Book Reviews

Proceedings of a Conference on the Utilization of Scientific and Professional Manpower. Columbia Univ. Press, New York, 1954. xii + 197 pp. $3.50.

The conference program summarized in this volume was sponsored by the National Manpower Council and Columbia University. Eli Ginzberg and Henry David, who planned the conference and edited the materials for publication, have been extremely skillful in carrying over into the text the atmosphere of discussion in the conference. The report is recommended for the interest of the controversial issues raised for discussion as well as for the practicality of its suggestions and findings.

Kenneth Boulding raised what was, perhaps, the most controversial issue, when he protested the delusive simplicity of the concept of "manpower," and claimed that it was appropriate only to a planned economy. He argued for considering "men in their infinite variety and sacredness," and of interfering only to "free the market to pursue its normal course." In the discussion that followed this paper, there was agreement that individuals and their incentives are the key to some manpower problems, but differences of opinion developed on the need for planning, on the role of professional societies and education, and on the influence of military policy.

The impression left by the other introductory papers, presented by James D. Zellerbach, Frank Pace, Jr., and Seymour L. Wolfbein, was that, for better or worse, administrators of educational and placement programs are faced with problems in the recruitment, training, and utilization of professional workers and have to do some planning in this context.

Then the conference got down to cases. That nurses and auxiliary medical workers and teachers are currently in short supply was generally accepted by conference participants. It was noted that many workers with the requisite training are lost to these professions because they leave for other kinds of jobs or, in the case of women, retire from the labor market. In this connection, the quality of students in training and incentives to remain in the teaching and nursing professions were of considerable interest to working groups in the conference.

Numerous instances of "skill dilution" through the substitution of the services of persons with less training for the performance of some functions were noted, particularly in engineering and medicine. Among the recommendations to increase the productivity of professional workers were modifications of the equipment and construction of schools and hospitals, development of new work patterns such as the "team approach," improved leadership and administration, and continuing reappraisal of the appropriateness of training programs.

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Introduction to Aeronautical Dynamics. Manfred Rauscher. Wiley, New York; Chapman & Hall, London, 1953. xiv + 664 pp. Illus. $12.

This textbook is the culmination of the author's teaching of a special course in dynamics over a period of 20 years. The course is focused on the needs of third-year undergraduate students in aeronautical engineering for a thorough grounding in the principles of the dynamics of particles, dynamics of rigid and elastic bodies, and dynamics of fluids, preparatory to the study of the theory of the dynamic stability of aircraft in the following year.

The chapters of the book are readily separated into two groups, one covering topics in solid dynamics, the other topics in fluid dynamics. The arrangement of chapters is determined by the teaching plan for related courses, particularly that in applied aerodynamics. Thus the sequence is particle dynamics, fluid dynamics, rigid bodies, and oscillations.

Throughout the book fundamental principles are emphasized, but aeronautical applications are introduced when they are appropriate. With a few exceptions, each chapter ends with a list of problems that illustrate the principles, usually by an aeronautical application. An excellent treatment is given the problem of the motion of a particle of variable mass with application to rocket propulsion, a subject that is very confusing to those who have forgotten the accurate statement of the energy and momentum principles.

The topics in fluid mechanics are indicated by the chapter headings: "Fundamental equations of fluid motion," "Stream function and velocity potential," "Fluid motion about simple bodies," "Transformations," "Airfoils," "Airfoils in three dimensions," "Viscosity." Discussions of compressible flow are limited to one-dimensional problems, incompressible flow to two-dimensional problems, including the theory of airfoils of finite span, which is of course an adaptation of two-dimensional theory.

The final chapters deal with the kinematics of rigid bodies, the concepts of momental ellipsoid and principal axes, precessional and nutational motions, and oscillations with one and two degrees of freedom.

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Scientific and Technical Papers. Seinen Yokota. Compiled and published by the Yokota Memorial Committee, Univ. of Tokyo, Tokyo, Japan, 1954. xx + 398 pp. + 137 tables. Illus.

This memorial publication of the late Seinen Yokota, professor emeritus of the University of Tokyo, contains a biographical sketch as well as 46 scientific and technical papers, most of which were written in English. Although his special fields were

naval architecture and aeronautical engineering, he was interested in various other fields, such as ballistics, elasticity theory of vibration, mathematics, and the methods of practical calculation.

Among his papers, the following ones seem to be most important for acquainting a reader with his ability.

"On the vibration of steamers" (1906), his doctoral thesis, consists of elegant theoretical analysis, including the most original practical device of solving the fundamental equations using two integraphs at the same time. "Motion of a projectile in a resisting medium" (1910) is an article on ballistics in which Yokota showed his beautiful accomplishments in mathematical analysis, especially of elliptic functions. "General expression for stress components in two dimensional problems of elasticity" (1914) is perhaps one of the severest mathematical papers ever put before a Japanese society of engineers up to that time. In "Theoretical consideration of water waves" (1918), he showed that the sea wave was the Stoke's wave rather than the trochoidal wave. "Action of *Ro*" (1926) is a treatment of the hydrodynamical aspects of the propelling and steering devices of the Japanese boat. "Pressure distribution over the surface of a ship" (1925) is a valuable and exhaustive investigation on ship resistance. The proposal given in "Discontinuous flow past an aerofoil" (1926) must be regarded as the first forerunner of the modern tendency to search for aerofoils with small resistance by means of making the pressure distribution uniform over the upper wing surface along the chord.

Seinen Yokota's invaluable services to engineering education in Japan lasted for about 40 years of his residence at the University of Tokyo. The present experts in naval architecture and aeronautical engineers in Japan have been educated by him, directly or indirectly.

This is a valuable reference concerning naval architecture in the later Meiji and Taisho era and the origin of aeronautical engineering in Japan.

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Sweet Corn. Walter A. Huelsen. Interscience, New York–London, 1954. xv + 409 pp. Illus. $10.50.

This book is intended to be a comprehensive work on sweet corn, covering the growing, breeding, history, and processing of this important vegetable. The author's knowledge of the corn-processing industry is reflected in a very complete coverage of all phases of the canning industry. More than one-third of the book is devoted to the processing of sweet corn, either by canning or freezing.

For those interested in processing sweet corn, this is an important book. It is unfortunate that it does not include a chapter or two on growing corn for the fresh-corn market, either by the market or home gardener. Recent trends on rapid handling to preserve original quality could well have been given. Also, the chilling of picked corn to preserve quality could have been covered, and I believe that more emphasis should have been placed on breeding for improved quality.

The book is encyclopedic in nature, covering a wide variety of subjects. This is a strong point but also a weakness, in that all points covered receive about the same emphasis or lack of emphasis. It will be useful as a reference for those already rather familiar with the subject, which is probably its intended purpose.

In general, *Sweet Corn* is well organized, although it is difficult to see the reason for the separation of Chapters V and VI on "Factors affecting germination" and "Physiology of germination, growth, and maturity." Also, the chapter on "Mineral nutrition" might will have been included in the chapter on "The plant and its environment."

The author has covered concisely and accurately the history of sweet corn, including the history of the first corn hybrids and the relative importance of the contributions of both East and Shull to this undertaking. The history of the sweet-corn hybrids for market corn is rather sketchily presented. The chapter on taxonomy and morphology is an interesting one that should be included in any comprehensive work on sweet corn. It is doubtful how much the average reader will gain from this chapter, but at least he should be exposed to it.

Huelsen has attempted a complete coverage of the literature on sweet corn and of the pertinent literature on field corn. In fact, he states that "It is doubtful whether anything of significance has escaped [his] attention." This is a bold statement! I found at least two omissions, one major and one minor. The first, and major, omission is a rather comprehensive bulletin entitled *Sweet Corn Hybrids* [Conn. Bull. 518 (1948)], which is concerned mainly with market garden sweet-corn hybrids; the second, and minor, omission, a reference to the work of Noyes Darling, the first sweet-corn breeder in *The Journal of Heredity* (1944).

I observed a few statements with which I take exception, such as "The objective of W. J. Beal was not to induce hybrid vigor by means of crossing." I went into the work of Beal rather thoroughly, and it is clear that he planned crossing experiments for the sole purpose of testing increased yields of hybrids. Also, most geneticists would not agree that such genes as bt_1, bt_2, bt_3, and *sh* would be classed as types of female sterility. Also, the statement that "a pure line produced fluctuations just as extreme as heterozygous lines" reflects a rather prevalent attitude but one that does not bear close scrutiny, since the "pure line" may be extremely heterozygous for factors that are not visible externally and for which there has been no selection during the inbreeding process.

The growers of sweet corn, especially those concerned with sweet-corn processing, will find *Sweet Corn* an interesting and useful book.

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