SCIENCE

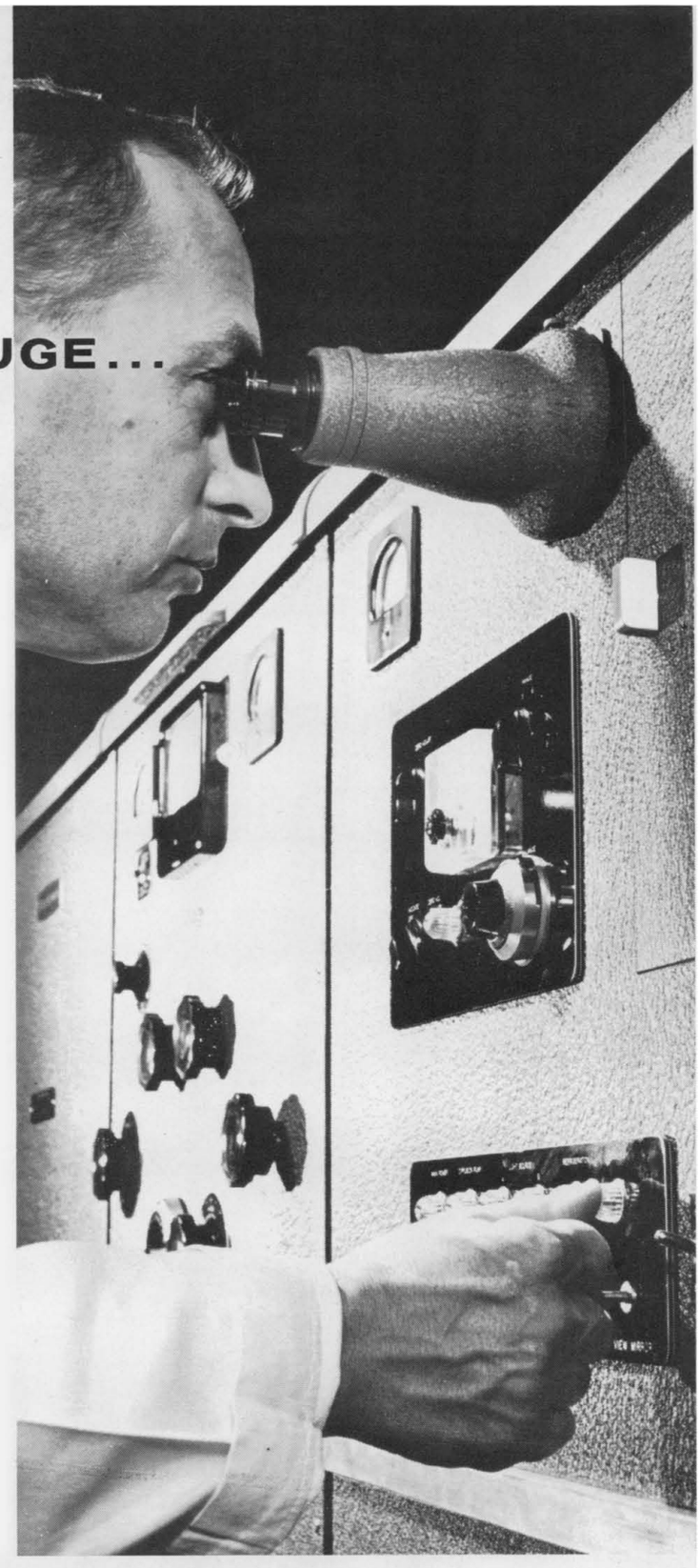
1 June 1962

Vol. 136, No. 3518

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

New developments in the

ANALYTICAL ULTRACENTRIFUGE...



A Sharper Eye in the UV

Biochemists measuring molecular properties with the ultracentrifuge usually select either schlieren optics or interference optics to record the behavior of molecules in the centrifugal field.

More recently, the instrument's third optical system—ultraviolet absorption—has become increasingly favored because of developments both in instrumentation and technique. The instrumentation consists of a more precise absorption optical system built into the Beckman ultracentrifuge which gives sharper UV patterns, allows more sophisticated UV measurements.

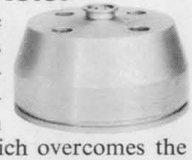
The techniques are principally: density gradient centrifugation, the new and popular method of separating nearly identical materials by taking advantage of minute differences in density; and molecular weight measurements at very low solute concentrations of strongly UV-absorbing materials such as nucleic acids and viruses.

Absorption optics, having come of age, promise to be increasingly useful in molecular research with the ultracentrifuge.

Windows of Sapphire

High-speed studies using interference optics are now practical with the development of sapphire windows for the ultracentrifuge cell. Quartz, the usual cell window material, begins to distort under extreme centrifugal forces, causing optical patterns to blur. The new sapphire windows are much stronger, and give clear fringes throughout the centrifugal force range of interference cells.

Low-speed Equilibrium Rotor



Equilibrium studies of very large molecules require low rotor speeds to prevent the molecules from sedimenting completely. For these low-speed studies, we have developed an extra-heavy rotor (22 pounds) which overcomes the tendency of lighter rotors to precess at low speeds, and gives sharp pictures down to 2,000 rpm.

If you are not familiar with the ultracentrifuge, we will be happy to send you copies of "An Introduction to Ultracentrifuge Techniques" and the latest issue of "Fractions," a periodical sent to owners of Beckman ultracentrifuges, electrophoresis-diffusion instruments and amino acid analyzers. Write:

Beckman® INSTRUMENTS, INC.

SPINCO DIVISION,
Stanford Industrial Park,
Palo Alto 5, California

86A

SCIENCE is published weekly by the AAAS, 1515 Massachusetts Ave., NW, Washington 5, D.C. Second-class postage paid at Washington, D.C., and additional mailing office. Annual subscriptions: $8.50; foreign postage, $1.50; Canadian postage, 75¢.

1 June 1962, Volume 136, Number 3518 **SCIENCE**

BIG PERFORMANCE-SMALL SIZE!

Varian's new series V-3400 Magnet Systems outperform magnets three times their physical size. Compare these high performance features:

FIELD INTENSITY: Fields up to 40 kg with a ¼" air gap, using the solid state, continuously adjustable 7 Kw power supply. **FIELD UNIFORMITY:** Varian specialists with unmatched know-how will tailor air gap geometry to maximize uniformity for your specific application. **FIELD STABILITY:** Fully interlocked, water-cooled power supply regulates current within 10 ppm for a 10% line-voltage change. **FIELD ACCESSABILITY:** The wide choice of stands, bases, and yoke orientations provides unsurpassed flexibility of air gap location.

In addition to big performance, Varian's 9" Magnet System is attractively priced. Fully interchangeable components and accessories allow you to select the exact magnet system to meet your special needs.

Interested? A descriptive technical bulletin is available. Write the INSTRUMENT DIVISION, Magnet Product Group or call collect DAvenport 6-4000, Ext. 2736.

VARIAN associates

PALO ALTO 18, CALIFORNIA

HARSHAW MANUFACTURES A COMPLETE LINE OF SCINTILLATION AND OPTICAL CRYSTALS

SCINTILLATION *Mounted* NaI(T1) *Crystals*

Crystal detectors designed for the most sophisticated counting problems. Our physics and engineering group are available to assist you in your special detector problems.

More detailed information is contained in our 32-page book, "Harshaw Scintillation Phosphors". We invite you to write for your free copy!

STANDARD LINE

(Hermetically Sealed Crystal Assemblies)

- The accepted standard of the industry
- Proven through years of service in research, medical and industrial applications
- unparalleled performance
- dependability
- consistent good quality

INTEGRAL LINE

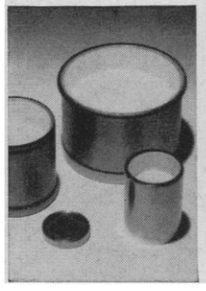
(Crystal photo multiplier tube combination assembly)

- Improved resolution
- Ready to use plug-in unit
- Permanently light sealed
- Capsule design facilitates decontamination
- Close dimensional tolerances
- Harshaw guaranteed

Large Crystal MATCHED WINDOW LINE

(Designed primarily for crystals 4" dia. and larger)

- "Small crystal" performance achieved through improved optical design
- Low mass containers
- Available in standard aluminum or complete low background assemblies
- Convenient mounting flange
- Ready to use



Every Harshaw crystal is a product of our experience in crystal growing technology since 1936

Other Phosphors Available from The Harshaw Chemical Company

ROUGH CUT THALLIUM ACTIVATED SODIUM IODIDE CRYSTAL BLANKS • EUROPIUM ACTIVATED-LITHIUM IODIDE (NORMAL) • EUROPIUM ACTIVATED LITHIUM IODIDE (96% Li^6 ENRICHED) • THALLIUM ACTIVATED CESIUM IODIDE • THALLIUM ACTIVATED POTASSIUM IODIDE • ANTHRACENE • PLASTIC PHOSPHORS

OPTICAL *Crystals*

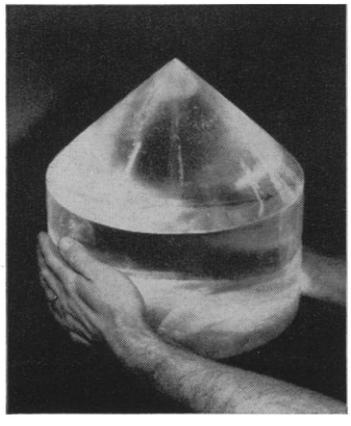
For Infrared and Ultra Violet Transmitting Optics

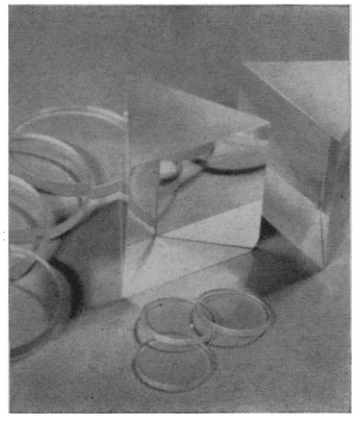
"HARSHAW QUALITY" INHERENT IN EACH HARSHAW-GROWN CRYSTAL GUARANTEES THE MOST EFFICIENT OPTICAL TRANSMISSION POSSIBLE THROUGH:

1) Negligible light scattering in crystals, permitting higher sensitivity and improved resolution
2) Freedom from absorptions caused by trace impurities in crystal optics
3) Minimum strain

"HARSHAW QUALITY" meets the demand for uniformity of optical properties such as dispersion and refractive index.

Prices, specifications, or other information will be sent in answer to your inquiry.





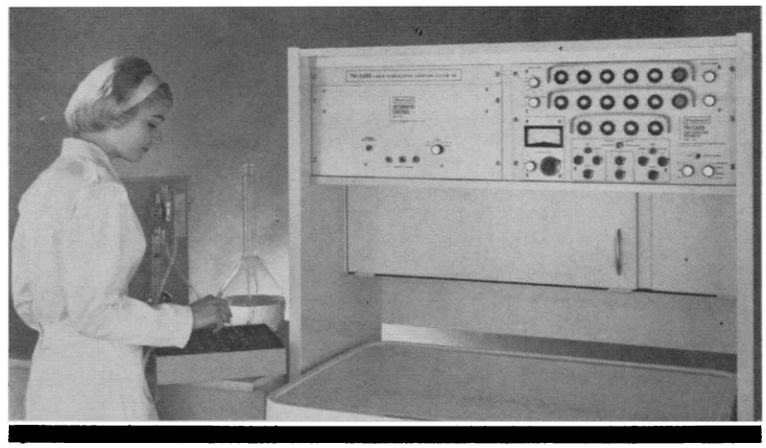
The following infrared and ultra violet transmitting crystals are available; others are in the process of development:

SODIUM CHLORIDE • SODIUM CHLORIDE MONOCHROMATOR PLATES • POTASSIUM BROMIDE • POTASSIUM BROMIDE PELLET POWDER (through 200 on 325 mesh) • POTASSIUM CHLORIDE • OPTICAL SILVER CHLORIDE • THALLIUM BROMIDE IODIDE • LITHIUM FLUORIDE • LITHIUM FLUORIDE MONOCHROMATOR PLATES • CALCIUM FLUORIDE • BARIUM FLUORIDE • CESIUM BROMIDE • CESIUM IODIDE

Additional information on the physical and optical properties of the above crystals is available in our 36-page booklet "Synthetic Optical Crystals". Send for your free copy.

HARSHAW

THE HARSHAW CHEMICAL CO.
Crystal Division • Cleveland 6, Ohio



40%+ H^3 COUNTING EFFICIENCY

IN NEW TRI-CARB® SPECTROMETERS

■ Integral counting efficiency for H^3 samples in the new Tri-Carb Liquid Scintillation Spectrometers has been increased to more than 40%. Differential efficiencies are increased accordingly. More significantly, the Efficiency^2: Background ratio has been doubled, so that low activity samples can be counted to the same statistical accuracy in half the time formerly required. Add the new 200 sample-capacity automatic changer and double the samples counted in each run with no increase in total counting time. ■ Other features of the new Tri-Carb Spectrometers: Precision temperature-controlled operation — accurate within ±½°C • choice of either high speed parallel-entry readout or serial readout compatible with automatic data-processing equipment • completely separate channels of analysis for optimum performance in double-label counting • solid state circuitry, of course. ■ For more information, call your Packard Sales Engineer or write for Bulletin AD-1019.

Packard

PACKARD INSTRUMENT COMPANY, INC.
BOX 428 • LA GRANGE, ILLINOIS • HUNTER 5-6330

Sales offices in principal cities of the world.

1 June 1962, Volume 136, Number 3518 **SCIENCE**

SCIENCE, now combined with THE SCIENTIFIC MONTHLY, is published each Friday by the American Association for the Advancement of Science at National Publishing Company, Washington, D.C. SCIENCE is indexed in the *Reader's Guide to Periodical Literature*.

Editorial correspondence should be addressed to SCIENCE, 1515 Massachusetts Ave., NW, Washington 5, D.C. Manuscripts should be typed with double spacing and submitted in duplicate. The AAAS assumes no responsibility for the safety of manuscripts. Opinions expressed by authors are their own and do not necessarily reflect the opinions of the AAAS or the institutions with which the authors are affiliated. For detailed suggestions on the preparation of manuscripts, see *Science* **125**, 16 (4 Jan. 1957).

Advertising correspondence should be addressed to SCIENCE, Room 1740, 11 West 42 St., New York 36, N.Y.

Change of address notification should be sent to 1515 Massachusetts Ave., NW, Washington 5, D.C., 4 weeks in advance. Furnish an address label from a recent issue. Give both old and new addresses, including zone numbers.

Annual subscriptions: $8.50; foreign postage, $1.50; Canadian postage, 75¢. Single copies, 35¢. School year subscriptions: 9 months, $7.00; 10 months, $7.50. Cable address: Advancesci, Washington.

New Institute for Biological Studies at San Diego

Science is an accumulative enterprise. That is a reason why the various branches of science experience their major developments successively rather than simultaneously.

A certain amount of mathematical reasoning had to occur before mechanics could progress. Much advance had to be made in the more mechanical aspects of physics before electrical theories could go forward. A great deal of mathematics and physics and chemistry had to be developed before the biological sciences could emerge out of their more descriptive stages into the present stage.

It is not difficult to understand why the whole range of the physical sciences experienced such a dramatic forward surge over the century from 1850 to 1950. For the same basic reasons it is clear that the century beginning in 1950 will see the conquering forward surge of biology.

The beginning of this biological era has already, and unquestionably, occurred. We have gained marvellous new knowledge, much of it at the level of molecular detail, of what goes on inside individual cells. We are beginning to analyze the interrelations between enzymology, genetics, and immunology. We can see vaguely ahead the way into an understanding of the functioning of the central nervous system.

It is not possible to overestimate the promise and power of the knowledge that will be gained in the next 50 years concerning the basic character of life processes. In the most practical terms, our position vis-à-vis disease of all sort should be as different, 50 years from now, as intercontinental telephony is different from a whispered voice.

Even more significant than practical results of this sort, moreover, will be the contribution to man's inner life of the mind and the spirit. For at last man will begin to understand his own nature, his place in the total universe of living and nonliving matter, his essential oneness with the star, the cell, and the atom.

These triumphs will not be brought about by setting up "projects" or by financing crash programs. They will be brought about by giving flexible freedom to scholarly scientists, by encouraging them to undertake imaginative basic research on the essential nature of the life processes, however long-range, however "impractical," these studies may appear to be.

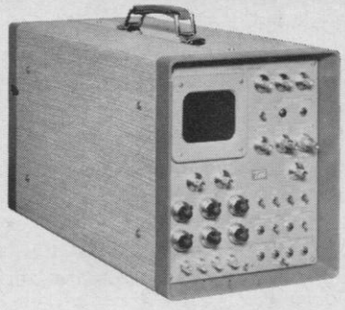
This kind of science, moreover, ends up by being something more than science. For as the biological nature of man becomes discernible, the closer and more fruitful will become the interconnections with humanistic, philosophical, artistic, and ethical ideas.

These are, in brief, the reasons why this is a good moment to expand and intensify biological research. A new Institute for Biological Studies, however, is justified only if it offers a quality of opportunity not to be gained by the expansion of existing facilities. Those responsible for planning the new institute now being built are determined to create an atmosphere of unparalleled freedom and flexibility, within which the controls will rest with the scholar-scientists but without any burden of administrative duties, without any handicap of outmoded departmental structure, and with the closest association between scientists who are humanists, and humanists with an informed appreciation of science.—WARREN WEAVER, *Alfred P. Sloan Foundation, New York*

(*Erratum*: The figure given in the editorial of 11 May for the minimum salary of a full professor at Harvard, $18,750, is an average salary. The minimum salary, including fringe benefits, is $13,860.)

256 channels • 400 channels • 4096 channels —pulse analyzers from TMC

Whatever the pulse analyzer requirement — versatility, compactness, economy, large capacity — there is now a TMC analyzer to meet that requirement.
VERSATILE 256-channel CN-110 with choice of seven interchangeable logic plug-ins, transistorized circuits.
COMPACT 400-channel, 36-pound 400 series pulse height analyzers.
LARGE CAPACITY 4096-channel CN-440 time-of-flight analyzer.
Details of each analyzer series are listed below.



The 400-channel *"400 Series"* Pulse Height Analyzers occupy little over a cubic foot of space and weigh just 36 lbs. All circuits are board-mounted and easily accessible from the sides. *The Model 404* is a four-input unit; *Model 401* is an economical single input version. Both have low level linear amplifiers . . . memory grouping of 4 groups (100 channels each) 2 groups (200 each) and 1 group . . . automatic or manual data transfer from half to half and even quarter to quarter within one half. 400 series analyzers can also be used in multiscaler operation. Specifications such as average dead time of 60 μsec, and ½ channel per day stability are typical.

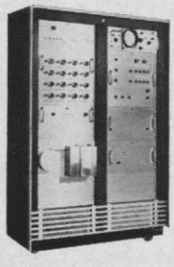
Model 510 Typewriter Drive Unit

Model 500
Paper Tape Printer

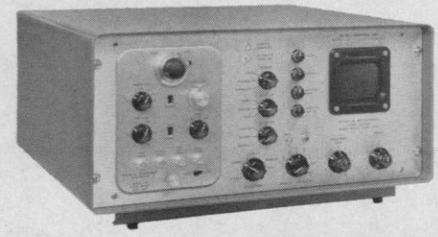
ACCESSORIES:
Model 500 Paper Tape Printer; Model 510 Typewriter Drive Unit. Model 530 IBM Computer Typewriter; Model 550 Paper Tape Reader plus various readout control units. Also, auxiliary equipment such as the Model 561 Visual Readout Indicator; Model 566 5" Oscilloscope Display Unit; X-Y plotters, null detectors, and character printers are all available as 400 series accessories.

Model 530 Computer Typewriter

Model 561 Visual Readout Indicator

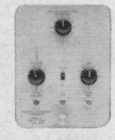


The *CN-440* — 4096-channel Time-of-flight Analyzer. Channels can be arranged in 16 groups of 256, each group with its own amplifier and integral discriminator. Memory cycle time fixed at 16 μsec . . . readout is by CRT display and punched tape built into the system as well as by auxiliary card punch, typewriter, printer and magnetic tape units.



The *CN-110* — a 256-channel, all-transistor, digital computer with CRT display and switch-selected binary, decimal and analog readout. Simply change one logic unit for another of the seven interchangeable plug-ins and you change the system — in seconds. Types of logic available:

PULSE HEIGHT ANALYZER (#210) — built-in linear amplifier . . . coincidence gating . . . 5 x 10^4 cps . . . 42 μsec. ave. dead time.

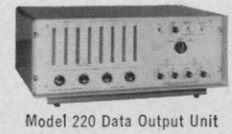


TIME-OF-FLIGHT ANALYZER (#211) 9 channel widths — 0.25 to 64 μsec. . . . dead time 16 μsec . . . 4 switch-selected types of delay.

PULSE HEIGHT ANALYZER (#213) 4 inputs . . . coinc./anti-coinc. gating . . . 42 μsec. ave. dead time.

COINCIDENCE PAIR SPECTROMETER (#216) — 2 dimensional (16 x 16) analyses . . . dead time fixed, 100 μsec.

PULSED NEUTRON; MASS SPECTROMETER and MULTISCALER units are also available.



Model 220 Data Output Unit

Model 221 Magnetic Tape Buffer Storage Unit

ACCESSORIES:
The Model 200 Data Output Unit — handles digital output, serves as a live timer, true timer and analysis cycle counter. Model 221 Magnetic Tape Buffer Storage Unit — provides high-speed storage of data for later playback. Model 8276 Binary Information Indicator for visual indication of address and arithmetic information. Compatible Hewlett-Packard printer, Monroe Data-Log paper taper printers and tape printer and punch combinations are also available.

TMC For complete system data, write for technical bulletins.

TECHNICAL MEASUREMENT CORPORATION
441 WASHINGTON AVENUE, NORTH HAVEN, CONNECTICUT
Field Offices: Boston, Dallas, Denver, Los Angeles, San Francisco.

Meetings

Forthcoming Events

June

25–30. Electromagnetic Theory and Antennas, symp., Copenhagen, Denmark. (Symp. Secretary, Øster Voldgade 10G, Copenhagen K.)

25–20 July. National Science Foundation, Summer Conf. for College Teachers of the History of Mathematics, Ann Arbor, Mich. (P. S. Jones, Dept. of Mathematics, Univ. of Michigan, Ann Arbor)

26–28. American Assoc. of Physics Teachers, Northfield, Minn. (R. P. Winch, Dept. of Physics, Williams College, Williamstown, Mass.)

26–28. American Meteorological Soc., general meeting, Fairbanks, Alaska. (J. E. Miller, Dept. of Meteorology and Oceanography, New York Univ., University Heights, New York 53)

26–29. American Home Economics Assoc., Miami Beach, Fla. (D. S. Miller, 3705 Van Buren Ave., Corvallis, Ore.)

26–29. Poultry Science Assoc., Urbana, Ill. (C. B. Ryan, Texas A & M College, College Station)

26–30. Rarefied Gas Dynamics, intern. symp., Paris, France. (L. Talbot, Dept. of Aeronautical Sciences, Univ. of California, Berkeley)

26–4. German Chemical Engineering Congr. and Exposition, Frankfurt am Main. (J. J. Doheny, American Chemical Soc., 86 E. Randolph St., Chicago 1, Ill.)

27–28. Computers and Data Processing, symp. annual, Estes Park, Colo. (W. H. Eichelberger, Denver Research Inst., Univ. of Denver, Denver 10, Colo.)

27–30. Society of Nuclear Medicine, annual, Dallas, Tex. (S. N. Turiel, SNM, 430 N. Michigan Ave., Chicago 11, Ill.)

28–29. Radio Frequency Interference, natl. symp., San Francisco, Calif. (R. G. Davis, Dept. 58–25, Lockheed Missile & Space Co., P.O. Box 504, Sunnyvale, Calif.)

28–30. Joint Automatic Control Conf., annual, New York, N.Y. (A. S. Robinson, Kollsman Instrument Corp., 80–08 45th Ave., Elmhurst 73, N.Y.)

28–30. Secondary Fungus Infections, intern. conf., Durham, N.C. (E. W. Chick, Veterans Administration Hospital, Durham)

30–7. International Conf. on Health and Health Education, Philadelphia, Pa. (Conf. Secretariat, ICHHE, 800 Second Ave., New York 17)

July

1–4. European Chest Surgery Congr., annual, Stockholm, Sweden. (C. Crafoord, Karolinska Institutet, Stockholm 60)

1–4. European Soc. of Cardiovascular Surgery, Stockholm, Sweden. (G. Arnuff, 1, pl. Gailleton, Lyons, France)

1–4. Oral Surgery, intern. conf., London, England. (D. C. Trexler, American Soc. of Oral Surgeons, 840 N. Lake Shore Dr., Chicago 11, Ill.)

1–5. Operational Research, intern. conf., Oslo, Norway. (Sir A. Goodeve, International Federation of Operational Research Societies, 11 Park Lane, London, W.1, England)

1–7. Rehabilitation, European natl. conf. and course, Cambridge, England. (I. R. Henderson, British Council for Rehabilitation, Tavistock House, Tavistock Sq., London, W.C.1)

1–7. Science in General Education, conf., Basutoland, S. Africa. (Institute of Education, Univ. College of Pius XII, Basutoland)

2–4. High-Resolution Nuclear Magnetic Resonance Spectroscopy, symp., Boulder, Colo. (M. T. Rogers, Dept. of Chemistry, Michigan State Univ., East Lansing)

2–4. Structure of Solid Metallic Solutions, intern. colloquium, Orsay, France. (Prof. Guinier, National Scientific Research Center, 16 rue Pierre Curie, Paris 5°, France)

2–5. International Federation of Societies of Cosmetic Chemists, London, England. (A. Herzka, Pressurized Packaging Consultants, Ltd., Ashbourne House, Alberon Gdns., London, N.W.11)

2–6. Biological Effects of Ionizing Radiation at the Molecular Level, symp., Brno, Czechoslovakia. (International Atomic Energy Agency, 11 Kaerntnerring, Vienna 1, Austria)

2–6. Ionosphere, conf., London, England. (Administrative Assistant, Institute of Physics and Physical Soc., 47 Belgrave Sq., London, S.W.1)

2–6. Northern Forest Congr., Oslo, Norway. (T. Austin, Nordiske Skogkongress, Akersgaten 42, Oslo)

2–7. Magnetic and Electric Resonance and Relaxation, intern. conf., Eindhoven, Netherlands. (D. J. Kroon, Philips Research Laboratories, Eindhoven)

2–7. National Education Assoc. of the United States, Denver, Colo. (W. G. Carr, 1201 Sixteenth St., NW, Washington 6, D.C.)

2–11. South African Chemical Institute, Johannesburg, S. Africa. (Secretary, SACI, P.O. Box 3361, Johannesburg)

2–14. Biology of Tuna and Related Species, intern. mtg., U.N. Food and Agriculture Organization, La Jolla, Calif. (J. L. McHugh, Bureau of Commercial Fisheries, Washington 25, D.C.)

3–7. Acta Endocrinologica Congr., Geneva, Switzerland. (R. Borth, Laboratoire de la Materinité, Hôpital de Genève, Geneva)

3–13. Malariology, inter-African conf., Yaounde, Cameroun, Africa. (World Health Organization, Palais des Nations, Geneva, Switzerland)

4–11. High-Energy Physics, intern. conf., Geneva, Switzerland. (E. W. D. Steel, CERN, Geneva 23, Switzerland)

5–12. Health and Nutrition Education, inter-African semin., Point Noire, Congo Republic. (Commission for Technical Cooperation in Africa South of the Sahara, Pvt. Mail Bag 2359, Lagos, Nigeria)

7–14. International Dental Congr., Cologne, Germany. (R. Braun, Universitätsstr. 73, Köln-Lindenthal, Germany)

8–12. Pan American Tuberculosis Congr., Guatemala City, Guatemala. (Ho-

racio Estrada G., Asociación Guatemalteca de Tisiología, 10a av. 14–65, Guatemala City 1)

8–12. Psychosomatic Medicine and Childbirth, 1st intern. congr., Paris, France. (L. Chertok, Société Française de Médecine Psychosomatique, 54, av. de la République, Villejuif [Seine], France)

8–15. International Assoc. of Dental Students, congr., Düsseldorf, Germany. (D. H. Clark, Royal Dental Hospital, Leicester Sq., London, W.C.2, England)

8–15. International Council of Scientific Unions, Abstracting Board, Moscow, Russia. (G. A. Boutry, 292 rue Saint-Martin, Paris 3°, France)

9–10. Sonar Systems, symp., Birmingham, England. (British Institution of Radio Engineers, 9 Bedford Square, London, W.C.1)

9–11. Astrophysics, intern. symp., Liège, Belgium. (P. Swings, Institute of Astrophysics, Cointe-Sclessin, Belgium)

9–11. NATO Advisory Group for Aeronautical Research and Development, Paris, France. (NATO, 64 rue de Varenne, Paris 17°)

9–13. European Forestry Commission, session on torrent control, avalanche protection, and watershed management, Italy. (International Agency Liaison Branch, Office of Director General, Food and Agriculture Organization, Viale delle Terme di Caracalla, Rome, Italy)

9–13. International Academy of Pathology, congr., Zurich, Switzerland. (F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D.C.)

9–13. Reticulo-Endothelial System and Immunity, intern. colloquium, Gif-sur-Yvette, France. (Prof. Halpern, National Scientific Research Center, 16 rue Pierre Curie, Paris 5°, Fr.)

9–14. Glass, intern. congr., Washington, D.C. (C. H. Hahner, Glass Section, National Bureau of Standards, Washington 25)

9–15. Clinical Aviation and Aerospace Medicine, mtg., NATO Advisory Group for Aeronautical Research and Development, Paris, France. (NATO, 64 rue de Varenne, Paris 17°)

9–27. Commission for Agricultural Meteorology, World Meteorological Organization, Toronto, Canada. (WMO, Geneva, Switzerland)

11–12. Bird Control, natl. seminar, Bowling Green, Ohio. (W. B. Jackson, Dept. of Biology, Bowling Green State Univ., Bowling Green)

11–21. South Pacific Conf., Utulei, American Samoa. (Secretary General, South Pacific Commission, P.O. Box 9, Nouméa, New Caledonia)

12–15. French Congr. of Anesthesiology, Montpellier, France. (J. du Cailar, Clinique Saint-Elio, Centre Hospitalier Universitaire, Montpellier)

15. International Soc. of Psychophathology of Expression, congr., Antwerp, Belgium. (ISPE, Cept. d'Art Psychopathologique, Centre Psychiatrique Sainte-Anne, 1 rue Cabanis, Paris 14°, France)

15. Psychosomatic Aspects of Odontostomatology, intern, symp., Milan, Italy. (B. Acht, Piazzetta Umberto Giordano 2, Milan)

16–18. Instrumentation, intern. conf., Hamburg, Germany. (Conference Secretariat, CERN, Geneva 23, Switzerland)

16–18. Instrumentation for High-Energy Physics, intern. conf., Geneva, Switzerland. (E. W. D. Steel, CERN, Geneva 23)

16–19. Novae, Novoids, and Supernovae, intern. colloquium, Lyons, France. (J. Dufay, Faculté des Sciences, Université de Lyons, 30 rue de Cavenne, Lyons)

16–20. Carbohydrate Chemistry, intern. symp., Birmingham, England. (General Secretary, Chemical Soc., Burlington House, London W.1)

16–20. Paramagnetic Resonance, 1st. intern. conf., Jerusalem, Israel. (W. Low, Hebrew Univ. of Jerusalem)

16–20. Physics of Semiconductors, intern. conf., Exeter, England. (Administrative Assistant, Institute of Physics and Physical Soc., 47 Belgrave Sq., London, S.W.1)

16–25 Aug. Theoretical Physics, semin., Trieste, Italy. (International Atomic Energy Agency, 11 Kaerntnerring, Vienna 1, Austria)

17–18. Data Acquisition and Processing in Medicine and Biology, conf., Rochester, N.Y. (K. Enslein, Brooks Research, Inc., P.O. Box 271, E. Rochester)

17–19. Lunar Missions, mtg., American Rocket Soc., Cleveland, Ohio. (J. J. Harford, ARS, 500 Fifth Ave., New York 36, N.Y.)

17–20. Fluorine Chemistry, intern. symp., Estes Park, Colo. (D. N. Gray, Denver Research Institute, Denver 10, Colo.)

17–21. American Nuclear Soc., natl. mtg., Boston, Mass. (O. J. Du Temple, ANS, 86 E. Randolph St., Chicago 1, Ill.)

18–10. Water and Soil Utilization, intern. semin., Brookings, S.D. (I. B. Johnson, Dept. of Animal Husbandry, South Dakota State College, Brookings)

21–28. Institute on Religion in an Age of Science, annual summer conf., Star Island, N.H. (IRAS, 280 Newton St., Brookline 46, Mass.)

22–26. AAAS Alaska Division, Juneau, Alaska. (A. Sosnkowski, Alaska State Museum, Box 2051, Juneau)

22–28. Cancer, intern. congr., Moscow, U.S.S.R. (L. Shabad, Academy of Medical Sciences of the U.S.S.R., 14 Solyanka, Moscow)

22–28. Latin American Congr. of Gynecology and Obstetrics, Bogotá, Colombia. (R. Camero, Apartado No. 2463, Bogotá)

27–31. Psychoanalysis, intern. forum, Amsterdam, Netherlands. (L. Salzman, 1610 New Hampshire Ave., Washington 9, D.C.)

27–31. Recent Advances in Experimental and Theoretical Methods of Crystal Structure Research, symp., Munich, Germany. (F. Bopp, Institut für Theoretische Physik, Universität München, Schellingstrasse 4–8, Munich)

28–4. International Geographical Association (Esperantist), Odense, Denmark. (P. Thorsen, Dyblandsvangen 7, Copenhagen, Denmark)

30–10. Recent Advances in Clay Mineralogy, semin., University Park, Pa. (College of Mineral Industries and Continuing Education, Pennsylvania State Univ., University Park)

(See 18 May issue for comprehensive list)