unfamiliar with the basic principles of the relation between atomic emission and absorption spectra on the one hand and abundances, pressure, temperature, and excitation mechanisms on the other. In a following chapter, Aller gives several recent universal abundance compilations (which he has modified) and compares them with a universal compilation based primarily on stellar data. Discrepancies are discussed in terms of measurement difficulties and source material differences. In a final chapter the basic nucleogenic theories of B^2FH and Cameron are outlined without the most recent bifurcations.

Because of rapid change, it is difficult to write a useful book in this field. Aller has used the opportunity offered by the room in a book to present the entire subject with superior organization and clarity. As a result, his work may outlast the rapid obsolescence of the abundance data which he presents and may be welcome and useful for several years (as it is now) as a supplementary text in the borderline subjects of cosmology and geochemistry.

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Scientific Go-between

The Human Use of the Earth. Philip Wagner. Free Press, Glencoe, Ill., 1960. ix + 270 pp. Illus. $6.

Science may be a unitary effort of men to gain mastery over their world and themselves, but the various sciences are more often like camps fortified against each other and suspicious of communications across the no-man's-land that lies between them. We may therefore thank our common totemic ancestors for an intellectual broker like Philip Wagner who, as a human geographer, is committed to wandering between camps. Conceptual integration is not an easy task, and the resultant combinations sometimes exhibit signs of strain; but it is this effort at synthesis, above all, that makes this book in "both geographical and ecological" aspects, such attractive reading. To bring order out of chaos, the author has employed the scientifically economical (if hazardous) tool of typology, and the book may best be characterized as a set of typologies, related so as to produce a cognitive map of adjacent scientific territories.

Man's symbiotic ties with other organisms (plants, animals, and other men) may be categorized as either obligate or facultative (chapter 1). These two categories are then combined with a typology of economies derived from Polanyi, to obtain a fivefold scheme of economies, seen as symbiotic types: (i) obligate subsistence with sporadic relations with outsiders; (ii) obligate subsistence with facultative arrangements for reciprocity; (iii) obligate subsistence with facultative redistribution; (iv) obligate subsistence with facultative market relations; (v*a*) obligate redistribution with facultative marketing (the Soviet Union); and (v*b*) obligate marketing with facultative redistribution (the United States). Chapter 6 presents a taxonomy of artifical objects made by man, in which there is implicit a progression from simple elements to automatic devices and a concomitant increase in man's power over nature. This taxonomy is linked, via a chapter on factors in the spatial structuring of such man-made objects, to a typology of livelihood types and food-getting forms (chapter 8). Wagner has, wisely perhaps, refrained from integrating this typology with his economic types, but the last two livelihood types (peasantry, commerce) appear to articulate with types iv to v*b*, above, and with the categories "consumers' economy" and "producers' economy" discussed in chapter 9. Chapters 3 and 4 are not essential to this chain of considerations, but they serve to acquaint the "earth-scientist" with the conceptual trappings of his hostile friends in the social science camp. From reading this book, I came away with the feeling that there *is* a science called human geography; this after some initial doubt.

Terminological quibbles should not be allowed to detract from the high quality of this work, but I arched my eyebrows at the use of "consumers' economy" and "producers' economy" and—especially—at the use of "capital" for all artificial things made by man. On the other hand, why does a geographer put the Totonac in Oaxaca and the Arapesh in southeastern New Guinea (page 44)? Relocation seems urgent.

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Arbiter of Mankind's Goals

Toward a Science of Mankind. Laura Thompson. McGraw-Hill, New York, 1961. xxvii + 276 pp. $4.95.

Any progress in applying what is known of man and his behavior to the solution of social tensions and conflicts deserves attention. During the past three decades a handful of anthropologists, most of them in England, Mexico, and the United States, have attempted to formulate practical programs for action in a variety of situations such as colonial administration, American Indian health, conservation of economic resources, and industrial personnel problems. In general, the proposals have met with skepticism from administrators, but a few successes have encouraged the "applied anthropologists" to continue their efforts.

Laura Thompson reviews the changes in anthropology's orientation that have permitted the inclusion of these aims, which represent a marked departure from former goals (and for many in the discipline, from their current goals). Instead of seeking further understanding of man and his behavior, Thompson argues that we know enough now to tackle the problems of "how to improve the welfare of whole communities and of . . . tribes, nations, and international groupings," and "the formulation of adequate norms or standards for the advancement of community welfare and for the development of community-oriented government administration." Her approach is eclectic, drawing on the insights and techniques of numerous disciplines, such as physiology, psychology, animal ecology, and conservation, as well as the social sciences. She is liberal with quotations and includes several case histories from her own previously published work; except for too frequent lapses into jargon, the book is stimulatingly written and will interest a broad spectrum of readers.

The major part of the book is devoted to proposing and explaining the "social-action research approach" that the author believes will permit anthropologists to direct human activities toward "scientifically based ideal goals." This is an extraordinarily optimistic attitude, proposing to solve all the basic problems of mankind. Optimism should not be discounted, and it is needed in any approach to the world's crises in human relationships. But there are risks

in placing pure research in a secondary position and in emphasizing applied research at its expense. Mere manipulative techniques can, with bureaucratic support, take on the guise of science. Many will doubt that the anthropologist-administrator should be made the final arbiter of mankind's goals. Thompson does not picture a Brave New World or a 1984, but the assumption that any group of scholars knows what is best for every community and nation presupposes an omniscience few will grant even a new, unified "science of mankind." Nevertheless, Thompson has done social science a real service in pointing out the promise of a broader approach, oriented toward today's pressing problems.

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Microclimatology

Das Klima der bodennahen Luftschicht. Rudolf Geiger. Vieweg, Braunschweig, Germany, ed. 4, 1961. 646 pp. Illus.

Meteorologists and ecologists, agriculturists and foresters, conservationists and geographers, architects and planners should welcome this fourth edition of Geiger's textbook on microclimatology. Since its first appearance in 1927 this book has dominated the field. From a slender volume it has grown into an imposing tome. Its earlier editions, including the English translation of the second edition [reviewed in *Science* **126**, 214 (1957)], have helped to stimulate work in microclimatology a great deal.

Even with a 30 percent expansion in this edition, including 1218 literature citations, the author still had to exercise considerable restraint in choosing his material. He has succeeded admirably. The appearance of Sir Graham Sutton's companion volume on micrometeorology made it possible to omit much of the basic theoretical material. But in the phenomenological realm the book is without equal.

The contents fall under a few primary headings: interaction of the surface with the adjacent air; heat balance in this surficial atmospheric layer; climatic interactions with fields and forests; special reaction of climate to orographic influences; and finally, relations of microclimate to humans and animals. G. Hofmann contributed a chapter on methodology of observations. This bare outline does not indicate the richness of the teaching material in this book. Some professor might even follow the whimsical suggestion to take students out in a glaze storm and, as a final examination, let them answer all the microclimatic puzzles nature might pose in these cases.

On the more serious side, I hope that Geiger's injunction is heeded; he urges man to change from the ignorant destruction of beneficial microclimates to the deliberate creation of favorable changes in housing and city planning, reforestation and water management, and farm production. Rational climatic modifications are certainly closer at hand near the ground than in the clouds.

Presumably because of language problems the rather extensive Russian literature in the field has not found a foothold in the book. Perhaps in this as in some other respects one might cast an eye into the future. There is little doubt that a few years hence a handbook on microclimate will be needed. It would be wonderful to contemplate that Geiger, the undisputed master in the field, might take the helm and assemble a team to tackle this job.

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New Books

Biological and Medical Sciences

The Adrenal Cortex. G. K. McGowan and M. Sandler, Eds. Lippincott, Philadelphia, Pa., 1961. 238 pp. Illus. $5. Proceedings of a symposium organized by the Association of Clinical Pathologists and held at the Royal Society of Medicine (London), 14–15 October 1960.

Advances in Blood Grouping. Alexander S. Wiener. Grune and Stratton, New York, 1961. 561 pp. Illus. $11. Selected papers on immunohematology published by Wiener (mostly since 1954), arranged by topic, with some added comments.

Carter's Principles of Microbiology. Alice Lorraine Smith. Mosby, St. Louis, Mo., ed. 4, 1961. 603 pp. Illus. $6.

Inhaled Particles and Vapours. C. N. Davies, Ed. Pergamon, New York, 1961. 506 pp. Illus. $15. Proceedings of an international symposium organized by the British Occupational Hygiene Society, 1960.

International Review of Cytology. vol. 2. G. H. Bourne and J. F. Danielli, Eds. Academic Press, New York, 1961. 368 pp. Illus. $11.

Medical and Biological Aspects of the Energies of Space. Paul A. Campbell, Ed. Columbia Univ. Press, New York, 1961. 500 pp. Illus. $10.

A Mirror up to Medicine. A. C. Corcoran, Ed. Lippincott, Philadelphia, 1961. 521 pp. $5.75. Selections from the writings of physicians and others, designed to portray medicine and the "medical mind" from every point of view: Hippocrates, *The First Aphorism*; MacMichaels, *The Cane's Story of the Last Illness of Sir Isaac Newton;* Sherrington, *Man on His Nature.*

Models and Analogues in Biology. Symposia of the Society for Experimental Biology, No. 14. Academic Press, New York, 1960. 262 pp. Illus. $9.50.

Nerves, Brain, and Man. John Grayson, Taplinger, New York, 1960. 253 pp. Illus. + plate. $5.

Nomina Anatomica. Revised by the International Anatomical Nomenclature Committee, appointed by the Fifth International Congress of Anatomists (Oxford, 1950), and approved by the Sixth and Seventh International Congress of Anatomists (Paris, 1955, and New York, 1960). Excerpta Medica Foundation, New York, ed. 2, 1961. 109 pp. $3.75.

Pharmacognosy. Edward P. Claus. Lea and Febiger, Philadelphia, Pa., ed. 4, 1961. 565 pp. Illus. $12.50.

The Physiological Regulation of Salivary Secretions in Man. Alexander C. Kerr. Pergamon, New York, 1961. 86 pp. Illus. $6.50.

Poliomyelitis. Papers and discussions presented at the Fifth International Poliomyelitis Conference, Copenhagen, Denmark, 26–28 July 1960. Compiled and edited for the Congress. Lippincott, Philadelphia, 1961. 459 pp. Illus. $7.50.

Proceedings of the Fourth National Cancer Conference. Sponsored by the American Cancer Society and the National Cancer Institute. Lippincott, Philadelphia, Pa., 1961. 788 pp. Illus. $9. Held at the University of Minnesota 13–15 September 1960.

Progress in Surgery. vol. 1. M. Allgöwer, Ed. Karger, Basel, Switzerland, 1961. 271 pp. Illus. $15.

Protein Structure. Harold A. Scheraga. Academic Press, New York, 1961. 319 pp. Illus. $8.

The School of Pharmacy of the University of North Carolina. A history. Alice Noble. Univ. of North Carolina Press, Chapel Hill, 1961. 247 pp. Illus. $5.

Symposium on Water and Electrolyte Metabolism. C. P. Stewart and Th. Strengers, Eds. Elsevier, New York, 1961 (order from Van Nostrand, Princeton N.J.). 205 pp. Illus. Symposium organized by the Netherland Society of Clinical Chemistry and the Netherlands Society for General Pathology; held in 1960.

Transactions of the Society of Rheology. E. H. Lee, Ed. Interscience, New York, 1961. 382 pp. Illus. $10.50.

Treatise on Invertebrate Paleontology. Pt. Q, *Arthropoda 3.* Crustacea, Ostracoda. Raymond C. Hall, Ed. Geological Soc. of America, New York; Univ. of Kansas Press, Lawrence, 1961. 465 pp. Illus. $11.50.