Quinone photochemistry is barely mentioned, and nothing is said regarding dye photochemistry or photo-redox processes involving electron-transfer as such. Rearrangements and isomerizations are described in chapter 7, beginning with some interesting examples of dienone photochemistry. The treatment of valence isomerization of dienes is rather brief and is followed by a detailed discussion of *cis-trans* isomerization, evidently reflecting the author's own experience in photochemistry. The unfortunate terminology "non-vertical excitation" is propagated anew, and the confusion will not be lessened by a figure which shows non-vertical excitation of *trans*-stilbene where the text and cited literature refer to *cis*. The Schenck sensitization mechanism is described, but no adequate idea is given of the body of chemical evidence supporting Schenck's views. Chapter 8, "Photochemical cycloadditions," gives a good impression of the rich variety of these reactions. Chapter 9, "Photochemical fragmentations and related reactions," discusses, among other matters, carbene formation, photolysis of azo compounds, oxidative photocyclizations, and the Barton reaction. The final chapter ("Miscellaneous topics") offers some inadequate remarks on photochemical technique and lasers.

A few dubious statements appear, such as (p. 75), "There is evidence that every S_1 which does not fluoresce passes to T_1." If this refers to symmetrical aromatic hydrocarbons, this should be stated; otherwise, it is contradicted by recent work by Lindqvist and on page 107 of Turro's own book. Again, one cannot conclude, simply from a corresponding change in the φ_p/φ_f ratio, that "k_{ST} (quinoline) increases by two orders of magnitude when the lowest (excited) singlet is switched from Π-Π^* to n-Π^*." Since related discussion in the text shows that Turro is clearly aware of this, such statements can only be attributed to carelessness in writing and editing. Unfortunately, many other instances of such carelessness can be cited.

The book does not deal explicitly with photoreaction of interest in biology, such as those of nucleotide bases or proteins, although the general discussions of energy dissipation and transfer pathways may be helpful to photobiologists. In summary, despite some lapses and ambiguities, *Molecular Photochemistry* offers a useful survey and bibliography of that limited area of organic photochemistry which has been most active in recent years, together with enough background material to enable the reader to appreciate some of the kinetic factors controlling reaction and sensitization paths. Other books should be read for a better understanding of the quantum mechanical background. The paper and printing are mediocre, particularly in view of the price.

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Embryology

As Elizabeth M. Deuchar points out in the preface to **Biochemical Aspects of Amphibian Development** (Wiley, New York, 1966. 216 pp., illus. $4.50), the years since 1960, when Brachet's *Biochemistry of Development* appeared, have seen an unparalleled growth in the literature of chemical embryology. The present monograph was undertaken in order to survey the recent literature and to present us with a much-needed general progress report. Since a critical summary of progress in the entire area would require more space than was available, Deuchar elected to write a current review of recent trends in biochemical embryology as reflected mostly by studies of amphibian material.

The subject matter is organized and delivered from two different approaches: one according to the morphological stages of the embryo and the other according to biochemical topics. Because the author writes from the viewpoint of one who seeks biochemical explanations for morphological changes, it is not surprising that the largest amount of space (chapters 2 through 9) is given to the first approach. The review begins with an outline of the morphological highlights of the development of *Xenopus laevis* and goes on to present biochemical findings that deal with oogenesis, fertilization, cleavage, gastrulation, neurulation, and so forth.

The second approach is found in a single chapter, which is devoted to a summary of biochemical features of development. Included are such topics as respiration, the synthesis of nucleic acids and proteins, the storage and utilization of precursor molecules, and the regional localization of specific enzymes and antigens. The discussion concludes with a consideration of the biochemical basis of differentiation.

The text is well supplemented with illustrations, and the reader will find a vast amount of information and a large, selective reference list contained within the 216 pages. Deuchar's critical comments, sometimes detailed but most often brief, about the state of a particular problem or experimental approach to it appear throughout the review. Especially well delivered are her remarks concerning regional biochemical differences in the embryo, chemical studies on neurula, and the advisability of determining adequate expressions of results.

The shortcomings of the book arise mostly from the brevity of the treatment given the several topics. Because of this the reader may feel that the presentation is a bit rushed and incomplete; he may wish for a larger, more complete volume to follow.

If the reader expects to find in this monograph a detailed treatment and critical interpretation of the subject, he will no doubt be disappointed. If, however, he expects to find, as the author intended, "a brief, critical review of the recent findings as well as an adequate guide to further reading," he should be more than satisfied.

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Encyclopedia of Woods

Modernization, extensive revision, the incorporation of new concepts, and the correction of errors are valid reasons for the production of a new edition of a book. Yet in F. H. Titmuss's **Commercial Timbers of the World** (Technical Press, London; Chemical Rubber Publishing Company, Cleveland, 1965. 285 pp., illus. $15), a third edition of the author's *Concise Encyclopaedia of World Timbers*, I do not find that any of these conditions have been fulfilled. In a review of the second edition [*Garden Journal* **10** (No. 3) 107, 124 (1960)] I pointed out error after error and omission after omission, as well as the inadequacy of the bibliography and the author's lack of anatomical knowledge. Although the new edition is described on the jacket as being "thoroughly revised and enlarged" (in the preface Titmuss merely states that he has taken the opportunity of "slightly amending the text"), nothing substantial has been done to improve on the 1959 edition, except for the addition of 20 more

descriptions of timber. The poor photographs, typographical errors, and taxonomic mistakes are still present.

The text consists of an introduction describing the growth and anatomy of the wood, the nomenclature applied to trees, and a glossary of terms used in gross descriptions of timber. Following are 244 alphabetically arranged descriptions of timbers, all seemingly culled from personal communcations and outdated literature, if the bibliography can be taken as an indication.

Among the anomalies are descriptions of the same species of timber under two different common names in different portions of the volume; for example, the timber of *Hymenea courbaril* is discussed as both courbaril and West Indian locust, and that of *Pinus sylvestris* as both Scot's pine and Baltic redwood. The timbers of *Larix americana* and *Larix laricina* are mentioned separately, although the two names are synonymous. As before, treatments of timbers are uneven, and information given for some species is not given for others.

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Cosmic Radiation

Volumes of proceedings are usually not noted for their readability. In this respect the **Proceedings of the Ninth International Conference on Cosmic Rays** (Institute of Physics and the Physical Society, London, 1966. 2 vols. 1149 pp., illus. £10 10s.) is not much different from most conference proceedings. However, unlike most, it is not already outdated at publication, and it is also very well edited. Probably because the conference was well attended by most of the leading scientists in the field, the proceedings represent very well the status of our knowledge about the cosmic radiation.

The first volume includes all the papers dealing with the spectral and isotopic composition and the geophysical effects of the particles. There are also 18 more or less theoretical papers on the acceleration of cosmic rays and the relationships between the charged component, both nuclear and electronic, and the electromagnetic component. There are not yet enough experimental data to aid (or limit) theoretical astrophysicists in their choice of acceleration models. Fifty-five papers in the volume deal with the modulation of the intensity of the primary particles. On this question there is a growing body of good data which already has led to some insight into the mechanisms that cause the variations in the intensities of the cosmic radiation.

The first section of volume 1 consists of 12 generally very good invited papers by leading workers in the field covering such topics as magnetic fields in interplanetary space, modulation, origin of cosmic rays, and x-ray and gamma-ray astronomy. These papers would be extremely useful to students. They are, in general, well indexed. In addition, there are three rapporteur papers summarizing modulation, spectral composition, and magnetospheric phenomena.

Volume 2 deals with extensive air showers, high-energy interactions, and muons and neutrinos. Two invited papers summarize these fields, and three rapporteur papers summarize the conference reports on these topics.

Some of the most interesting papers on extensive air showers were those reporting new techniques for learning about primary particles of very great energy. Several of these papers deal with the detection of extensive air showers by radio techniques. Cores of extensive air showers are being studied with a neon hodoscope by a group at Kiel. It is hoped that a large air shower can be detected by its scintillation in the atmosphere. Several experiments using larger arrays of various detectors to extend measurements to higher energies were described.

Progress in the study of high energy physics with cosmic ray particles has been slow. Many new data are presented in the papers, but most of the data are difficult to interpret.

Two papers reported results of cosmic ray neutrino experiments performed in the Kolar Gold Field in India and in a South African gold mine. Both gave preliminary data of poor statistical weight.

The amount of material in these encyclopedic volumes is overwhelming; there is no doubt that they should be on the shelves of all cosmic ray physicists and in the libraries of physics departments doing research in any of these fields. They provide an excellent summary of the efforts of scientists on planet Earth to study the phenomena called cosmic rays.

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New Books

Economics and Social Sciences

The Economics of Poverty. Alan B. Batchelder. Wiley, New York, 1966. 232 pp. Illus. $4.95. Introduction to Economics Series.

The Educated Society. Daniel Jenkins. Faber and Faber, London, 1966. 256 pp. 28s.

Experimental Foundations of Rorschach's Test. Ernest G. Schachtel. Basic Books, New York, 1966. 352 pp. $7.95.

Field Guide for a Study of Socialization. John W. M. Whiting *et al.* Wiley, New York, 1966. 192 pp. Illus. Paper, $2.95. Six Cultures Series, vol. 1.

The Genesis of Language: A Psycholinguistic Approach. Proceedings of a conference on "Language Development in Children" (Old Point Comfort, Va.), April 1965. Sponsored by the Human Communication Program, National Institute of Child Health and Human Development. Frank Smith and George A. Miller, Eds. M.I.T. Press, Cambridge, Mass., 1966. 414 pp. Illus. $10. There are 14 papers.

International Aid. A discussion of the flow of public resources from rich to poor countries. I. M. D. Little and J. M. Clifford. Allen and Unwin, London, 1965; Aldine, Chicago, 1966. 302 pp. $7.50.

Invention and Economic Growth. Jacob Schmookler. Harvard Univ. Press, Cambridge, Mass., 1966. 350 pp. Illus. $9.95.

Psychology in Community Settings: Clinical, Educational, Vocational, Social Aspects. Seymour B. Sarason, Murray Levine, I. Ira Goldenberg, Dennis L. Cherlin, and Edward M. Bennett. Wiley, New York, 1966. 726 pp. $12.95.

The Savage Mind. Claude Lévi-Strauss. Translated from the French edition (Paris, 1962). Univ. of Chicago Press, Chicago, 1966. 302 pp. Illus. $5.95. The Nature of Human Society Series.

The Searchers: Conflict and Communism in an Italian Town. Belden Paulson and Athos Ricci. Translated from the Italian by Lisa Paulson. Quadrangle Books, Chicago, 1966. 380 pp. $6.95.

Self-Evaluation: Concepts and Studies. James C. Diggory. Wiley, New York, 1966. 491 pp. Illus. $9.95.

Signal Detection Theory and Psychophysics. David M. Green and John A. Swets. Wiley, New York, 1966. 467 pp. Illus. $12.95.

Social Indicators. Raymond A. Bauer, Ed. M.I.T. Press, Cambridge, Mass., 1966. 379 pp. Illus. $10. Technology, Space, and Society Series. Five papers.

Social Problems: A Modern Approach. Howard S. Becker, Ed. Wiley, New York, 1966. 780 pp. $8.95. There are 14 papers.

Studies in Social Change. Amitai Etzioni. Holt, Rinehart, and Winston, New York, 1966. 240 pp. Paper, $3.95.

Testing Problems in Perspective. Twenty-fifth anniversary volume of topical readings from the Invitational Conference on Testing Problems. Anne Anastasi, Ed. American Council on Education, Washington, D.C., 1966. 685 pp. Illus. $10. There are 58 papers which were given at conferences that were held between 1947 and 1964.

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