chapter of less than eight pages does not seem adequate.

The chapter "Adventitious toxic factors in processed foods" is concise and complete. It provides a competent review of food additives, processing contamination, and chemical items reaching food by accidental means. Again, the effects of simple processing techniques such as washing or boiling are critically presented. Perhaps the authors felt that other sources have adequately covered artificial sweeteners; discussion of these agents is not presented in this chapter.

Several factors which limit extrapolation to man of results obtained in toxicological studies on animals are noted in the Liener book. These include the lack of suitable animal models for testing plant foods containing goitrogens, lathyrogens, or allergens; the problems of identification and purification of plant toxins; and alterations in toxicity due to differences in mode of administration. Sapeika also suggests that some toxic symptoms may be exacerbated in persons suffering from starvation.

The most didactic chapter in Liener's book is on favism. This condition, in which acute hemolytic anemia follows ingestion of fava beans, is perhaps the most complex and interesting of the food-induced toxicities. The authors note that both inhalation of pollen and ingestion of the beans from the *Vicia faba* plant elicit symptoms in susceptible individuals. The mosaic of epidemiological, biochemical, and genetic factors contributing to this disease illustrates the multifarious nature of the basic studies required in food toxicology.

In the chapter on protease inhibitors the authors point out that the literature dealing with these substances is "fraught with inconsistencies, claims, and counterclaims." Some of these problems apparently arise from "variations in experimental conditions involving such factors as species, . . . strain, age, and sex, composition of the diets employed." Their further complaint that there is often a "failure to use well-defined preparations of the protease inhibitor" is basic to all toxicological investigations and should explain why toxicologists insist that testing be done on adequate amounts of material of high (or at least known) purity.

Although Liener's book is intended primarily for food technologists, it is sufficiently broad in scope to warrant inclusion in the library of any scientist interested in the occurrence of poisons at any point in the food chain. From the number of public statements currently being made, there appear to be many individuals interested in this topic, and if they will take the time to read an excellent text such as *Toxic Constituents of Plant Foodstuffs* some knowledge will be added to their interest.

This reviewer is sure that any manpower utilization survey would show that, for such a universally important commodity as food, there are too few bench scientists involved with methods of assuring its safety.

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Bacteria

Microbial Growth. Nineteenth Symposium of the Society for General Microbiology, London, 1969. PAULINE M. MEADOW and S. J. PIRT, Eds. Published for the Society of General Microbiology by Cambridge University Press, New York, 1969. xii + 452 pp. + plates. $16.50.

The symposia of the Society for General Microbiology have a commendable tradition that makes the resulting publications especially useful. In general, each article combines a particularly thorough introduction and review of the literature (many papers have five to ten pages of references) with a discussion of the particular author's work and views. This volume further benefits by a timely choice of topic—microbial growth—and the decision to define the subject very broadly. Included in the first section, Growth of Populations, are papers on energy production and utilization in growth, regulation of enzyme synthesis (from the standpoint of determining the physiologically important effectors of a pathway controlled by a balance of induction and catabolic repression), effects of oxygen and carbon dioxide on growth, and growth in extreme environments. And included in the second section, Growth and Differentiation of Cells, are papers on control over the cycle of DNA synthesis, the development of subcellular organelles, growth of animal and plant cells in tissue culture, spore formation, and slime mold differentiation.

This symposium differs from most recent works on the determinants of cell growth in that the talks stress more the unknown and yet-to-be-accomplished than the known. Indeed, if one has become blasé about the accomplishments of studies of microbial subsystems, such as are exemplified by the characterization of the *lac* repressor protein, then reading any one of the articles concerned with a greater-than-subsystem view of the cell should return one to what I think will prove to be a more realistic position.

Three articles in particular underline the dearth of knowledge on the regulation of cell growth: J. Maynard Smith's introductory remarks on the limitation of the growth rate of a cell, B. C. Goodwin's "Growth dynamics and synchronization of cells," and that by A. G. Marr and his collaborators, "Growth and division of individual bacteria." In each of these three instances we see that for the particular question at hand, the maximum rate at which a cell can grow, the periodicity of enzyme synthesis, and the periodicity of cell division, we do not know even which cellular components have primary roles in the regulatory networks controlling these functions.

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Books Received

ABM. An Evaluation of the Decision to Deploy an Antiballistic Missile System. Abram Chayes and Jerome B. Wiesner, Eds. xxii + 282 pp., illus. Harper and Row, New York, 1969; cloth, $5.95. Signet (New American Library), New York, 1969; paper, 95¢.

Abundant Nuclear Energy. Proceedings of a symposium, Gatlinburg, Tenn., August 1968. W. W. Grigorieff, Coordinator. Division of Technical Information, U.S. Atomic Energy Commission, Oak Ridge, Tenn., 1969 (available as CONF-680810 from Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.). vi + 354 pp., illus. Paper, $3. AEC Symposium Series, vol. 14.

Achievement-Related Motives in Children. Papers presented at a research conference, New York, October 1967. Charles P. Smith, Ed. Russell Sage Foundation, New York, 1969. viii + 264 pp. $8.75.

Administration and Policy-Making in Education. John Walton. Johns Hopkins Press, Baltimore, ed. 2, 1969. xii + 228 pp. $6.95.

Advances in Enzymology and Related Areas of Molecular Biology. Vol. 32. F. F. Nord, Ed. Interscience (Wiley), New York, 1969. vi + 546 pp., illus. $19.95.

Advances in Geophysics. Vol. 13. H. E. Landsberg and J. Van Mieghem, Eds.

(*Continued on page 790*)