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Editor: CLARENCE H. GRAHAM, Columbia University. With NEIL R. BARTLETT, University of Arizona; JOHN LOTT BROWN, Dean, Graduate School, Kansas State University; YUN HSIA, Columbia University; CONRAD G. MUELLER, Columbia University; and LORRIN A. RIGGS, Brown University. 1965. Approx. 592 pages. Prob. $22.50.

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ANTARCTIC GEOLOGY
Proceedings of the SCAR International Symposium on Antarctic Geology, Cape Town, September, 1963

SUNSPOTS
By R. J. BRAY and R. E. LOUGHEAD, Commonwealth Scientific and Industrial Research Organization, National Standards Laboratory, Sydney, Australia. The first comprehensive treatise, complete with an extensive bibliography, which deals with all aspects of sunspot research. 1964. 303 pages. $13.75.
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VECTORS AND VICTIMS: Being a Collection of Essays About Flies Without Zippers and Other Nuances of Man by Joseph Hirsh and Herman Ziman, both of Albert Einstein College of Medicine, New York City. Written with tongue-in-cheek, this delightful collection of ten essays on man’s fight for survival in a hostile world of beasts and bugs makes rollicking reading. With skill and imagination the authors have made known the obscure, made interesting the traditionally dull, and have done it all in a cheerfully funny fashion. About 84 pp. In Press

RADIO-ACTIVITY IN MAN: Whole Body Counting and Effects of Internal Gamma Ray-Emitting Radioisotopes. Second Symposium Sponsored by Northwestern University Medical School and the American Medical Association. Edited by George R. Meneely and Shirley Motter Linde, both of Northwestern Univ., Chicago, Ill. (118 Contributors.) Results of this symposium are of widespread medical, industrial, military, and ecological significance. Nearly all active counting laboratories in the world are represented. About 800 pp., 208 ill., 97 tables. In Press

THE BACKGROUND TO CHEMOTHERAPY OF VIRUS DISEASES by C. H. Stuart-Harris, Univ. of Sheffield, Sheffield, England, and Lois Dickinson, Boots Pure Drug Co., Ltd., Nottingham, England. This monograph is presented to assist the general reader and particularly the clinician in assessing for himself the failure of chemotherapy against viruses as compared with its success against infection by bacteria, fungi, and protozoa. ’64, 188 pp., 9 il. (Amer. Lec. Living Chemistry edited by 1. Newton Kugelmass), $10.50

SELECTED HISTOCHEMICAL AND HISTOPATHOLOGICAL METHODS by Samuel Wesley Thompson. With Two Chapters Contributed by Ronald D. Hunt. Both of Fitzsimons General Hosp., Denver, Colo. Several methods are presented for most tissue components of man and animals demonstrable histochemically. Over 400 illustrations—primarily of pathological lesions in animals—demonstrate the usefulness of the methods cited. About 1,492 pp. (7 x 10), about 401 ill. In Press

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THE LOCOMOTOR SYSTEM: Functional histology by Michael C. Hall, Univ. of Toronto, Canada. About 520 pp., 166 fig., 3 tables. In Press


HYPNOTIC INDUCTION OF ANXIETY: A Psychoendocrine Investigation by Eugene E. Levitt, Indiana Univ., Indianapolis, Ind.; Harold Persky, Albert Einstein Medical Center, Philadelphia, Pa.; and John Paul Brady, Univ. of Pennsylvania, Philadelphia, Pa. ’64, 160 pp., 39 tables. $6.50

Proceedings of an International Symposium in LIPID TRANSPORT edited by H. C. Meng, John G. Coniglio, V. S. LeQuire, George V. Mann, and Joseph M. Merrill, all of Vanderbilt Univ., Nashville, Tenn. (16 Contributors.) ’64, 280 pp., 55 il., 25 tables, $10.50

THE RABBIT IN EYE RESEARCH compiled and edited by Jack H. Prince, Ohio State Univ., Columbus, Ohio. (10 Contributors.) ’64, 672 pp., 432 il., 50 tables, $37.00

FLUORESCENCE MICROSCOPY IN THE CYTODIAGNOSIS OF CANCER by Guelio San, Ugo Citti, and Giuliano Caramazza, all of Univ. of Bologna, Bologna, Italy. ’64, 212 pp. (8½ x 11), 225 il. (191 in full color), $27.50


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about solar flares, solar activity in general, surface and atmospheric magnetic fields, and the important solar-terrestrial relations. Better understanding of all these is critical for the national space effort as well as other endeavors, including stellar and radio astronomy.

We do not wish to represent ourselves as spokesmen for solar astronomy, but, since that field has had no representation on the committee, we should like to suggest several directions for the national effort in solar astronomy which would help satisfy critical needs. In our opinion three important points are: graduate teaching, construction of medium-size instruments, and site testing.

1) There is only one full program training Ph.D.’s in solar astronomy today; two other schools train some of their students in more modest programs. Many graduate schools teach no courses in solar astronomy at all. We daily receive requests for Ph.D.’s in solar astronomy which we simply cannot fill. The space program has made especially heavy demands on our meager supply of solar astronomers.

2) There is a particular need in solar astronomy for instruments in the 10- to 15-inch aperture class, both for research and instruction. Not one such instrument has been built in the United States since 1954.

3) A good observing site is of particular importance for solar astronomy because of the extreme variability of daytime seeing. No existing solar observatory has been located as a result of an exhaustive site survey; the Kitt Peak National Observatory, for instance, was chosen as the result of a hunt for a site for night-time observations. Great rewards would certainly be realized from a thorough search for an ideal solar observatory site.

We hope that the virtual absence of comment on solar astronomy in the Whifford Report will not impede efforts to solve such problems.

ROBERT HOWARD ROBERT LEIGHTON HAROLD ZIRIN
Mount Wilson and Palomar Observatories, Pasadena, California

The members of the Panel on Astronomical Facilities had hoped that its report would stir up vigorous discussion, both among working astronomers and among university and government administrators. The foregoing letter may therefore be welcomed as a very proper statement of one group’s position that the needs of solar astronomy were slighted in the report. I should like to point out, however, that the lack of positive recommendations regarding solar astronomy was not entirely the result of the makeup of the panel or its insensitivity to the needs of this sector of the astronomical community. The solar astronomer who was a member of the Committee on Science and Public Policy of the National Academy of Sciences, which established the panel, met with the group during the sessions when the basic positions were formulated. In the spring of 1963 the panel addressed a letter to every member of the American Astronomical Society inviting comments on new developments in ground-based astronomy and statements as to needed facilities. The response from solar astronomers in the United States was remarkably small and included no letters from the members of the Pasadena group which now thinks there is a clear need for instruments to meet the current upsurge of interest.

The panel was aware that any 10-year blueprint would be out of date in some respects on the day it was published, and that unforeseen developments would inevitably call for review or revision within two to five years. If other solar astronomers in the United States join the authors of the foregoing letter in the opinion that there is a case for support of instrumentation beyond the major facilities just completed or under construction (mentioned on page 39 of the report), it is to be hoped that some mechanism can be found for the formulation of a comprehensive statement to the scientific community setting forth current new directions in solar astronomy, the intrinsic interest of this field of research, and its relation to other branches of astronomy, physics, and geophysics.

Finally it may be pointed out that the solar astronomers suddenly required by the nation’s space effort cannot be generated simply by the granting of funds to universities to build instruments for solar research. Such instruments will come into being as a result of the specifically expressed needs of active groups of university-connected solar astronomers whose current research is already attracting the interest of graduate students.

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<td>Reproducibility</td>
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<td>±0.01 mg</td>
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*Estimate 1/10 optical division = 1 mg

Mechanical Taring Models

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The abundant exercises at the end of each chapter give the students a rather thorough review of high school algebra and provide practice in the application of the concepts learned in the text. Owing to the limited mathematical requirement and the number of subjects discussed, the coverage of the material is of necessity superficial. In addition, many of the pages used for elementary proofs of theorems and derivation of numerous formulae might have been better used for a more thorough, and in some cases more careful, discussion of the subjects presented (for example, confidence intervals).

If one wishes an introductory text in probability and statistics which includes many elementary proofs and is based only on high school algebra, then this book will do nicely. If elementary proofs are not desired, or if students have better preparation, better texts are available.

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Wertheim has wisely chosen to concentrate on those applications of the Mössbauer effect that, to date, have had the greatest scientific significance. These include, for example, studies of magnetic substances and some applications to metal chelate chemistry. His coverage is thorough, and the volume is well referenced. The possession of this volume, one or two more detailed review articles, and copies of the proceedings of the three Mössbauer conferences would permit the reader to acquire a thorough knowledge of this young field. In a few instances, the material should have been more thoroughly treated: for example, an account of Mössbauer resonance scattering should have been given; the problems associated with detection of Mössbauer gamma rays, particularly those isotopes (other than iron-57 and strontium-119) where there is interference from atomic x-rays, should have been treated more fully; and the manifold difficulties of interpreting Mössbauer isomer shift and quadrupole splitting data owing to uncertainties of calculation of the Sternheimer anti-shielding correction should have been considered.

Wertheim is to be congratulated for having written a first-class volume on this new subject. His book can be highly recommended to students of physics, biology, and chemistry who wish to be informed about the application of this new resonance technique to those fields.

ALAN J. BEARDEN
Department of Chemistry, University of California, San Diego

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of Gordon M. Barrow (Case), Robert C. Brasted (Minnesota), David N. Hume (M.I.T.), L. Carrol King (Northwestern), Leonard K. Nash (Harvard), and Charles C. Price (Pennsylvania), and the Japanese were Shizuo Fujisawa, Taro Hayashi, Teruhiro Kubo, Tamon Matsuura, Hiroshi Minato, Takashi Mukaibo, Ryohi Oda, Hisatoshi Okuno, Kengo Shiomi, Matsuji Takebayashi, and Bun-ichi Tamamushi; they represented various fields of chemistry as well as various kinds of institutions.

B. TAMAMUSHI

Tokyo Woman's Christian College, Tokyo, Japan

**Medicine in the Year 2000**

By the end of this century academic and nonacademic medicine will be confronted with a variety of problems related not only to medical care, research, and education, but also to sociology, urban planning, data processing, and architecture. Under the sponsorship of the University of Pennsylvania and the Merck, Sharp and Dohme Post-Graduate Program, the sixth annual conference on graduate medical education (Philadelphia, 3–4 December 1964) was devoted to speculation on the nature and solution of some of these problems.

To demonstrate that the 36 years between now and the beginning of the next century is sufficient time for tremendous changes to occur, Henry Tumen (University of Pennsylvania) reviewed the remarkable changes in the patterns of diseases which have occurred since 1928. However, he emphasized that diagnosis, treatment, and prevention must still depend upon the skill of the individual physician dealing with the individual patient, and he predicted that the need for complete knowledge of the individual patient will never be eliminated. His suggestion that the knowledge, effort, and interests of physicians must be related to the health of the community and, indeed, to human society as a whole was reinforced by Irving London (Albert Einstein Medical College, Yeshiva University), who eloquently predicted that clinical investigators in the year 2000 would have to know not only about the natural sciences but also about the social sciences, for physicians must be made to realize that Hygieia's concept of the fostering of health should be considered at least as important as Aesculapius's concept of the therapy of illness.

Otto Schmitt (University of Minnesota) predicted that by the year 2000 the development and use of conventional digital processing techniques will have reached a plateau and that expansion in data processing will be in the realm of development and production of computers, which will substitute the more natural "gray thinking processes" for the present artificial "black-white processes." Schmitt predicted that infallibility may be sacrificed for the sake of more memory and more hybrid and parallel logic. He also predicted that different data-processing equipment for pattern recognition and pattern discovery will be developed.

The status of the various classes of diseases in the year 2000 was the subject of much speculation. Seymour Kety (NIH) predicted that the number of mentally disturbed individuals and the public costs of their care will not be reduced but that there will be a shift from institutional care to individual care near the patient's home. By 2000, Kety predicted, the prevention of senile dementias resulting from arteriosclerosis and diminished blood flow may be a reality; many of the basic problems in mental retardation will still be unanswered; and, of major mental disorders, the depressive illnesses will be most nearly understood. In the discussion following Kety's talk, it was brought out that by 2000 there may be many more lay psychotherapists, who will carry out therapeutic procedures under the direction of medically trained psychiatrists.

In surveying the field of neoplastic diseases from Alley Oop's famous time capsule, Joseph Burchenal (Sloan-Kettering Cancer Institute) found that

In the year 2000 cancer is no longer the serious problem it was in 1964 as attested to by the fact that many of the larger research institutes, which were devoted to the solution of the cancer problem, have in the past decade, 1990–2000, turned their interests to problems in degenerative diseases and mental illness. The progress since 1964 has been made in several areas: prevention; detection with the development by 1975 of a serum test to discover the preclinical stages of cancer and reagents which differentially stain cancer cells; surgery and radiation therapy; the development of chemotherapeutic agents, that attack specific types of cancer, which even in 1964 was recognized to be biochemically heterogeneous; and the greater knowledge of host defense mechanisms.
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**EPIDEMIOLOGY OF MENTAL DISORDER**

**AAAS Symposium**

**Volume No. 60**

Edited by Benjamin Pasamanick

A symposium organized by the American Psychiatric Association to commemorate the centennial of the birth of Emil Kraepelin; cosponsored by the American Public Health Association.

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Robert Austrian (University of Pennsylvania) discussed the status of the infectious diseases in 2000, and Nathan Shock (NIH) pointed out that the problems of degenerative diseases are not identical to those of aging. Shock, Tumen, and Vincent Whitney (University of Pennsylvania) all pointed out that the number of persons over 65 will have jumped from the present 16.5 million to over 20 million by the turn of the century. Shock, however, did not suggest that there should be a new medical specialty of geriatrics but rather concluded that all physicians should be trained to care for the needs of the elderly and that the elderly patient should be considered both a diagnostic and therapeutic challenge. Like Kety, Shock believed that the great breakthrough will be in the advance in our knowledge of arteriosclerosis, which will allow, if not prevention, at least a slowing of the process. Shock, William Mellman (University of Pennsylvania), Irving London, and Robert Davies (University of Pennsylvania), spoke of ethical problems, which will become more acute as the use of artificial organs, transplants, and genetic knowledge becomes more widespread.

George Koelle (University of Pennsylvania) pointed out that the present environmental chemical hazards could be classified into air pollution from radioactive fallout, from nonradioactive fallout, and from metals and other contaminants; water and soil contamination by insecticides and herbicides; and drugs, cosmetics, and food additives. The major portion of his talk was concerned with the effects of insecticides and herbicides. Koelle suggested that by the year 2000, we may know the effects of chronic small doses of the insecticides and herbicides upon man and their relation to cirrhosis, sterility, teratogenesis, and neoplastic diseases. He believed that the writings of Rachel Carson, despite the criticisms which have been heaped upon them, should not go unheeded and that there should be adequate legislative controls against indiscriminate mass spraying, together with the development of truly selective, safe poisons and biological controls. After reviewing human genetic disorders, Mellman pointed out that we will surely know more about the genes responsible for human variation in the year 2000 and that this knowledge should permit us to further manipulate the process of natural selection, making it essential that the physician consider the ethical problems, not only of who shall live and who shall die, but also of who shall be born. The problems confronting man in his journeys into space and under the water were reviewed by George Ruff (University of Pennsylvania) and Hermann Rahn (State University of New York, Buffalo), respectively.

The discussion following talks about the training of the physician and the nature of clinical investigation in the year 2000 by Dewitt Stetten, Jr. (Rutgers), and Irving London was lively. Stetten predicted that there would be a greater number of women in medicine. London believed that the family physician would come from the ranks of the general internist and pediatrician and that the number of internships may decrease as only those internships dedicated to training will be retained. Both Stetten and London predicted that in the year 2000 there will be closer association between medical schools and universities. Robert Mitchell (University of Pennsylvania) concurred with Whitney's population profile for the year 2000, which indicated that our ways of living would change with respect to hours of work and leisure and distribution of income among the population. As a result he predicted that one or more completely new transportation systems will overlay those systems which seem so modern today, and in discussing the logistics of getting patients and physicians together, he pointed out that a transportation system must have individual flexibility, appropriate speed, and adequate safeguards against accidents. Some of the systems which are technically possible even now are freeways with vehicles electronically controlled with regard to destination and spacing; trains which operate a fraction of an inch above steel rails on air pads, capable of making the 90-mile (144-km) run between New York and Philadelphia in 38 minutes; vertical and short take-off and landing aircraft; hydrofoil and air cushion transit over water; the separation of kinds of traffic, vehicular from pedestrian and passenger vehicles from goods vehicles; moving sidewalks and Carveyors, where small automated cars move on a grade-separated system at an average of 15 miles per hour and passengers can enter or leave the transit cars by stepping from a parallel slow-speed belt at stations.

In discussing hospital building in the year 2000, Louis Kahn (University of
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Pennsylvania) expressed the opinion that a hospital should be recognizably different from all other types of structures and illustrated some of his ideas by pointing out characteristics of buildings being constructed at the Salk Institute at San Diego, California, and in Karachi, Pakistan.

In pointing out that one must "distinguish the inevitable from the circumstantial," Kahn could well have been speaking of what must be done in the field of medical care, as Osler Peterson (Harvard) pointed out the alternative courses which this country may follow with regard to who will be treating the patients and who will be paying the bills for medical care and medical education in the year 2000.

In summarizing what he believes will be the relation of biology, medicine, and society in the year 2000, Robert Davies described several genetic and eugenic experiments which are now being carried out in subhuman species. Two examples of such experiments are those dealing with the viability of bull sperm, which has been kept in the frozen state for years, and the rapid establishment of good stock in remote regions. The latter experiments involved air transportation of rabbits, into which fertilized ova of a highly desirable strain of sheep had been transplanted. On arrival, the fertilized sheep ova were then transplanted into sheep of a less desirable strain, thereby establishing, in a short time, a flock of sheep with highly desirable characteristics.

The consensus was that the conference served the purpose for which it was organized, that is, to focus attention upon and discuss the problems in medicine which might be present at the beginning of the 21st century because of the thoughts and actions in 1964 of physicians and those responsible for the training of physicians.

Stella Y. Botelho
Department of Physiology,
Division of Graduate Medicine,
University of Pennsylvania
Medical School, Philadelphia

Forthcoming Events

March

9–10. Arms Control, first West Coast conf., Los Angeles, Calif. (R. D. DeLauer, TRW Space Technology Laboratories, Redondo Beach, Calif.)


19-21. American Soc. of Internal Medicine, Chicago, Ill. (A. V. Whitehall, 3410 Geary Blvd., San Francisco, Calif.)


22-25. Thermophysical Properties, 3rd symp., Purdue Univ., Lafayette, Ind. (S. Gratch, Ford Motor Co., P.O. Box 2053, Dearborn, Mich. 48121)

22-26. Medical Film, intern. congr., Paris, France. (Dr. Beauchesne, 22, rue Micheli-du-Crest, Geneva, Switzerland)

22-26. Institute of Electrical and Electronics Engineers, intern. convention, New York, N.Y. (E. L. Harder, IEEE, Box A, Lenox Hill Station, New York 10021)


22-26. Physics and Chemistry of Fission, symp., Salzburg, Austria. (J. H. Kane, 5 MARCH 1965)

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25 g. 25.00

J960 cis-4,4-Dimethyl-2-pentene, ‘Baker’
(CH₃)(CH₂)₂C:C(CH₃)₂ FW 98.19
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M090 3-Ethyl-1-pentene, ‘Baker’
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25 g. 13.00

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CH₃CH₂C(CH₃)₂CH:CH₂ FW 98.19
B.P. 95.8-96.5°C.
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25 g. 11.25

N017 trans-2-Heptene, ‘Baker’
CH₃(CH₂)₂CH:CHCH₃ FW 98.19
Assay (CH₃)(CH₂)₂CH:CHCH₃ ... 99% Min.
B.P. 97.5-98.5°C.
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25 g. 14.00

N241 trans-3-Hexene, ‘Baker’
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B.P. 67-68°C.
25 g. 20.00
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CH₃CH₂CH:CHCH(CH₃)₂ FW 112.22
B.P. 112-113°C.
100 g. 120.00

Q605 4-Methyl-1-hexene, ‘Baker’
CH₃CH:CH(CH₃)₂CH:CH₂ FW 98.19
B.P. 86-87°C.
25 g. 12.00
100 g. 35.00

Q606 5-Methyl-1-hexene, ‘Baker’
(CH₃)₂CH:CHCH₂CH:CH₂ FW 98.19
B.P. 85.0-85.5°C.
25 g. 14.00
100 g. 42.00

Q892 3-Methyl-1-pentene, ‘Baker’
CH₃CH:CHCH₂CH:CH₂ FW 84.16
B.P. 54.0-54.5°C.
100 g. 15.00

S726 trans-2-Octene, ‘Baker’
CH₃(CH₂)₂CH:CHCH₃ FW 112.22
Assay (CH₃)(CH₂)₂CH:CHCH₃ ... 99% Min.
B.P. 124.5-125.5°C.
10 g. 8.00
25 g. 16.00

S727 trans-3-Octene, ‘Baker’
CH₃(CH₂)₂CH:CHCH₃ FW 112.22
Assay (CH₃)(CH₂)₂CH:CHCH₃ ... 99% Min.
B.P. 123.0-123.5°C.
10 g. 18.00
25 g. 36.00

The group of olefins listed above have just been added to J. T. Baker’s line of organic laboratory chemicals and are available for immediate delivery. They represent newest additions not yet listed in our catalogs. Check the chemicals you require and pass this list to your purchasing department. Orders can be sent to your nearest distributor or Baker organics or directly to J. T. Baker. And you’ll get fast service.

Many other olefins are described in our Catalog 641 and in the recently issued Supplement No. 1. Both are available on request. Write J. T. Baker Chemical Co., Phillipsburg, N. J.

J.T. Baker Chemical Co.