

New Books

L.A. Witting, Book Review Editor



Nutritional Aspects of Fats, Edited by J.C. Somogyi and A. Francois (Series of the Institute for Nutrition Research, Volume 25, S. Karger AG, Basel, 1977, 200 p., price uncertain).

This publication is a collection of the lectures presented at the 14th Symposium of the Group of European Nutritionists. There are a total of 22 lectures, six of which are in French and the remainder in English. The theme of the symposium was the nutritional aspects of fats in preventative and curative medicine. The major emphasis was, therefore, in the area of dietary fats and cardiovascular disease.

The lectures start with a short review by Borgström on the intestinal absorption of fats, followed by a research paper (P. Boucrat and J. Clement) on the reabsorption of biliary phospholipids in the rat. Aaes-Jørgensen then discusses certain aspects of polyunsaturated fatty acids in nutrition and includes some comments on the metabolism of *trans* fatty acids and on prostaglandin biosynthesis. Later in the volume, Vles et al., from the Unilever laboratory at Vlaardingen, present a research paper on nutritional aspects of *trans* fatty acids in hydrogenated soybean oil. This question is also considered by Rocquelin et al. in their article on the influence of long chain monounsaturated fatty acids on cardiac lipids in the rat. Various aspects of cholesterol metabolism and transport, obesity, and the role of lipids in blood coagulation are included in other articles.

In other areas, Ziemiański reviews the pathophysiological effects of fatty acids from rapeseed and fish oils, and Ackman et al. present a research paper comparing the response of nonhuman primates to rapeseed oil and partially hydrogenated fish oil. Varela and Potteau et al. contribute articles on the chemical changes in and possible health hazards of heated fats.

This book is a curious mixture of summaries, brief reviews, and research papers. Perhaps, as a symposium, the collection was useful. Interesting questions must have been raised, but regrettably these are omitted in the publication. Without the atmosphere of the meeting, its possible lively discussions, and the companionship of fellow lipid lovers, these collected lectures are unlikely to interest many readers of the JAOCs. Perhaps the anticipation of an uncertain reception led the publishers to suggest the uncertain price.

PATRICIA V. JOHNSTON
The Burnside Research Laboratory
University of Illinois
Urbana, Illinois 61801

Progress in Human Nutrition, Volume 2, Edited by Sheldon Margen and Richard Ogar (The AVI Publishing Company, Inc., Westport, Connecticut, 1978, 313 p., \$22.50).

The second volume in this series is based upon a symposium entitled "The Biological and Cultural Sources of Variability in Human Nutrition" held at the University of California, Berkeley, in December 1975. All the papers have been brought up to date for this 1978 publication and all have been reviewed.

The meeting was sponsored by the US-Japan Malnutrition Panel of the U.S.-Japan Cooperative Medical Sciences Program, and its content was inspired by those who believe that the next important step for the field of nutrition is to escape from the strict confines of nutritional science and expand into the ramifications that nutrition has for human

health and welfare. Since such a process must involve the interaction of nutritionists with individuals from other disciplines, the contributions to this volume include psychologists, archaeologists, anthropologists, geneticists, historians, and business administrators in addition to nutritionists, physiologists and clinicians.

The first two sections view man and food in terms of history and ethnography. Section I consists of four lectures on man's historical and sociocultural evolution and the effect of nutrition. The section concludes with a review and critical analysis by an archaeologist, Brian Hayden. In the next section, the effects of man's cultural and biological interactions and variability on nutrition are considered. Included is a discussion by D.B. and E.F.B. Julliffie on whether or not food habits and taboos have protected man in his evolution.

Attention is then turned to present-day man, and in the first section the focus is on biological variables in human nutrition and human adaptability to nutritional variables. The subject, introduced by Brožek, is followed by a discussion of multifactorial components in cultural-biological interactions by R.M. Palmour. Schrimshaw and Young discuss biological variability and nutrient needs; C. Gopalan considers the possibilities of adaptation to low calorie and low protein intakes; and Martorell et al. consider the causes and implications of small stature in developing nations. In the second section, the limits of tolerance of man's biological variability is the theme, and the emphasis is on genetic variability. T. Arahawa opens the section with advice on "The Treatment of Histidinemia." Gilbert Omenn has a fascinating chapter on polymorphisms, genetic load, and the malaria story. R.H. Cagan and M.R. Kare discuss the influence of chemical senses on variability of nutritional adaptation, and Norman Kretchmer gives an account of genetic variability and lactose intolerance.

The Japanese contributors complete the section with T. Oiso's consideration of possible nutritional factors in anthropometric and disease pattern changes in the Japanese population, and the article by S. Onoku et al. on the role of food habits in physiological adaptation of inhabitants of southeast Asia to the habitat of tropical countries.

The final section is directed toward trying to determine why malnutrition (undernutrition and overnutrition) has become such a serious problem and what areas ought to prove most useful in the search for solutions.

The volume provides interesting and stimulating reading. While it is true, as stated in the preface, that the symposium raised more questions than it answered, readers interested in new approaches to solving the problems of malnutrition will find these collected papers of value.

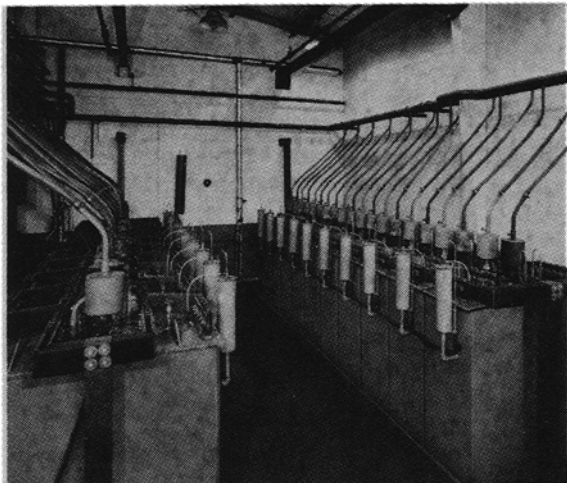
PATRICIA V. JOHNSTON
University of Illinois
Urbana, Illinois

Textured Protein Products, *Food Technology Review* No. 44 Marcia H. Gutcho, (Noyes Data Corp. Park Ridge, NJ, 1977, 353 p., \$39)

This is a reissued and expanded review of U.S. patents relating to textured protein processing and applications. The first review of the field from this publisher was issued in 1973 and covered 82 patents. The reissued volume covers 172 patents including those



World Wide Electrolytic Hydrogen Plants and Generators



Stuart electrolytic hydrogen plants have a proven record of performance with a total of 400 installations in over 60 countries. For more than 40 years, an enviable reputation has been established with custom-built Electrolyser plants.

The unique Stuart Cell produces hydrogen and oxygen of high purity and requires little attention for periods of 10 to 15 years. Maintenance work is easily undertaken with little interruption as the modular construction of Electrolyser plants facilitates on-site servicing to be carried out.

Stuart Electrolytic Hydrogen Plants provide:

- Economical production
- Automatic operation
- Safe, reliable performance
- Output from 50 to 200,000 CFH

For further details, please contact:

**THE ELECTROLYSER
CORPORATION LTD.**

124 The West Mall, Etobicoke, Ontario M9C 1B9
Telephone: (416) 621-9410, Telex: Electrolys 06-967771

Manufacturers of the Stuart Cell

reviewed in the earlier edition.

The book contains an expanded table of contents that subdivides seven major subject headings into many subcategories that simplifies locating specific subject matter. There are also useful patent number, inventor, and company indexes. Comparison of the latter index in 1973 and 1977 issues shows a significant increase in foreign companies working in this field.

Each review is presented in considerable detail while at the same time providing an opening summary statement setting forth the essential features of the patent. This compilation of patent literature is likely to be of interest for corporate libraries of firms active in the protein foods field as well as consumer and institutional food companies who wish to keep abreast of advances in technology and product applications in this field.

If the contents of this edition compared with the earlier edition are any indication of trends in the textured protein field, such comparison discloses considerable interest in obtaining fibers by means other than spinning; there has been a marked increase in product applications work and somewhat anomalously, a marked drop in patents on meat-like flavors.

MORTON S. COLE
Archer Daniels Midland Co.
Decatur, IL 62525

Mycotoxic Fungi, Mycotoxins, Mycotoxicoses. An Encyclopedic Handbook, Volume I, edited by T.D. Wyllie and L.G. Morehouse (Marcel Dekker, 1977, 538 p., \$75).

Volume I of this three part series is subtitled "Mycotoxic Fungi and Chemistry of Mycotoxins." The volume is divided into two major parts: the first section is a taxonomic treatment of mycotoxin-producing fungi; the second part deals with the chemistry of fungal toxins.

The taxonomic section begins with a general key to mycotoxin-producing fungi, and then proceeds to a more detailed treatment of the three most important genera, *Aspergillus*, *Penicillium*, and *Fusarium*, followed by briefer accounts of *Claviceps*, *Stachybotrys*, *Pithomyces*, *Phoma*, *Myrothecium*, *Phomopsis*, and *Diplodia*. Although the identification and classification of imperfect species is never easy, the taxonomy of *Fusarium* has been particularly beset with controversy. The editors are aware of this problem, and offer the hope that they have selected a "middle-of-the-road approach to the fusaria." This general approach characterizes all of the chapters, which means that some taxonomists and mycologists will be dissatisfied with the result. However, for scientists whose training is in other areas, Part I is a welcome summary of a scattered literature, and presents a concise review of mycotoxin-producing genera. References to the standard monographs on each genus are given where appropriate. The chapter on the genus *Penicillium* by Dr. Philip Mislivec is a particularly useful up-date of a difficult and important group of mycotoxin-producing fungi.

Part II, dealing with the "Chemistry of Mycotoxins," suffers from some inconsistency in organization. Some of the chapters have mycotoxins organized into chemical families (aflatoxins and related compounds, coumarins, tremorgens, etc.), while other chapters are organized along mycological relationships. Thus, the excellent chapter on "Penicillium mycotoxins" by Dr. Peter M. Scott covers ochratoxin, citrinin, patulin, penicillic acid, rugulosin, anthocillin X, cyclopiazonic acid, gillotoxin, all of which have been isolated from fungi outside this genus, as well as some toxins such as rubratoxin and PR toxin, which are exclusively from *Penicillium*. However, the index seems to be good, and care is taken to list the species outside of the

genera which have been reported as producers of the compounds in question. Most chapters are subdivided into subsections beginning with a general introduction, then followed by summaries of the physical and chemical properties, methods of isolation and assay procedures, biological activity and toxicity data, metabolism, biosynthesis, and range of natural occurrence. An impressive amount of information is condensed into these pages, and throughout, the references to the primary literature are extensive. For example, again mentioning Dr. Scott's impressive summary of penicillium toxins, this chapter alone references 508 papers.

Since this is a multi-author book, the writing style and format of presentation varies somewhat from chapter to chapter. Nevertheless, the editors have imposed a praiseworthy order to the volume. There is no other single book that provides such an accessible summary to the mycology and chemistry of fungal toxins. Unfortunately, the price puts this handbook out of the range of most individuals.

J.W. BENNETT
Department of Biology
Tulane University
New Orleans, LA

Mycotoxic Fungi, Mycotoxins, Mycotoxicoses. An Encyclopedic Handbook, Volume 2, edited by T.D. Wyllie and L.G. Morehouse (Marcel Dekker, Inc., 1978, 570 p., \$75).

This is the second volume of a three volume series, and it deals exclusively with the veterinary disease entities attributed to fungal toxins: the mycotoxicoses of nonhuman animals. The volume is subtitled "Mycotoxicoses of domestic and laboratory animals, poultry, and aquatic invertebrates and vertebrates," and the title is a good reflection of the contents.

After an introductory chapter on diagnosis of mycotoxicoses, the book is organized by animal species. Each major chapter is then subdivided into description of known mycotoxicoses within that species, generally authored by different experts. Thus, Chapter 3.2, "Mycotoxicoses in cattle," consists of 16 subsections, describing 16 different toxic syndromes, most sections written by a separate author. In addition to cattle, there are chapters on horses, sheep, swine, poultry, and laboratory animals, each chapter following the same format. The final chapter concerns aquatic animals, largely trout, but also covers what is known about mycotoxicoses in certain invertebrates.

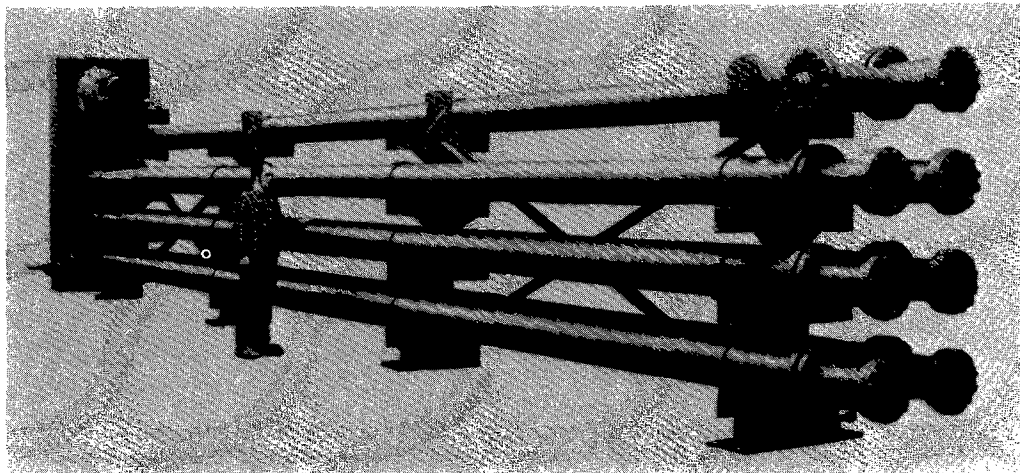
The mode of organization leads to some repetition, particularly in cases where different authors describe a particular toxicoses for each different species, as with the aflatoxicoses and ochratoxicoses. However, since the readers interested in swine, for example, may have no interest in the diseases of poultry, this repetition may not only be unavoidable, but necessary.

This reviewer's expertise is with aflatoxins, and I was pleased with the coverage given this toxin. Peter Austwick's discussion of "Aflatoxicosis in poultry" gives the most intelligible and coherent account of the early days of aflatoxin research I have ever seen, while also integrating veterinary aspects of aflatoxicoses in poultry.

This book will be of most use to veterinarians and toxicologists, and will serve as a useful reference to anyone interested in the mycotoxin problem. As with the other volumes in this series, the price will limit the number who can afford to own their own copies.

J.W. BENNETT
Department of Biology
Tulane University
New Orleans, LA

Crystallizers for Organic Chemicals



Continuous cooling crystallizers for fractional crystallizations and purifications. Typical duties include separation of aromatic isomers, fatty acid separations, edible fat fractionations, and purification of many organic intermediates. Construction in stainless and carbon steel, nickel alloys, hastelloy, etc. Construction to ASME, TUV, Stoomwezen, and other international codes. Test units available to rent to prove out new processes.

**Armstrong Engineering
Associates, Inc.**
Box 566-J
West Chester,
Pennsylvania 19380

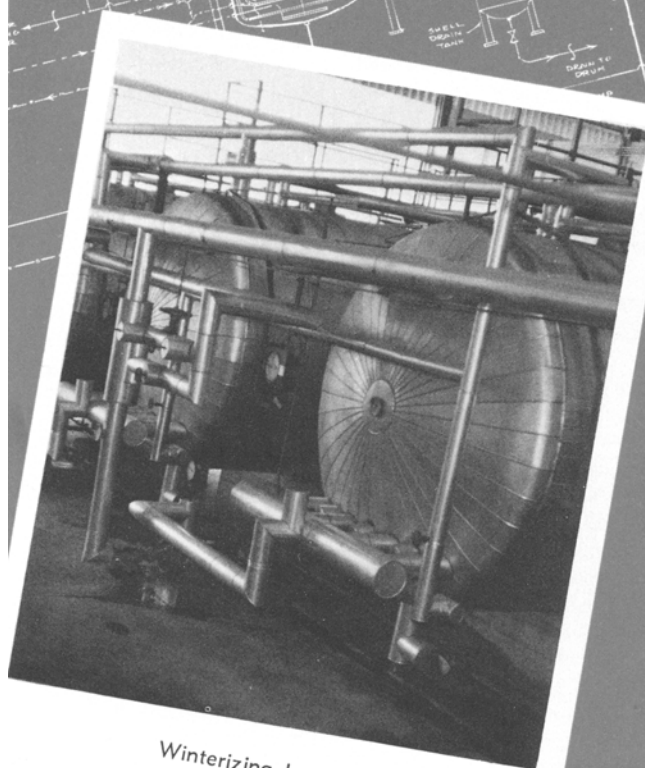
Chemtec B.V.
Box 3-J, Willowyard Rd.
Beith, Ayrshire
Scotland

Chemtec Pte. Ltd.
9-J Gul Ave.
Jurong Town
Singapore 22

Call **NEUMUNZ** for
oil mills & refineries

**designed
engineered
installed**

Over **50** years experience throughout
the world in supplying vegetable
oil processing equipment from seed
storage to finished edible products.



Winterizing Installation



NEUMUNZ, INC.

OIL MILL & REFINERY ENGINEERS

117 Fort Lee Road, Leonia, N. J. 07063 U.S.A.

Telephone: (201) 592-0980 • Cable: NEUMUNZ

Telex: 135170 NEUMUNZ, N.J.

The Book of Tofu, Food for Mankind, Volume 1, William Shurtleff and Akiko Aoyagi, Illustrated by Akiko Aoyagi, (Autumn Press, Inc., Kanagawa-Ken, Japan 240-01, 1975, 334 p., \$14.95).

This book contains a wealth of information about the preparation of tofu, or soybean curd, and its role in East Asian cuisine. Detailed instructions are given for making seven varieties of tofu, the soymilks from which they are prepared, and yuba, another product from soymilk, at home and in the community. The importance of these foods as sources of good quality protein in Japanese and Chinese diets is emphasized, and their potential for alleviating protein malnutrition in other parts of the world is pointed out.

Over five hundred recipes, many of them based on Buddhist vegetarian cookery, are included. The majority of these are for using tofu in appetizers and sauces; soups, salads and sandwiches; egg, vegetable and grain preparations, barbecued and deep-fried specialties, casseroles, and desserts. Other recipes for soymilk, yuba, green and dry soybeans and soybean sprouts are given. The recipes were selected by the authors as those best suited to Western tastes.

Throughout, the artistry of Japanese food preparation and service is stressed with the result that the reader wants to try some of the great variety of dishes described. Many attractive line drawings illustrate the equipment, ingredients, processes, products and the craftsmanship involved.

"The Book of Tofu" should be of particular value to those who enjoy vegetarian cookery and want to add to their collections of recipes for dishes representative of other cultures. In addition, the literate, informative, sometimes lyrical text makes the book interesting to persons who want to learn about the origins of certain foods and their historical transformations in processing and use. Biochemists and nutritionists would change or modify some of the statements about nutritive value and enzymatic action. However, the few scientific misconceptions and typographical errors do not seriously detract from this esthetic and informative presentation dealing with tofu and related soy products.

FRANCES O. VAN DUYNÉ
Department of Foods and Nutrition
University of Illinois
Urbana, IL 61801

Mycotoxins in Foodstuffs-3, edited by M. Jemmali (Pergamon Press, 1978, 75 p., \$15).

This slender volume constitutes a collection of 11 papers that were presented as invited lectures at the Third International IUPAC Symposium on Mycotoxins in Foodstuffs, held in Paris, France, on September 16-18, 1976. Ten of the papers are in English, one is in French. The contents of this book appear in *Pure and Applied Chemistry*, Volume 49, No. 11, pp. 1703-1778.

The problems of surveying, monitoring, sampling and setting tolerances for mycotoxins are discussed from the practical standpoint. For example, Dr. Palle Krogh presents a useful comparison of the aflatoxin tolerances that have been established in various countries for foods and feeds, and the accumulation of toxic residues in animal tissues is ably summarized by Dr. D.S.P. Patterson.

As is often the case with symposia on mycotoxins, the papers on just one mycotoxin - aflatoxin - constitute the majority of the material. Three of the papers deal exclusively with aflatoxin: T.B. Whitaker on sampling; W.H. Butler and G.E. Neal on mode of action and aflatoxin carcinogenesis; and L.A. Goldblatt and F.G. Dollear on prevention

and detoxification. Several other papers emphasize aflatoxins, for example, D.A. Linsell's discussion of "The Mycotoxins and Human Health Hazards," and Yvonne Moulé on "Mode d'action des Mycotoxines." A single paper is devoted to the trichothecenes (Yoshio Ueno on "Mode of Action of Trichothecenes"), and P.S. Steyn gives lucid coverage of a diverse group of fungal metabolites in his paper on "Some New Mycotoxins." However, other important mycotoxins such as zearelenone, patulin, sterigmatocystin and penicillic acid are only mentioned sporadically, and the absence of an index makes it difficult to retrieve the information pertaining to these compounds.

The contributors to the symposium are distinguished and competent scientists, and their papers are accurate and articulate summaries of the topics presented. Therefore, although many aspects of the problem of mycotoxins in foodstuffs are *not* covered, those aspects which are covered are done well. The volume will be of most use to those involved in sampling and monitoring foodstuffs for mycotoxins, and those involved in aflatoxin research. Given the price (\$15 for 75 pages), I suspect most researchers will convince themselves they are not breaking any copyright laws as they make copies of individual articles of interest, directly from Volume 49 of *Pure and Applied Chemistry*.

J.W. BENNETT
Department of Biology
Tulane University
New Orleans, LA

Report of the Study Group on Vegetable Protein in Foodstuffs for Human Consumption, in Particular in Meat Products, Commission of the European Communities. (Brussels - Luxembourg, 1978. Catalogue number: CD-NK-78-003-EN-C. \$25.00)

This work was produced by a study group chaired by Professor A.G. Ward of the University of Leeds, England. It is rare to find a review that touches such diverse topics as science, technology, government regulations and commercial development as does this report for the field of vegetable food proteins. Prepared for the Commission of the European Communities to assist the Commission in developing a framework of policies and regulations governing usage of vegetable proteins within EEC, this report provides a comprehensive review of vegetable proteins in the context of their use as foods. While the political and economic frame of reference is European, there is much here for Canadian and American workers in this specialized field.

The format of the report consists of some eighty numbered paragraphs or statements constituting the conclusions drawn and recommendations made to the European Commission by the study group. These conclusions and recommendations are based on eight appendices or monographs covering various aspects of the field of study. These include nutritional status of EEC, evaluations of protein quality, amino acid composition of proteins, sources of plant proteins, toxic substances, commercial development of soya protein products, potential vegetable protein crops, current legislation in the EEC, Canada and U.S., and methods for detecting vegetable protein in meat blends. Most appendices provide a separate bibliography.

Those familiar with the field will recognize the value of collecting so much pertinent information in one place and dealing with the many issues in a straightforward manner.

M.S. COLE
Archer Daniels Midland Co.
Decatur, Illinois 62525

On a major deodorizer investment, Cal Zehnder makes a major difference.

A major investment requires careful planning. That's why Votator product resources go far beyond equipment alone. That's where Cal Zehnder comes in.

He's our specialist in the deodorizing field. With thirty years in the business and first-hand knowledge of just about every application there is.

Planning can't start too early.

When you start thinking about a deodorizing facility, contact Cal—whether it's new, expansion or replacement of your present plant.

He has the information you need on equipment efficiencies and future pricing and can be helpful in determining installation time and costs.

Once you've contracted for a



Votator Semi-Continuous Deodorizer, Cal and his team will work with you to get the equipment installed. And stay with it to make sure it's running smoothly.

Votator deodorizers save time and money.

The Votator Semi-Continuous Deodorizer lets you change feed stocks in many cases with no loss in production time and negligible intermixing. And our heat recovery design shaves up to 40% off your deodorizing heating bill. It all adds up to big flexibility and big savings.

Call (502) 491-4310. That's the way to get Cal involved early. Or write him at Chemetron Process Equipment, P.O. Box 35600, Louisville, KY 40232. It'll pay to start today.

CHEMETRONTM

Process Equipment

Chemetron Corporation. A member company of Allegheny Ludlum Industries.

TMR INC.

**Chemical Engineers, Consultants,
Oils, Fats, and Fatty Chemicals**

K.C. Joshi

Suite 1803
345 West Fullerton
Chicago, IL 60614

(312) 525-1557

Advances in Nutritional Research, Volume 1, edited by Harold H. Draper (Plenum Press, New York, 1977, 344 p., \$27.50).

The appearance of this first volume edited by Draper indicates that this new series is off to an excellent start. In soliciting the chapters, the editors have kept their promise to provide us not only with authoritative information on research topics of active current investigation, but also with reviews on research subjects characterized by progressive, if unspectacular, developments over several years.

The volume starts with an account by J.W. Suttie of the rapid advances in our understanding of the role of vitamin K in the synthesis of blood clotting factors. This is followed by a chapter on the metabolic significance of dietary chromium by C.T. Gürson. Here the author gives an in depth treatment of the absorption, deposition, excretion, and mode of action of this trace mineral and discusses its significance in protein-energy malnutrition, diabetes mellitus, pregnancy, and aging. The next two chapters make excellent companions. First, S. Waxman, C. Schreiber, and M. Rubinoff discuss the significance of folate binding proteins in folate metabolism, and then N. Colman reviews the major causative factors of folate deficiency in humans and its treatment and prevention.

Next, there are chapters on two subjects of great current interest, namely, the metabolic and nutritional consequences of infection and the regulation of protein intake by plasma amino acids. In the first, W.R. Beisel gives a concise account of the complex interactions between malnutrition and infection in which he emphasizes the more recent information concerning the metabolic responses beginning shortly after microbial invasion of the host and the nutritional responses during fever. In the second, G.H. Anderson presents evidence for his proposal that, by altering concen-

trations of neurotransmitters in the brain, dietary amino acids influence feeding behavior with respect to both protein and energy.

Authors from the same laboratory provide chapters in the trace mineral area. G.W. Evans discusses metabolic disorders of copper metabolism including those arising from unknown errors of metabolism within the copper homeostatic system, such as Menke's steely hair syndrome and Wilson's disease. Later, L.M. Klevay, in a discussion of the role of copper and zinc in cholesterol metabolism, presents support for his new hypothesis regarding the etiology of the ischemic heart disease. Sandwiched between these chapters, L.A. Witting provides a lucid account of the proposed interrelationships between free-radical production, initiation of adventitious reactions and the involvement of nutritional factors in the control mechanisms which operate to prevent or minimize damage to tissues.

Another topic of great current concern, the relationship between nutrition and aging, is reviewed by C.H. Barrows and G.C. Kokkonen. Here the authors discuss pertinent literature on the effect of age on nutritional requirements and the effect of nutrition on lifespan. Finally, D.H. Baker reviews the amino acid nutrition of the chick in which he gives the history of the development of amino acid reference diets for the chick and the present state of knowledge. Baker includes an excellent account of problems associated with crystalline amino acid reference diets and of methionine toxicity.

There is plenty here for all those interested in advances in nutritional science. The quality of articles is high, and by present standards the price of this excellent volume is very reasonable.

PATRICIA V. JOHNSTON
The Burnside Research Laboratory
University of Illinois
Urbana, Illinois 61801

from Washington



The Food Protein Council and Central Soya have asked that soy protein isolates be classed as generally recognized as safe at current levels of use or at levels reasonably foreseen, Food Chemical News reported Oct. 26. The FASEB's Select Committee had previously said additional studies were needed on nitrite in soy protein isolates. The new request would call for a revision in its report by the FASEB committee.

The FDA has set July 1, 1981, as the mandatory uniform effective date for food labeling regulations issued after Sept. 29, 1978. Final regulations published before that date have an effective date of July 1, 1979. Details: Federal Register, Friday, Sept. 29, 1978, p. 44830.

The Environmental Protection Agency has established a residue tolerance of 0.5 parts per million for the insecticide methidathion on safflower seed. The ruling had been sought by the Interregional Research Project No. 4 at Rutgers University. Details: Federal Register, Friday, Sept. 29, 1978, p. 44844.

FDA published its good manufacturing practices for human and veterinary drugs on Sept. 29. The FDA also proposed certain exemptions for over-the-counter drugs that are also used as foods (to be covered by food GMPs) or are sold without dosage limits. Details: Federal Register, Friday, Sept. 29, 1978, pp. 45014, 45088.