ing and acquaint them with the types of standard commercial equipment available to carry on the different elements of processing in the many special areas of the food industries.

This is not an engineering textbook in the usual sense but a descriptive introduction to food processing. Since it attempts to cover everything from washing spinach and dehairing hogs to freezing and canning in a total of 347 pages, there can be no exhaustive treatment of any of these operations. However, because so many engineering students have little or no acquaintance with food processing, this book should provide them with a needed general view of the types of operations and, in particular, the kind of equipment normally used in the food industries. The information is sufficient to indicate the principles involved in the handling of food products as differenitated from other materials.

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Heat Transmission. William H. McAdams. McGraw-Hill, New York–London, ed. 3, 1954. xiv + 532 pp. Illus. $8.50.

The third edition of this outstanding textbook and reference book reflects the progress made in the area of heat transmission since the publication of its predecessor 12 years ago. New information and data have been added to provide an up-to-date presentation of practically all phases of heat transfer that are of interest to practicing engineers, scientists, and students. The book provides a critical review of much of the existing experimental data, thereby relieving the design engineer of comparing and evaluating data from several sources.

The general modes of heat transfers, conduction, radiation, and convection are covered in 15 chapters. The chapter titles are "Introduction to heat transmission," "Steady conduction," "Transient conduction," "Radiant-heat transmission," "Dimensional analysis," "Flow of fluids," "Natural convection," "Introduction to forced convection," "Heating and cooling inside tubes," "Heating and cooling outside tubes," "Compact exchangers," "High-velocity flow," "Condensing vapors," "Boiling liquids," and "Applications to design." Many useful tables and charts are included in the appendix. An extensive and important bibliography and author index are presented for each chapter.

One of the significant modifications in the third edition is a revision of the chapter, "Radiant-heat transmission," which was prepared by H. C. Hottel. New charts have been included for evaluating the emissivity in the section on gas radiation. The carbon dioxide and water vapor charts have been expanded to allow the engineer to estimate the gas radiation at temperatures encountered in rocket work. A new generalized procedure based on the use of determinants has been incorporated to cover the case of radiant energy exchange in a multisurface gray enclosure containing a nongray absorbing and emitting gas.

Another new feature of the third edition is the addition of chapters entitled "Natural convection," "Compact exchangers—packed and fluidized systems," and "High-velocity flow; rarefied gases." Much of the material in the latter two chapters was heretofore available only in scattered technical publications.

This is an authoritative treatment of the field of heat transfer and is highly recommended for engineers and scientists who are engaged in analyzing problems in this area of engineering.

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Technical Papers

Nuclear Volume and Testosterone-Induced Changes in Secretory Activity in the Submaxillary Gland of Mice

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The secretory activity of the tubular portion of the submaxillary gland in mice is stimulated by androgens (*1*), and it has been demonstrated that this is correlated with a significant increase in the volume of the nucleus (*2*). These findings favor the view that the nuclear volume is related to the secretory activity of the cell (*3*).

Junqueira (*4*), Rabinovitch (*5*), and Fernandes and Junqueira (*6*) have shown that ligature of the excretory duct induces a considerable diminution of the secretory activity of the cells. The glands, however, do not degenerate and are able to respond in the normal way to stimulation by testosterone. Such findings offer new approaches to the study of nuclear phenomena as related to cell secretion, since they permit control of the secretory activity of the cells.

Male white mice were used in the present study. The ducts of the right submaxillary glands were ligated, the left glands serving as controls. In a first set of experiments, 20 mg of testosterone propionate in powder form was implanted under the skin of adult mice 30 days after the ligature of the excretory ducts. Control animals were submitted to the same operation, the implantation of the drug being omitted. The animals were killed 15 days later, and the submaxillary glands were removed and fixed 6 hr in Helly's fluid. In a second set of experiments, immature animals weighing 15 g were castrated, the right submaxillary glands