# Book Reviews

**Administrative Medicine.** Transactions of the third conference, 6–8 Oct., 1954, Princeton, N.J. George S. Stevenson, Ed. Josiah Macy, Jr., Foundation, New York, 1955. 172 pp. $3.

The third conference on administrative medicine held by the Macy Foundation in October 1954 was part of a program intended to deal more effectively with hidden obstructions to communication. The conferences are designed to achieve earlier evaluation of new data and to further understanding among members of different scientific disciplines as soon as new insights and skills develop. The program also endeavors to cope with unrecognized blind spots, to overcome prejudices, and to lessen the uncritical acceptance of the dicta of authorities.

Following a presentation of the foundation's objectives by Frank Fremont-Smith, the special characteristics of problems in medical administration were outlined by Edward S. Rogers. Anthony J. J. Rourke considered the qualifications and educational requirements of medical administrators and discussed motivation and selection factors that draw individuals into this field rather than into business and industrial management.

To illustrate the relationship of a hospital to the community it serves, Ray E. Trussell used as a prototype the Hunterdon County Medical Center, a private nonprofit corporation in New Jersey. He described in detail the establishment of the hospital, the basis of practice in the center by general practitioners and specialists, and the training of students from medical schools in the area. An interesting administrative device at the hospital is the joint advisory committee composed of three staff members and three trustees, which functions like the pyramidal tract by transmitting emergency orders directly to the site of action, bypassing the usual administrative routine.

W. W. Tudor presented the personnel and merchandizing policies of Sears, Roebuck and Company and discussed the advantages of decentralized management. He showed how principles of business administration could be applied in the management of hospitals. In looking at administrative functions and techniques, Herbert Emmerich called attention to the consent-getting or external relations role of administrators who serve the public and pointed out that it requires different skills from those used in internal management. Bradley Buell emphasized the need for precise definition of community problems that require collective action, development of procedures for the integration of major specialized services, and training of professional personnel in those procedures.

During and after each of the presentations by the six guests, 13 conference members contributed uninhibited discussions that were allowed by George S. Stevenson, editor of the transactions, to retain their original spontaneity.

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**Soil Warming by Electricity.** R. H. Coombes. Philosophical Library, New York, 1955. 116 pp. + plates. $4.75.

I must confess that I embarked upon my task of reviewing this little book (116 pages) with open curiosity. In my mind's eye I conjured all kinds of profundity in a book published by the Philosophical Library and bearing the intriguing title *Soil Warming by Electricity*. I was doomed to disappointment. Never have I seen a book more aptly characterized by its title. The little volume is painstakingly detailed in describing exactly how to install electric heating wires in the earth and how economically to outwit the climate by growing anything from beans to pineapples under heated frames. No American experiment station bulletin could be more practical than this handy British work, and gardeners and commercial horticulturalists should find it useful.

For those with a speculative bent, the book does have a certain charm. Only a Briton could trace the evolution of the hot-bed from the manure pile and the scratching of the Australian bush turkey to the burnished symbol of this electric age in such a delightful way. Lost opportunities are felt in Chapter 4, "The financial side," where a 20th-century Henry Thoreau might have made an enchanting philosophy out of the breakdown of the costs to produce a head of lettuce (2 pence).

This little book can lead to a new hobby for many "do-it-yourself" Americans and may lead to bumper enjoyment, early maturing crops, and possible profit. For Britain, which seems to be passing up this, its wartime development, the author sternly urges a long second look toward "the stepping up of home production, especially in relation to early salad crops."

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**The Physiology of Diapause in Arthropods.** Cambridge Monographs in Experimental Biology, No. 4. A. D. Lees. Cambridge Univ. Press New York, 1955. x + 151 pp. Illus. $2.50.

The occurrence of a state of arrested growth, or diapause, is common among arthropods and in most cases appears to be under endocrine control. The endocrine centers are in turn responsive to stimuli from the environment and "this link enables the diapause mechanism to function as a timing device synchronizing the periods of dormancy and active growth with the rhythm of the environment in general." Diapause is thus a subject of uncommon interest to both the student of growth and the ecologist. In this newest Cambridge monograph, A. D. Lees summarizes and interprets in skillful fashion the complex and extensive literature of this field.

The author has divided his book about equally between physiology and ecology. He discusses the role of the environment in the onset and termination of diapause, metabolic adjustments in the dormant insect, the endocrine control of diapause, and diapause and phenology. Happily, he does far more than summarize. Lees knows his subject firsthand and makes cogent deductions from the available data. One of his important deductions is that the physiological events causing embryonic diapause are very likely different from those acting in postembryonic life. He concludes that when diapause occurs in the late embryo, the larva, or the pupa, it is usually controlled by the brain or the prothoracic glands. Reproductive dormancy in adult life, by contrast, is presided over by the corpus allatum, while early embryonic diapause is the result of a diapause hormone produced by the mother. Under this view the notion of a unitary theory to explain diapause is wishful. Another interesting conclusion

is that one of the principal adaptive values of diapause is its function in synchronizing adult emergence, a consequence of obvious significance for species with a short adult life.

In addition to its other virtues, the book makes accessible a large number of important findings published in Russian and Japanese. Indeed, almost 15 percent of the 285 references are to papers published in these two languages. The book is thoughtfully written and merits the attention of experimental biologists in general.

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**Aspects of Synthesis and Order in Growth.** Dorothea Rudnick, Ed. Princeton University Press, Princeton, N.J., 1954. vii + 274 pp. Illus. + plates. $6.

The aspects of synthesis and order in growth presented in this volume are those that were discussed at the 13th symposium of the Society for the Study of Development and Growth at Dartmouth College in June 1954. The 11 contributors have investigated a wide variety of growing things, from microorganisms to vertebrates, and have concerned themselves with the orderly control of many different types of developing systems.

Two papers deal with physicochemical considerations of energetics and molecular topology in the synthesis of proteins: Linus Pauling speaks for a two-step template process, and J. S. Fruton presents an alternative hypothesis. Molecular events are also the primary concern of two other papers dealing with the modification of metabolic pathways in microorganisms.

R. Y. Stanier discusses sequential induction of enzyme systems by substrate modification, and S. S. Cohen writes of unbalanced growth resulting from virus infection. These papers illustrate the fact that investigations of bacterial physiology may contribute not only to concepts of the control of growth but also to concepts of changing metabolic patterns that may be relevant to problems of induction and differentiation in multicellular organisms.

There are two contributions from plant studies. S. B. Hendricks and H. A. Borthwick discuss the synthesis of pigment systems in control of photo-responsive growth, while R. Emerson deals with substances controlling gametophytism versus sporophytism and sex differentiation in water molds.

Two papers concern chick embryos. J. Ebert deals with the topological localization of protein synthesis in the early blastoderm, especially correlating the appearance of actin and myosin, detected immunobiologically, with morphological data in differentiating heart tissue. N. T. Spratt, Jr., reviews the physiological peculiarities of the organizer center in the chick primitive streak, as revealed by its nutritional requirements when explanted, and compares the node center with the shoot apex.

E. S. Russel reports on the physiological consequences of gene products in the mouse, where the W-series alleles, in chemically specific ways, influence blood formation, gonad development, and coat pigmentation. C. Grobstein is concerned with the synthesis and movement of molecules involved in the induction of mouse salivary and kidney tubule structures. The interacting tissues combined *in vitro* and separated by filters give results supporting the matrix concept in differentiation.

In the final paper, D. Bodenstein discusses the hormonal basis of control over molting patterns in larval and metamorphosing insects. Thus this collection of papers represents approaches to basic problems of growth and development ranging from purely chemical to purely biological considerations. The Princeton University Press has continued the attractive format established 2 years ago when the 11th growth symposium was the first to be published in book form. Although this volume has a 1955 copyright, the title page bears the misleading date, 1954.

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**The Science in Action TV Library.** vol. I. Benjamin Draper, Ed. Merlin, New York, 1956. 157 pp. Illus. $3.50.

For several years the television program *Science in Action* produced by the California Academy of Sciences has been notably successful on the West Coast. In this book six scripts of the program are presented complete with dialog, camera directions, property lists, and sketches of the layout of the"playing area." The use of the "third camera technic" for effective close-up views is described, and numerous photographs help the reader to understand the way models, diagrams, and working apparatus are used. The program has a standard pattern with Earl S. Herald of the academy as host and a guest scientist who carries on a conversation with Herald as the two move from one part of the playing area to another.

This account probably gives as good a behind-the-scenes view of a scientific television show as could be obtained by any means short of attendance at the conference between writer and guest scientist, the trial rehearsal, the camera rehearsal, and the live program. This book should have value to anyone who is interested in the dignified yet lively presentation of science to the public by way of television or, with slight modifications, by means of movies—G. DuS.

**Corn and Corn Improvement.** Agronomy Monograph, vol. 5. George F. Sprague, Ed. Academic, New York, 1955. xiv + 699 pp. Illus. $11.50.

This book, as the title implies, is intended to be a comprehensive treatise on the corn plant—its botanical characteristics, climatic requirements, nutritional value—and on its improvement through breeding, cultural practices, and the control of insects and diseases. The book contains 16 chapters, written by 14 authors, all recognized specialists in their respective fields. Since all but two of the authors are stationed in the U.S. corn belt, the book is naturally concerned largely with the corn plant and practices associated with it in terms of corn-belt experience. Only slight attention is given to corn in other parts of the United States where it is an important, although not the major, crop, or in other countries of this hemisphere where it is the basic food plant.

For the corn belt, which is the world's foremost corn-growing region, the treatment is comprehensive and competent. The literature has been thoroughly reviewed, although there are a few curious omissions, and has, with a few exceptions, been objectively presented. The interesting and lively chapter on "History and origin of corn" by Weatherwax and Randolph is marred by several omissions, contradictions, and errors of fact or statement. The otherwise excellent chapter on "Corn breeding" by Sprague inexplicably treats the important contribution of D. F. Jones to modern corn-breeding with a single vague sentence, while devoting pages to technical details involved in the use of Jones' method.

The different chapters vary greatly in length, organization, and technical and literary quality. All are authoritative, but not all are interestingly written. Some chapters are excellent and one, "The cytogenetics of maize" by Rhoades, is distinguished. The general average is good.

Because of the vast amount of material that it contains, and because it represents the most complete summary yet published on the subject, this book will be indispensable as a reference work to anyone having a professional interest in America's most important crop plant.

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