

fixed to plywood using the synthetic resin, Asplit, made by Farbwerke Hoechts (p. 63). [Because synthetics are attacked by solvents and have a low heat resistance, slate and asbestos cement have not proven to be popular.] Lead is still used at CIBA (Basel, Switzerland) but is being replaced by other materials (p. 64).

Those who plan science buildings in the United States should remember that all these aspects of laboratory planning have been the subject of considerable research in the United States.

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## Solar Radio Astronomy

Detection of radio waves from the sun was much sought after by radio pioneers, and, for a while in 1931, Karl Jansky postulated that his newly discovered "Cosmic Static" was of solar origin. Later, radio amateurs reported intense hissing sounds at the time of sudden interruptions of their communications, and in 1942 a British radar network was jammed by bursts of solar noise. During 1942 and 1943 solar radio waves were systematically detected by G. C. Southworth with microwave equipment at the Bell Telephone Laboratories and in 1943 by Grote Reber, who had privately continued Jansky's original work on longer wavelengths.

The growth of radio astronomy immediately after World War II was explosive, and the results are scattered in many places. The book, **Solar Radio Astronomy** [Interscience (Wiley), New York, 1965. xii + 660 pp., \$19.75] by Mukul R. Kundu, is a review and co-ordination of the solar aspect of an extensive literature. The first two chapters, "Introduction" and "Optical features of the active sun," are short and appropriate. "Propagation and Generation of Radio Waves in the Solar Atmosphere," a mathematical treatment of the properties of ionized gases, is the basis for discussing the observational material, and it precedes "Techniques of solar radio observations," which places special emphasis on various types of solar interferometers. Observations are then described and analyzed with reference to physical models of solar features. There is a chapter on the quiet sun radiation which arises from the undisturbed solar atmosphere,

and another entitled "The slowly varying component," which is closely associated with the appearance of sunspots, while there are six chapters on various burst types that are associated with sudden releases of solar energy. The relationship of solar radio emission to the important solar x-ray and particle emissions, a major factor in the space environment of the earth, are described in two chapters. The last four chapters are "The active region and the flare event as a whole," "The irregular structure of the outer corona," "Radar observations of the sun," and "Satellite observations of solar bursts."

The coverage of topics in 18 chapters is complete, and this is followed by an extensive list of references and a subject index. The treatment of the material is concise, with 352 illustrations carefully selected from a wide literature. The various classifications of the difficult type IV burst are well presented. The shortness of the last chapter, on satellite observations, is disappointing but, at this time, understandable. The discussion of solar radio astronomy proper is adequate and accounts for more than one half of the book (eight chapters).

The unique radio telescope constructed in the earth's surface at Arecibo, by Cornell University, appears on the dust cover, and recalls the association of the author, Mukul R. Kundu, with Cornell before returning to his native land to pursue radio astronomy at the Tata Institute, Bombay. Kundu graduated from the University of Calcutta in 1947 with a B.Sc., and in 1951 with an M.Sc. Initial solar studies were commenced in France under the direction of J. F. Denisse and J. L. Steinberg of the Observatory of Meudon. In 1957 the author obtained the Doctor ès Science degree from the University of Paris, and some time later was able to continue solar studies at the University of Michigan. It was there that a review of solar radio astronomy was undertaken and the subsequent report was well received. It is now published with little change as the book under review. Appropriately, publication occurs at the onset of a new cycle of solar activity when the need for a unified account of solar radio observations is great. The book is one of a kind and is highly recommended as a reference.

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## Community Health

The prime social goal of medicine is the application of the maximum of scientific knowledge for the benefit of each person in an efficient, easily available, and individualized manner. Optimal health is today, however, far more than the simple sum of the care given to individual patients. By definition, it includes specific attention to the problems created by man's life in complex communities.

The goals, methods, and potentialities of a comprehensive approach to community health must be better known by public and health professions. In no other way can informed decisions be made with respect to the many possible health goals open to an increasingly affluent local and world community.

In **Community Health: Its Needs and Resources** (Basic Books, New York, 1966. 264 pp., \$4.95), J. D. Porterfield has attempted an overview of the important field of public and community health. He has assembled 20 lectures given by recognized authorities under the auspices of the Voice of America. The topics considered are the classical ones in public health—the control of communicable disease, maternal and child health, vital statistics, nutrition, and the like.

This assemblage of papers is a loose one, characterized by recitations of progress and accomplishments in a necessarily superficial manner. All of the essays are adequate for the purpose for which they were intended—the information of our world neighbors on the state of this field in the United States—but none of them are particularly sophisticated. All, by and large, eschew a confrontation with fundamental problems. There is virtually no emphasis on the developments in the social, behavioral, and ecological sciences which condition any approach to the definition and solution of community health problems. This is traditional public health, updated to be sure, but not designed to engage the thoughtful general reader or the professional worker.

Indeed, the problems that this book will encounter are finding an appropriate audience and making the transition from a series of radio talks to a coherent and stimulating book. For the student and the expert, as the editor himself notes, the book is too superficial. For the educated layman or the professional who works in the field

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 repre-

sented 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 An-

dalusian 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 ex-

pression 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