of health but is not an expert, it will fail because of its lack of organization, flat tone, variable style, and failure to engage broad questions. For the general public, it fails to make public health—a distant concept at best—a dramatic, concrete, and immediate concern. To the many physicians who must be more vitally concerned with the community dimensions of health and disease, this collection will be disappointing.

These comments are not a reflection on the very worthy authorities represented in this book. Better definition of an audience and a more unified approach would produce better communication of the important ideas with which the book deals. Better knowledge of the potentialities of community medicine is urgently needed for the educated layman and the nonexpert in the health profession. The simple massing together of experts, however qualified, is not sufficient for this purpose.

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The Values of Mediterranean Society

During a recent journey in the mountains of Macedonia I came across a group of peasants on a narrow path. There on the ground lay a mortally wounded young man. His mother was wailing over him. The story was simple. The young man was carrying some hay through the field of a neighbor with whom he had recently quarreled. The neighbor suddenly appeared with a gun and ordered the young man to leave the field. The latter grasped the barrel, pointed it at his heart and said: "Shoot, if you dare." The neighbor fired.

This is an extreme case, illustrating a paroxysmal expression of the sentiment of honor—"A true man is one who is prepared to stake everything on one throw of the dice." Here the distance between intention and act is short, yet it condenses basic notions: sublimation of the individual, his virulent claim to pride, his valor. Society cannot remain indifferent in such circumstances. As Fray Luis de Granada has noted: "The deeds most admired in man are those that demand effort and courage and a disdain of death."

Honour and Shame: The Values of Mediterranean Society (University of Chicago Press, Chicago, 1966. 266 pp., $5), edited by J. G. Peristiany, is a brilliant collection of essays on the values of honor in several Mediterranean societies. Honor is an eminently "social" value. It implies a valuation of the whole individual, structures the perception of others in a total manner, and powerfully influences the system of interpersonal relations.

Julian Pitt-Rivers analyzes first the structure of the notion of honor in all its dimensions: effective, interactional, and political. He then relates honor and social status as they function in Andalusian society. Different social strata have different conceptions of honor, and these are linked to different forms of leadership.

Julio Caro Baroja adopts a historical perspective and studies the multiple social factors that determine changes in the notion of honor. He uses mainly Spanish documents. Particularly illuminating is his coupling of collective honor with patrilineality. In former times questions of birth and long genealogies were preeminent. "Today wealth, and nothing else, seems an almost physical force, against which there is no means of fighting."

The social isolation of the family in a Greek Cypriot highland community is described by J. Peristiany. Honor regulates ethically significant interactions only. "When the actors are anonymous, honor is not involved." Clearly, there are two distinct behavioral codes.

The kinsmen-strangers dichotomy, this time in reference to the Sarakatsani, transhumant shepherds of northern Greece, is similarly analyzed by J. Campbell. Kinsmen are loved and trusted. Strangers are almost enemies. Outside the circle of relatives the world is fundamentally hostile. The Sarakatsani is faced with a basic opposition of two systems of values. The first, social, rests on the notion of honor; the second, religious, depends on God. Left to himself, the Sarakatsani seems helpless to reconcile the particularistic implications of honor with the wider precepts of Christian tradition.

The last essays refer to two Islamic societies. P. Bourdieu considers the sentiment of honor as the basis of Kabyle political order. Intertribal fights are regulated games. Honor finds expression in rituals of conflict and thus contributes to the perpetuation of specific political forms.

Ahmed Abou-Zeid distinguishes first the various social units found among the Bedouins of western Egypt. Then he discusses the "right to refuge" in relation to Bedouin honor.

This book brings forward some basic cross-cultural similarities in regard to sex behavior, certain family roles, the position of the family in society, and the dichotomy of kinsmen and strangers. The reader gradually gets the impression that behind obvious cultural differences many Mediterranean societies share certain basic social patterns. And this is probably the most striking contribution of this admirable book.

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Mathematics

Calculus on Manifolds (Benjamin, New York, 1965. 158 pp. Paper, $2.95; cloth, $7), by Michael Spivak, is a succinct and well-organized introduction, from the abstract modern point of view, to the differential and integral calculus of curves and surfaces and their higher-dimensional analogues. The claim is made on the jacket that the book is addressed to undergraduates at the sophomore and junior level and that it presupposes only introductory calculus and linear algebra. The author grants in the preface that in addition to this "a certain (perhaps latent) rapport with abstract mathematics will be found almost essential." This is certainly not an overstatement. It is my guess that the book will in fact find its greatest usefulness in one-semester courses at the senior-to-beginning-graduate level designed to lead able students of pure mathematics toward contemporary differential geometry and topology.

The book is divided into five chapters, the first three of which are devoted to extensive preparatory definitions and theorems regarding the linear and topological structure of higher-dimensional euclidean spaces, the differentiability of functions mapping one such space into another, and the (Riemann) integration of real-valued functions on such spaces. The heart of the book is chapter 4, where the

machinery of tensors and differential forms is introduced. It is at the end of this chapter that a first abstract form of Stokes's theorem is obtained. The final chapter defines manifolds and fields and forms on them, arrives at a general Stokes's theorem for manifolds, and finally, in the last four pages, presents the classical versions of Green's theorem, the divergence theorem, and Stokes's theorem.

The numerous exercises are essential to the treatment, in two ways especially. First, they contain virtually all the (relatively) concrete illustrations that are given. Second, when an exercise is marked with an asterisk, this signals that there are subsequent developments in the text which depend on it. Of some hundred exercises in the first three chapters, more than 20 are marked in this way and used later.

The format is for the most part pleasant, and I noted only a few misprints. It is a minor annoyance that reference numbers labeling displayed equations appear, not at the margin, but right next to the equations themselves. An index would have been useful.

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Biology

Biologists in these times follow many lines of investigation with a degree of success that even their immediate predecessors would find surprising. They have now reached the point of anticipating unbroken progress in their protean discipline and they draw immense satisfaction from the anticipation.

Yet the recent accomplishments partake more of chemistry, physics, and mathematics than of biology as such. To speak of "biophysics," "biochemistry" and "molecular biology" is to acknowledge this fact, which is, I think, disturbing to many.

For the great biological problems—that of organism in general and that of order within the biosphere—remain not only unsolved but have not as yet even been usefully posed. Most biologists know of these problems and are frustrated at being unable to deal with them. At present one can only cast about and hope for the best. In **Size and Cycle** (Princeton University Press, Princeton, N.J., 1965. 227 pp., $7.50), J. T. Bonner has done just this. In my opinion, his failure is total and his subsequent refusal to cut the loss, unfortunate.

The avowed purpose of the work is to draw attention to the life cycle (zygote to zygote) as the proper unit of study for those who would comprehend the true biological significance of development and evolution. We are promised that changes in size as expressed by changes in length (why not by changes in total nitrogen?) around the life cycle will be established as the indicators of complexity and sophistication at all evolutionary grades.

Nothing ever comes of the promise because, insofar as size changes are such indicators, this has been realized long since and found to be unenlightening. Bonner pays his respects to the alleged theme on numerous occasions but no more than to a large number of other conceptions.

Size and Cycle is episodic to an acute degree, and the integration is minimal. Time after time Bonner announces that he is about to come to grips with some crucial issue but then falls back on restatements of the obvious. His account of the comparative merits of sexual and asexual reproduction is a case in point.

I believe that Bonner realizes he is in difficulty. At several points he becomes very defensive. On page 52, for example, he regrets that he must analyze life cycles into periods of size increase and size decrease when they really should be shown "simultaneously branching in all directions in three dimensions." He then makes this statement: "However I am not clever enough to discuss everything at once, so this bit of dissection and analysis, although imperfect, is unavoidable." Surely it is strange when a scientist regrets an analysis which he has just told us is to be the key to a new view of evolving organisms.

Rarely, there are oases in which interesting concepts (such as that of range variation) are presented, but their merits are their own and have nothing to do with sizes or cycles.

Size and Cycle contains 30 beautiful plates that have an aura of the 17th century about them. They are the best feature of the book, but in them we have art, not biology.

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New Books

Mathematics, Physical Sciences, and Engineering

Advances in Electronics and Electron Physics. vol. 21. L. Marton, Ed. Academic Press, New York, 1965. 356 pp. Illus. $14. Six papers: "The polarization of electron beams and the measurements of the *g*-factor anomaly of free electrons" by P. S. Farago; "Fast ion scattering against metal surfaces" by C. Snoek and J. Kistemaker; "Kinetic ejection of electrons from solids" by David B. Medved and Y. E. Strausser; "Scanning electron microscopy" by C. W. Oatley, W. C. Nixon, and R. F. W. Pease; "High-speed magnetic-core memory technology" by L. A. Russell; and "Physical foundations of plasma applications for generation and amplification of microwaves" by V. Ya. Kislov, E. V. Bogdanov, and Z. S. Chernov.

Absorption Spectra in the Ultraviolet and Visible Region. vol. 6. L. Lang, Ed. Academic Press, New York, 1966. 412 pp. Illus. $22.

Analytical Applications of Ion Exchangers. J. Inczédy. Translated from the Hungarian edition (Budapest, 1962) by A. Páll. Pergamon, New York, 1966. 455 pp. Illus. $17.50.

Book of ASTM Standards: With Related Material. Pt. 13, *Refractories; Glass; Ceramic Materials; Manufactured Carbon and Graphite Products* (672 pp. $9; members, $6.30); pt. 28, *Rubber; Carbon Black; Gaskets* (1142 pp. $19; members, $13.30); pt. 32, *Chemical Analysis of Metals; Sampling and Analysis of Metal Bearing Ores* (880 pp. $15; members, $10.50). American Soc. for Testing and Materials, Philadelphia, 1966. Illus.

Canon of Solar Eclipses. Jean Meeus, Carl C. Grosjean, and Willy Vanderleen. Pergamon, New York, 1966. 757 pp. Illus. $32.

Carbocyclic Non-Benzenoid Aromatic Compounds. Douglas Lloyd. Elsevier, New York, 1966. 230 pp. Illus. $13.

Chemical Principles. William L. Masterton and Emil J. Slowinski. Saunders, Philadelphia, 1966. 692 pp. Illus. $8.75.

Chemical Principles in Calculations of Ionic Equilibria. Emil J. Margolis. Macmillan, New York, 1966. 494 pp. Illus. Paper, $3.95; cloth, $7.95.

Computers: A Programming Problem Approach. R. Clay Sprowls. Harper and Row, New York, 1966. 400 pp. Illus. $8.50.

Convective Heat and Mass Transfer. W. M. Kays. McGraw-Hill, New York, 1966. 415 pp. Illus. $13.75. McGraw-Hill Series in Mechanical Engineering.

CRC Handbook of Tables for Probability and Statistics. William H. Beyer, Ed. Chemical Rubber Company, Cleveland, Ohio, 1966. 518 pp. Illus. $15.

The Design of Production Systems. Salah E. Elmaghraby. Reinhold, New York, 1966. 509 pp. Illus. $20. Industrial Engineering and Management Sciences Series.

Diffraction: Coherence in Optics. M. Françon. Translated from the French by Barbara Jeffrey. J. H. Sanders, Translation Ed. Pergamon, New York, 1966. 149

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