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- Monochromator-coupled hydrogen light source permits selective dialing across UV spectrum
- Automatic chart recorder marking system locates absorbing materials by test tube
- Compatible with all Fraction Collectors—regardless of make or model
- Fully transistorized for long, precision service

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Digest of Literature on Dielectrics. vol. 24. Prepared by the Committee on Digest of Literature of the Conference on Electrical Insulation, Division of Engineering and Industrial Research. Thomas D. Callinan and Ann M. Parks, Eds. Natl. Acad. of Sciences—Natl. Research Council, Washington, D.C., 1961. 310 pp. $10. The literature on magnetic materials is no longer covered in the digest, since it is available elsewhere, but the chapter on rubber and plastic insulation has been broadened and the subject matter is now published under the chapter title "High polymers."


PLANNED PROGRESS

Step by step. Stride by stride. America's space program under NASA is one of carefully planned progress. Every launch, every space probe, every orbiting vehicle contributes specific information to the mass of new knowledge and technology needed to achieve the next goal.

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The civilian space program which NASA implements and directs is a national program with immeasurable by-products for human welfare. It is perhaps the greatest technical effort ever undertaken. Intensive scientific investigations are carried out in every field, and every modern technology. It employs weather and communications satellites, deep space and lunar probes, orbiting observatories. Thousands of problems must be solved, new technologies mastered, space oceans charted, unknown environments studied. All this must be accomplished before true space travel can be achieved by men.

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**PRODUCT ANALYSIS REPORT**

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**Product**  
Adenosine 5'-Monophosphate • H₂O  
(muscle adenine acid)

<table>
<thead>
<tr>
<th>Chemical Analysis</th>
<th>Paper Chromatography</th>
<th>Other Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>%N</td>
<td>Amount</td>
<td>Rp</td>
</tr>
<tr>
<td>19.16</td>
<td></td>
<td>200</td>
</tr>
<tr>
<td>%P</td>
<td></td>
<td>200</td>
</tr>
<tr>
<td>8.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%H₂O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H'vy Met.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>none</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Clarity test:

S 5% Soln. at pH 5.0  
clear at 25°C

[α] 25 D

Conc. = %

Element %

Note: All analyses on a 'as is basis'

---

**Paper Chromatography**

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Amount</th>
<th>Rp</th>
<th>%</th>
<th>Chem</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>200</td>
<td>.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>200</td>
<td>.61</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

UV Absorption

<table>
<thead>
<tr>
<th>Ratios</th>
<th>pH 250/260 280/260 290/260</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>.78 .16 .0</td>
</tr>
</tbody>
</table>

% by total absorption

98.04 AMP  

*Sample Product Analysis Report for nucleic acid derivatives.
New radioactivity detectors for liquid and gas chromatography permit radioassay of components in an effluent stream by direct, highly accurate, on-stream monitoring. Three types of detectors are used. In the first, a cartridge filled with anthracene crystals is placed on stream for monitoring the aqueous effluent of an amino-acid analyzer or other chromatographic column. The anthracene-filled cartridge is placed between two photomultipliers whose outputs are arranged for coincidence counting. Carbon-14 efficiencies of 25 to 30 percent with backgrounds of less than 30 count/min are obtained in aqueous solutions. For use in gas chromatography, the anthracene crystals in a similar cartridge are coated with silicone oil. The effluent of the gas chromatography column is led through the anthracene in which the high-boiling compounds condense and scintillate. The output is a cumulative record of the radioactivity eluted from the column. Elution of a radioactive compound is indicated by a stepwise increase in the counting rate of the anthracene. Efficiencies for carbon-14 of better than 50 percent are obtained. In a third system, the effluent of a gas chromatography column is bubbled through a liquid scintillator solution placed between two photomultipliers for continuous scintillation counting. A similar cumulative record of eluted radioactivity is obtained. Use of the liquid system makes possible highly sensitive assay of tritium-labeled compounds as well as simultaneous carbon-14 and tritium assay. Compact electronics for these radioactivity monitoring systems are available.—R.L.B. (Packard Instrument Co., Inc., Dept. S140, P.O. Box 428, La Grange, Ill.)

Pneumatic analog computer is designed for use in pneumatic computing-control systems. The functions performed are determined by the manner in which external connections are made. As an analog computer, the unit can add, subtract, multiply, divide, average, integrate, and take the first and second derivatives. By combining a number of units, more complex calculations such as squaring, extracting square root, and ratioing, can be performed. As a controller the unit provides a variety of control actions including proportional, proportional plus reset, proportional plus rate, proportional plus rate plus reset rate, and floating. Pneumatic signal range is either 3 to 15 or 3 to 27 lb. Gain and set-point adjustments may be made manually, remotely, manually, or automatically. Frequency response is approximately 2 cy/sec depending on the capacittance into which it works.—J.S. (Bailey Meter Co., Dept. S111, 1050 Ivanhoe Road, Cleveland 10, Ohio)

A new low-background chromatogram scanner—said to eliminate the need for mechanical integration, planimetry, or triangulation—has been introduced for scanning of tritium, carbon-14, sulphur-35, and other low-energy, beta-emitting radioisotopes. The scanner features windowless, 4-pi detection with a total background of less than 10 count/min. Two-mode logic function control permits programming to present various parameters of the entire scan while eliminating unwanted data. The system performs qualitative and quantitative assays on the intact strip and presents radioactivity values in direct digital form.—R.L.B. (Vanguard Instrument Co., Dept. S143, P.O. Box 244, La Grange, Ill.)

Electronic stethoscope (Stethosonus) enables the user to detect and understand heart sounds in the same manner as with the conventional acoustical stethoscope, but with greater clarity and distinction. Measuring approximately 1 by 1.5 by 2 inches, the model ICES 255-01 is supplied with a lightweight headset. A low-noise high-gain transistor amplifier delivers 3.5 mw of average undistorted power; up to three head phones may be used at the same time. Electrical filtering is provided to eliminate unwanted high-frequency noise and selection of bell or diaphragm type response. Power for operation is supplied by three mercury hearing aid cells. Rugged construction of the transistor amplifier and microphone makes the system virtually indestructible.—R.L.B. (Texas Instruments, Inc., Dept. S139, 6000 Lemmon Ave., P.O. Box 6015, Dallas 22, Tex.)

Microminiature incandescent lamp has a lens effect built into the lamp which concentrates up to ten times as much light in the direction of the beam to produce a microminiature spot of light. Total light output is 60 millilumens. Dimensions of the lamp are 0.08 inch long by 0.03 inch diameter. Operating voltage is 1.2 v, operating current 12 ma. Life expectancy is said to be 1000 hours.—J.S. (Kay Electric Co., Dept. S118, Pine Brook, N.J.)

Frequency meter (model La-32) is a self-contained, battery-operated, portable instrument, covering the range 125 key to 1000 Mcy/sec. Accuracy is said to be ±0.01 percent over the ambient temperature range -4° to -125° F. Drift is not greater than 0.0025 percent in 5 minutes and resetability is ±0.005 percent. Readout is provided by a calibrated film presentation that makes only the frequency band in use visible to the operator.—J.S. (Lavoie Laboratories, Inc., Dept. S159, Morganville, N.J.)

Abrasive cutter (model 10-1030 AB) is designed for totally submerged cutting of metallurgical samples. Coolants are channeled directly onto the cutting area by brushes on both sides of the wheel, thus eliminating air films. Pieces up to 12 feet long can be worked with the use of an extension trough accessory. The unit is powered by a 3-hp motor and features a 10-inch abrasive cutting wheel with 1/2-inch cutting capacity.—J.S. (Buehler, Ltd., Dept. S163, 2120 Greenwood St., Evanston, Ill.)

The material in this section is prepared by the following contributing writers:
Robert L. Bowman (R.L.B.), Laboratory of Technical Development, National Heart Institute, Bethesda 14, Md. (medical electronics and biomedical laboratory equipment).

The information reported is obtained from manufacturers and other sources considered reliable. Neither Science nor any of the writers assumes responsibility for the accuracy of the information.

Address inquiries to the manufacturer, mentioning Science and the department number.

27 APRIL 1962
Meetings

Audiogenic Seizures

An international colloquium on the psychophysiology, neuropsychopharmacology, and biochemistry of audiogenic seizures was convened in Paris from 6 to 9 November 1961. The colloquium, sponsored by the French Centre National de la Recherche Scientifique, was organized by René-Guy Busnel, director of the Laboratory of Acoustic Physiology. The meetings were held in the new and well-equipped headquarters of the Centre on a country estate in Gif-sur-Yvette, a suburb just south of Paris. Participants from France, England, Germany, Czechoslovakia, Belgium, and the United States represented a variety of biological disciplines—neuropsychophysiology, endocrinology, biochemistry, pharmacology, genetics, psychiatry, and animal behavior. The aim of the colloquium was the elucidation of the audiogenic seizure response from these diverse points of view.

An unusual feature of the conference was the circulation in advance to all participants of the papers to be presented. The scientific sessions were therefore devoted primarily to discussion and criticism. Each paper was presented as a 20-minute summary, followed by a 40-minute period of discussion. The multilingual discussions were so lively that they usually exceeded the assigned period.

Papers were presented by the following investigators: René-Guy Busnel, Alice C. Lehmann, P. Laget, M. M. Niaussat, A. Soulairac, and G. Valette, of Paris; Jacques Mercier of Marseilles; M. R. A. Chance of Birmingham, England; C. W. M. Wilson of Liverpool; G. Quadbeck of Homburg; Jan Bures, Zdenek Servit, and J. Stere, of Prague; Benson E. Ginsburg and Dorothea S. Miller, of Chicago; G. Nellhaus and A. M. Sackler, of New York; N. Plotnikoff of Stanford, California; and Ewart A. Swinyard of Salt Lake City.

The following additional observers participated in the discussions: J. R. Boissier, J. L. Grandjean, B. Halpern, J. Jacob, J. Tuillier, and C. Veil, of Paris; J. Cosnier of Lyon; G. A. Poulter of England; F. Chaillet of Brussels; and S. W. Handford of London.

Although five Russian investigators were on the program, they were unable to attend the colloquium. The paper and film sent by L. V. Kruchinsky were presented by Alice Lehmann.
The meetings were stimulating, and the hospitality and arrangements were unusually pleasant. Most of the participants were quartered in the same hotel in Paris, with bus transportation provided to and from Gif-sur-Yvette. One morning was set aside for visits to various laboratories in Paris, with an afternoon visit to the host Laboratory of Acoustic Physiology at Jouy-en-Josas. In the evening, the Palace of Versailles was opened and lighted especially for the conferees, and shown by French- and English-speaking guides. The final banquet was held on a bateau mouche on the Seine.

An outcome of the conference was the naming of an international commission which will concern itself with matters of common concern, such as the standardization of terminology, definitions, techniques, and experimental animals. The members of this commission are Servit (chairman), Sterc (secretary), Ginsburg, Swinyard, Chance, Wilson, Soulairac, Nellhaus, and Busnel.

The colloquium volume, containing the text of the papers and discussion, will be published by the Centre National de la Recherche Scientifique.

DOROTHEA STARBUCK MILLER
Division of the Biological Sciences,
University of Chicago, Chicago, Illinois

Forthcoming Events

April

27–28. Idaho Acad. of Science, annual, Moscow. (L. M. Stanford, College of Idaho, Caldwell)

27–29. Oklahoma Acad. of Science, Woodward. (A. D. Buck, Northern Oklahoma Junior College, Tonkawa)

27–29. West Virginia Acad. of Science, Bethany. (J. D. Draper, Dept. of Chemistry, West Virginia Univ., Morgantown)


29–2. International Acad. of Pathology—American Assoc. of Pathologists and Bacteriologists, Montreal, Canada. (F. K. Mostof, c/o Armed Forces Inst. of Pathology, Washington 25)


29–3. American Ceramic Soc., annual, New York, N.Y. (C. S. Pearce, ACS, 4055 N. High St., Columbus 14, Ohio)

29–4. Society of Motion Picture and Television Engineers, annual, Los Angeles, Calif. (H. Teitelbaum, SMPTE, 55 W. 42 St., New York 36)

30–1. International Acad. of Pathology, annual, Montreal, Canada. (M. Davis, Inter society Committee on Pathology Infor-

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<thead>
<tr>
<th>Source</th>
<th>Half-life (years)</th>
<th>Maximum Energy (MeV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strontium-90/Yttrium-90</td>
<td>28.0</td>
<td>2.25</td>
</tr>
<tr>
<td>Thallium-204</td>
<td>3.9</td>
<td>0.77</td>
</tr>
<tr>
<td>Krypton-85</td>
<td>10.6</td>
<td>0.67</td>
</tr>
<tr>
<td>Promethium-147</td>
<td>2.6</td>
<td>0.22</td>
</tr>
</tbody>
</table>

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5-7. International Congr. of Medical Laboratory Technologists, Cologne, Germany. (M. Gesundheitsverwaltung, Intern. Assoc. of Medical Laboratory Technologists, Cologne)
6-10. American Soc. for Microbiology, annual. Kansas City, Mo. (P. Gerhardt, Dept. of Bacteriology, Univ. of Michigan, Ann Arbor)
6-12. World Congr. of Gastroenterology, Munich, Germany. (G. A. Martin, Martinstr. 52, Hamburg 20, Germany)
7-2. League against Trachoma, annual. Paris, France. (J. Sedan, Ligue contre le Trachoma, 94, rue Sylvabelle, Marseilles, France)
7-9. Implications of Organic Peroxides in Radiobiology, intern. symp., Argonne, Ill. (R. N. Feinstein, Div. of Biological and Medical Research, Argonne Natl. Laboratory, Argonne)
7-11. American Psychiatric Assoc., Toronto, Canada. (C. H. H. Branch, 156 Westminster Avenue, Salt Lake City, Utah)
7-11. American Soc. of Tool and Manufacturing Engineers, annual convention and tool exposition, Cleveland, Ohio. (A. Cervenka, Vanderbilt Blvd., Oakland, N.Y.)
8. American Soc. of Safety Engineers, Chicago, Ill. (A. C. Blackman, ASSE, 5 N. Wabash Ave., Chicago 2)
8-10. American Soc. of Lubrication Engineers, annual. St. Louis, Mo. (A. E. Ciechelli, Bethlehem Steel Co., 701 E. Third St., Bethlehem, Pa.)
8-19. Latin American Meeting on Higher Agricultural Education, Medellin, Colombia. (Director General, Office of Director General, U.N. Food and Agriculture Organization. Viale delle Terme di Caracalla, Rome, Italy)
9-12. Glass Technology Conf., Baden-Baden. (Germanische Gesellschaft, Bockenheimerlandstr. 126, Frankfurt am Main)
9-12. Virginia Acad. of Science, Norfolk. (P. M. Patterson, Hollins College Branch, Roanoke)
9-19. Prediction of Volcanic Eruptions and the Relationship between Magma and the Nature of Volcanic Eruptions. symp., Tokyo, Japan. (Secretary, Organizing Committee, c/o Science Council of Japan, 16-2-2, Sotobarn, Tokyo)
9-10. Meetings on Diabetes, University of Paris, Paris, France. (M. Rathery, Hotel-Dieu, Paris)
10-11. American Inst. of Chemists, Inc., Chicago, Ill. (J. Kotrady, c/o AIC, 60 E. 42 St., New York 17)
12. International College of Surgeons. clinical meeting, London, England. (Secretary, 1516 Lake Shore Dr., Chicago 10, Ill.)
13-16. American Acad. of Dental Medicine, annual. Baltimore, Md. (P. Block, 36 N. Luzerne Ave., Baltimore)
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of Physical Biology, New York State Veterinary College, Cornell Univ., Ithaca)
14-18. American Soc. of Civil Engineers, convention, Omaha, Neb. (W. H. Wisely, 345 E. 47 St., New York 17)
14-18. Hormonal Steroids, intern. congr., Milan, Italy. (L. Martini, Instituto de Farmacologia e Terapia, 21 Via A. del Sarto, Milan)
15-16. Injury, Inflammation, and Immunity, intern. symp., Elkhart, Ind. (L. Thomas, Dept. of Medicine, New York Univ., Bellevue Medical Center, New York, N.Y.)
16-17. International College of Surgeons, European federation, surgical congr., Amsterdam, Netherlands. (J. Blazenburg, ICS Netherlands Section, A. Perkstraat 57, Hilversum, Netherlands)
16-17. Navy Medical-Dental TV Workshop, Bethesda, Md. (Inst. for Advancement of Medical Communication, 33 E. 68 St., New York 21)
16-18. Conference on Dust, Scheveningen, Netherlands. (Fachgruppe Staubtechnik, Prinz-Georg-Str. 77-79, Düsseldorf 10, Germany)
16-18. Noise Abatement, intern. congr., Salzburg, Austria. (Österreichischer Arbeitsspring für Lärmbekämpfung, Stubenring 1, Vienna 1, Austria)
17-18. Regional Implications of Space Research, symp. (by invitation), Durham, N.C. (C. E. Whitefield, Bureau of Public Information, Duke Univ., Durham)
17-19. American Inst. of Industrial Engineers, annual, Atlantic City, N.J. (W. J. Jaffe, Newark College of Engineering, Newark, N.J.)
17-19. Eccrine, Apocrine, and Holocrine Glands, symp., Madison, Wis. (Div. of Postgraduate Medical Education, University of Wisconsin Medical School, Madison 6)
17-19. Nepiology, intern. conf., Catania, Sicily. (S. Rapisardi, Via Mavilla 37, Catania)
17-19. Paralanguage and Kinesics, conf.,
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