to modify or reject others, and to develop a new unified cancer theory. The merits of the latter will have to be assessed at another occasion.

SIGISMUND PELLER

New York, N.Y.

Stochastic Models for Learning. Robert R. Bush and Frederick Mosteller. Wiley, New York; Chapman and Hall, London, 1955. xvi + 365 pp. Illus. $9.

In this volume the authors present a general mathematical model for learning, where learning is defined as "any systematic change in behavior . . . whether or not the change is adaptive, desirable for certain purposes, or in accordance with any other such criteria" (page 3). Because behavior is viewed as a statistical phenomenon, the mathematical system presented is a probabilistic one.

The organization of the volume follows the three main steps in the construction of a mathematical model—setting up the mathematical system, identifying the elements of the system in terms of certain variables in the learning process, and applying the system to specific problems. Part one deals with an exposition of the system whose basic elements are a set of mutually exclusive and exhaustive alternatives, a vector of probabilities with one element for each alternative, a set of mutually exclusive and exhaustive events, and a set of operators corresponding to these events. An element of the probability vector represents the probability of the occurrence of the corresponding alternative when there is an opportunity for choice among the alternatives. The occurrence of an event implies that the corresponding operator, represented by a stochastic matrix, is applied to the set of probabilities to yield a new set of probabilities. Various consequences of the mathematical system are examined under various assumptions regarding the parameters of the system. Monte Carlo methods—or "stat-rats"—are described which may be used to obtain approximate values of the moments and other characteristics of the probability distributions arising from the model.

In the discussion of identification, the question of estimating the parameters of the system is covered, as well as the definition of the parameters in terms of the psychological variables. Although maximum likelihood estimates are considered desirable, the difficulty of computing such estimates leads the authors to some interesting approximation procedures. Finally, the model is applied to data taken from several types of learning experiments—verbal learning, avoidance training, imitation, and so on.

Although they demonstrate that their model works fairly well in some experiments, the authors, in an excellent concluding chapter, discuss the shortcomings of this model. The inability of the model to handle response intensity—that is, a response beyond the occurrence or nonoccurrence of a response class—and the assumption of linearity of the event operators are recognized and discussed by the authors as two limitations on the "generality" of their model. The discussion of the relationship between model building and curve fitting is an excellent one and, together with the introduction, is an interesting—if too brief—presentation of the purpose, methods, and usefulness of mathematical model building. While the authors are rightfully modest about the general applicability of their model to learning problems, they have added substantially and significantly to the literature of mathematical models in the social sciences.

IRVING ROSHWALB

Audits and Surveys Company

Principes Fondamentaux de Classification Stellaire. Colloques, Internationaux du Centre National de la Recherche Scientifique. Le Centre, Paris, 1955. 188 pp. Illus. F. 1.200.

A conference on stellar spectroscopy from the point of view of stellar classification was held at the Astrophysical Institute in Paris in the summer of 1953, and this book gives an account of the papers presented, together with the comments made at the time by the participants. There are contributions from American, Danish, Dutch, and Soviet astronomers in addition to those of the French hosts, and all papers with comments have been translated into French.