cases of 5-year, and two acceptable cases of 3-year, survival without clinical evidence of cancer. The investigations included 73 patients with breast cancer, with some effect claimed in 40 cases; reports are detailed on ten, and of these at least four can be discarded as being questionable. These cases are particularly difficult to interpret, since most of these were early neoplasms, diagnosed by clinical examination, followed only by palpation after biopsy. Study of a few patients with easily measurable metastatic lesions would have been more informative.

Personal communications with other cancer investigators in the Soviet Union indicate that the Klueva-Roskin research has been a disappointment. It is noteworthy that their latest book lacks the imprimatur of the Academy of Medical Sciences U.S.S.R., or, indeed, of the official publishing house "Medgiz." Nevertheless, I am left with an uneasy feeling that the final chapters on the lysates of *Trypanosoma cruzi* remain to be written.

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The Future Supply of Oil and Gas. A study of the availability of crude oil, natural gas, and natural gas liquids in the United States in the period through 1975. Bruce C. Netschert. Published for Resources for the Future by Johns Hopkins University Press, Baltimore, Md., 1958. xi + 134 pp. $3.

Since the United States is vitally dependent upon a continuing supply of petroleum and natural gas, it has been heartening, during the last decade, to see our traditional complacency regarding the adequacy of these resources giving way to national concern over how soon the rates of production will begin their inevitable declines. The latest study concerned with this problem is the book *The Future Supply of Oil and Gas,* by Bruce C. Netschert of the staff of the nonprofit organization Resources for the Future, Inc.

This study, which presents no new data, consists first of a presentation and a review of most of the estimates and opinions published since 1950, all of which have been attributed to "experts" or to "recognized authorities." Then follow the estimates given by the author himself: (i) The total crude oil awaiting future recovery in the United States is of the order of 500 billion barrels, and the total future supply of natural gas is of the order of 1200 trillion cubic feet. (ii) The production "availability" of oil will be 6 billion barrels per year for the year 1975, that for gas will be 20 trillion cubic feet per year for the year 1980. (iii) The peaks of production "availability" for both oil and gas will occur later than the year 1975. (The meaning of the term *availability,* as used by the author, is obscure, but he seems to imply that we could produce the specified amounts if we wished to do so.)

According to my calculations, the author's "availability" figures for the years specified imply a minimum ultimate cumulative production of about 450 billion barrels for crude oil and about 1500 trillion cubic feet for natural gas. Since these figures are about three times, for crude oil, and almost twice, for natural gas, those cited only two years ago by Wallace E. Pratt [*Peaceful Uses of Atomic Energy* (U.S. Government Printing Office, Washington, D.C., 1956), vol. II, pp. 89–105] on the basis of replies to a questionnaire from 22 leaders of the petroleum industry, the critical reader will wish to know how so wide a discrepancy has arisen. To me it seems to have been the result of several complementary procedures.

In the first place, the author's weighting of "expert" opinions has been extraordinarily uncritical. The most flagrant example of this has been his inclusion in Tables 1, 2, and 4 of a completely "wild" figure of a reserve of 1000 to 2000 billion barrels of oil, given by a man having no firsthand knowledge or experience whatever in either the exploration for or the production of oil and gas, while excluding the estimate of 170 billion barrels of liquid hydrocarbons (which would include about 145 billion barrels of crude oil) obtained by Wallace E. Pratt as representing the ultimate reserves (both past and future production), figured on the basis of a recovery factor of 40 percent of the oil in place. The Pratt estimate implies the initial existence underground of a total of only about 360 billion barrels of crude oil.

The second procedure, which has been followed systematically, has consisted in choosing for each factor having a range of uncertainty that value which will tend to maximize the final results. Thus, an allusion has been made to the possibility of oil occurring to a depth of 65,000 feet, whereas the greatest depth drilled to date is about 22,500 feet. Reference has also been made to the possible occurrence of oil in the Precambrian. Similarly, to maximize the estimate of the amount of oil underground, Pratt's figure of 40 percent for the present average recovery factor has been rejected in favor of the lower figure of 33⅓ percent; whereas, according to George H. Fancher, the average recovery factor for Texas, which accounts for about 40 percent of the total United States production, is now about 46 percent.

By such procedures the author has arrived at estimates of reserves, and of future productive capabilities, for both oil and gas which, in the light of present information, crowd the upper limits of plausibility. These conclusions, accordingly, imply the existence for the next several decades of a state of national self-sufficiency with respect to petroleum and natural gas which may be more illusory than real. Consequently, should they be accepted at face value and made the basis for national policy, the results could prove to be detrimental to the national welfare.

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Structure Reports, 1951. vol. 15. A. J. C. Wilson, General Ed. International Union of Crystallography; Oosthoek's, Utrecht, Netherlands, 1957. viii + 588 pp. $29.

This volume maintains the high standard of clear and critical description which has made the *Structure Reports* series an indispensable reference source for chemists, crystallographers, metallurgists, mineralogists, solid-state physicists, and all who are concerned with the atomic structure of matter. Once again we should thank the editors and their reporters for their painstaking contribution to the problem of encompassing the accomplished work in this productive field of research.

Volume 15 is the first of those covering the second decade, since volumes 8 to 13 covered the period 1940–50, taking over from *Structurbericht,* which was discontinued after 1939, and volume 14 is the cumulative index, currently in preparation.

The work of *Structure Reports* was started in 1948, and volumes have appeared at the rate of one a year since 1951. As in nearly all branches of science, the amount of work to be reported has increased steadily. The editors are therefore faced with the dual problem of maintaining a steady output and bringing the series closer to date. To this end it is proposed to increase the number of section editors so that groups of abstractors can be working simultaneously on successive volumes. This is indeed welcome news, for the only limitation to the usefulness of the *Reports* has been the large gap between them and current research. A word of congratulation to the International Union of Crystallography is also in order for bringing about this most successful venture in international cooperation. Under

the new editorial arrangements the metals section will be reported by a group from the United States; the inorganic section, by a Dutch and a French group; and the organic section by a British and an American group, while the general editor is from Wales.

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COWA Survey and Bibliography. Current work in Old World archaeology and current publications in Old World archaeology. Lauriston Ward, Ed. Council for Old World Archaeology, Cambridge, Mass., 1957. $4.

With the announcement of a new service to provide archeological information for scholar and layman alike, the Council for Old World Archaeology, a newly formed organization, under the direction of its editor-in-chief, Lauriston Ward, and with the help of area editors, has issued its first *Bibliography and Survey*. This issue (the first of a biennial series) contains 133 pages of compressed information dealing with the areas of Central Europe, the Eastern Mediterranean, Northwest Africa, Western Asia, Northern Asia, and Indonesia. This eagerly awaited publication fulfills the highest expectations of the most critical student and meets his needs through the scholarship of its editors and their careful screening of the material. We are promised in the next offering (to be published shortly) the *Surveys and Bibliographies* for the British Isles, European Russia, West Africa, Southern Asia, and the Pacific Islands. Thus, during the current year, one half of the 22 areas of the Old World, as divided by the Council, will have been covered in this monumental and laborious project. This volume is an essential tool in archeology of the Old World, and it would be foolish economy not to include it on the reference shelf.

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New Books

The Systematics of North American Daphnia. vol. XIII. Memoirs of the Connecticut Acad. of Arts and Sciences. John Langdon Brooks. The Academy and Yale Univ. Press, New Haven, Conn., 1958. 180 pp. $8.

Person Perception and Interpersonal Behavior. Renato Tagiuri and Luigi Petrullo. Stanford Univ. Press, Stanford, Calif., 1958. 412 pp. $7.50.

Calculus of Variations and Its Applications. Proceedings of symposia in applied mathematics, vol. VIII. Lawrence M. Graves, Ed. McGraw-Hill, New York, 1958. 158 pp. $7.50.

Automatic Control, Principles and Practice. Werner G. Holzbock. Reinhold, New York; Chapman & Hall, London, 1958. 265 pp. $7.50.

The First Ten Years of the World Health Organization. World Health Organization, Geneva, Switzerland, 1958. 548 pp. $5.

Studies on Fossil Vertebrates. Presented to David Meredith Seares Watson. T. Stanley Westoll, Ed. University of London, Athlone Press, London; Essential Books, Fair Lawn, N.J., 1958. 275 pp. $5.60.

Technology of Instrumentation. Eric B. Pearson. Van Nostrand, Princeton, 1958. 202 pp. $4.75.

The Psychiatric Hospital as a Small Society. William Caudil. Harvard Univ. Press (for the Commonwealth Fund), Cambridge, Mass., 1958. 430 pp. $6.50.

Mathematical Tables and Formulae. F. J. Cramm. Philosophical Library, New York, ed. 6, 1958. 144 pp. $2.75.

Mathematics for the Layman. T. H. Ward Hill. Philosophical Library, New York, 1958. 343 pp. $4.75.

Matter, Earth, and Sky. George Gamow. Prentice-Hall, Englewood Cliffs, N.J., 1958. 606 pp. $10.

Population: an International Dilemma. A summary of the proceedings of the Conference Committee on Population Problems, 1956–1957. Frederick Osborn. Population Council, New York 17, 1958. 106 pp. $2.

An Introduction to Chemistry. Charles Compton. Van Nostrand, Princeton, N.J., 1958. 621 pp. $6.85.

Life Insurance and Medicine. The prognosis and underwriting of disease. Harry E. Ungerleider and Richard S. Gubner, Eds. Thomas, Springfield, Ill., 1958. 1012 pp. $16.50.

The Clinical Physiology of Physical Fitness and Rehabilitation. Ernst Jokl. Thomas, Springfield, Ill., 1958. 211 pp. $8.50.

The Institutions of Advanced Societies. Arnold M. Rose. University of Minnesota Press, Minneapolis, 1958. 703 pp. $10.50.

New Dimensions of Learning in a Free Society. Seminar addresses, discussions, public lectures, inaugural addresses delivered on the occasion of the inauguration of Edward Harold Litchfield, twelth chancellor, University of Pittsburgh, 9–11 May 1957. University of Pittsburgh Press, Pittsburgh, Pa., 1958. 298 pp.

Crime and Insanity. Richard W. Nice. Philosophical Library, New York, 1958. 287 pp. $6.

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Annual Review of Plant Physiology. vol. 9. A. S. Crafts, Ed. Annual Reviews, Palo Alto, Calif., 1958. 520 pp. $7.

Processed Plant Protein Foodstuffs. Aaron M. Altschul, Ed. Academic Press, New York, 1958. 971 pp. $26.

Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, *but to the publisher or agency sponsoring the publication.)*

Tarsal Ligaments of the Spectacled Bear. Tremarctos ornatus. Fieldiana: Zoology, vol. 39, No. 13. D. Dwight Davis. 14 pp. $0.40. *Notes on Fishes of the Genus Brachygobius.* Fieldiana: Zoology, vol. 39, No. 14. Robert F. Inger. 10 pp. $0.25. *Mammals of the Kelabit Plateau Northern Sarawak.* Fieldiana: Zoology, vol. 39, No. 15. D. Dwight Davis. 28 pp. $0.50. *Orchids of Peru.* Fieldiana: Botany, vol. 30, No. 1. Charles Schweinfurth. 260 pp. $4. Chicago Natural History Museum, Chicago, 1958.

Rowett Research Institute, Collected Papers. Preface; summary and subject reviews. vol. XIV. Reid Library, Rowett Research Inst., Aberdeenshire, England, 1958. 54 pp. Free.

Review of Medical and Veterinary Mycology. vol. 3, pt. 1, March 1958. Compiled from world literature on mycoses of man and animals. Commonwealth Mycological Inst., Kew, Surrey, 1958. 32 pp. 7s. 6d.

Improving College Biology Teaching. Subcommittee on College Education of the Committee on Educational Policies; Thomas S. Hall, chairman. Publ. 505. Division of Biology and Agriculture, National Academy of Sciences–National Research Council, Washington 25, 1957. 70 pp. $1.

The Pool and Irving Villages. A study of Hopewell occupation in the Illinois River Valley. John C. McGregor. Univ. of Illinois Press, Urbana, 1958. 232 pp. $3.50.

Experiments and Problems for College Chemistry. J. E. Belcher and J. C. Colbert. Appleton-Century-Crofts, New York, alternate ed. 5, 1958. 214 pp. $2.75.

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