IT HAPPENED THIS MONTH...

a glance at yesterday in relation to today

IN SEPTEMBER — (1923) — two biochemists at Toronto challenge current ideas about the amino acid composition of hemoglobin. Three years ago, Furth and Lieben — using the Voisinet reaction — had concluded that hemoglobin is free of tryptophane. Now, Hunter and Borsook², using the method of Folin and Looney, present data which suggests that the globin component contains 2 tryptophane residues. Further analysis indicates also the presence of 4 residues each of tyrosine and arginine, 8 of histidine, 10 of lysine, and 100 of other amino acids, including dicarboxylic acids.

Since 1923, dramatic contributions to precise determination of amino acid sequences in proteins have created new approaches to understanding the dynamics of protein biosynthesis. Now one may go beyond the analytical concern with the structure of completed proteins to the study of the biological mechanisms which control the sequence. For both sets of problems Schwarz BioResearch offers a variety of tools: optically standardized natural amino acids — many of them labeled with C¹⁴ and H² with high specific activity; peptides and polyamino acids; ribonucleoside 5'-triphosphates for RNA synthesis. (Labeled forms of these compounds will soon be ready). Have you written for our catalog and price list?

IN SEPTEMBER — (1908) — there is abstracted² a report by Büchner and Klatte on some attempts to determine the nature of the coenzyme of yeast press juice. Upon standing, press juice gradually loses its activity, and this is attributed to disappearance of the coenzyme. Activity can be restored by addition of boiled press juice. Lipase emulsions cause the boiled juice to lose its restorative powers, but proteolytic enzymes have no effect. Apparently the coenzyme contains an organic phosphoric ester which is split by the lipase.

Today the yeast press juice coenzyme is well known to the scientific world under such names as Coenzyme I, diphosphopyridine nucleotide, cozymase, and DPN. Schwarz BioResearch is also well known to the scientific world as a source of DPN and other metabolic cofactors such as ATP, ADP, adenylic acid, flavin adenine dinucleotide, guanosine diphosphate and guanosine triphosphate.

IN SEPTEMBER — (1954) — a note from Oak Ridge describes an ion-exchange method for separating 5' ribo- and deoxyribonucleotides. Since the deoxy-compounds are not separated from their ribose analogs by chromatography with simple acids or salts, the authors employed a borate complex method previously used to separate isomeric ribose phosphates. This technique is of special interest in view of recent evidence suggesting that both types of nucleotides may exist in the free state in body tissues.³

Building on the many valuable contributions on separation of nucleotides by these and other authors, new and more economical techniques for the isolation of the 5' nucleotides have enabled Schwarz to offer them to you at lower and lower cost. Our catalog is the first place to look for all types of nucleic acid compounds: RNA, DNA, nucleate salts, nucleosides, purines and pyrimidines. Send for your copy.


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Made in America, to the world's highest standards
The annual meeting of the Society for the Scientific Study of Religion will be held in Cambridge, Mass., on 27 and 28 October. The meeting will include a panel discussion on Eskimo, Hindu, and Jewish conceptions of man's place in the universe, and reports on anthropological, sociological, and psychological empirical studies. (James E. Dittes, SSSR, 409 Prospect St., New Haven 11, Conn.)

A study-conference on the role of biomedical engineering in universities and hospitals will be held on 26 and 27 October in Omaha, Nebraska. (Harold G. Beenken, University of Nebraska College of Medicine, 42nd St. and Dewey Ave., Omaha 5)

Scientists in the News

William B. Lurie, physicist and former senior project engineer with General Precision Laboratories, has been appointed chief engineer, Burnell and Company, Pelham Manor, N.Y.

Harley C. Shands, associate professor of psychiatry at the University of North Carolina Medical School, has been appointed professor of psychiatry at the State University of New York Downstate Medical Center.

Wallace Windus, chemist with the U.S. Department of Agriculture, has received the 1961 Allop award of the American Leather Chemists Association.

Paul Silva, former professor of botany at the University of Illinois, has been named senior herbarium botanist at the University of California, Berkeley.

Edmund S. Nasset, professor of physiology at the University of Rochester Medical Center, will spend an 18-month sabbatical leave as nutrition adviser to the government of India, under the United Nations Food and Agriculture Organization.

Monroe E. Freeman, deputy assistant director for general research of the Advanced Research Project Agency, Department of Defense, has been appointed director of the Smithsonian Institution's Science Information Exchange. He succeeds Stella L. Deignan, who recently resigned.

Albert Schatz, chief of the division of microbiology at the Philadelphia General Hospital and associate in medicine at the University of Pennsylvania Graduate School of Medicine, has received the $4000 Dental Research prize of the Soil and Health Foundation of Emmaus, Pa.

James A. Fancher, biochemist and former research associate with the Upjohn Company, Kalamazoo, Mich., has been appointed an assistant member of the research laboratories of the Albert Einstein Medical Center, Philadelphia, Pa.

John Higginson, professor of pathology at the University of Kansas School of Medicine, has been named American Cancer Society Professor, in recognition of his work in cancer epidemiology. He will head the university's newly created department of geographical pathology.

Finn J. Larsen, physicist and former consultant for research and development to the Secretary of the Army, has been named Assistant Secretary of the Army for Research and Development.

Franklin D. Yoder, director of the Division of Environmental Medicine of the American Medical Association, has been appointed Director of Public Health of the state of Illinois.

Charles V. Theis, staff scientist in the U.S. Geological Survey's water resources division, has been given leave from the Survey to head Columbia University's new program in hydrogeology, as adjunct professor in geology.

Martin I. Blake, associate professor of pharmacy at the University of Illinois, has been named professor and head of the department of pharmacy in the university's College of Pharmacy.

Conrad W. de Fiebre, senior research bacteriologist with E. I. du Pont de Nemours, has been appointed research director of the Wilson Laboratories, the pharmaceutical division of Wilson and Company, Chicago.

George E. Dombrowski, former senior engineer with Raytheon Manufacturing Company, Waltham, Mass., has been appointed associate professor of electrical engineering at the University of Connecticut School of Engineering.

Recent staff appointments in the U.S. Atomic Energy Commission's Division of Biology and Medicine:

William W. Burr, Jr., biochemist, formerly of Southwestern Medical School, has been named chief of the division's medical research branch.

Richard S. Caldecott, geneticist with the U.S. Department of Agriculture at the University of Minnesota, has joined the division's headquarters staff.

Arthur T. Thompson has been named associate dean of the Pennsylvania State University's College of Engineering and Architecture. He was formerly associate director of the Ordnance Research Laboratory, operated by the university for the Navy Bureau of Weapons.

Recent Deaths

Abbe H. Breull, 84; paleontologist; taught at the University of Fribourg, Switzerland, at the Paleontological Institute of the College of France, and at the universities of Lisbon and Johannesburg; 14 Aug.

Percy W. Bridgman, 79; physicist and 1946 Nobel Prize winner; retired Harvard faculty member; 20 Aug.

Oswald Frommelt, 88; former horticulturist with the U.S. Department of Agriculture; 14 Aug.

William C. Gibson, 46; associate dean of the University of Michigan School of Public Health; 17 Aug.

Gladys M. Keener, 64; assistant to the executive director of the Scientific Manpower Council and former executive editor of Science; 19 Aug.

Cyrus C. MacDuffee, 66; chairman of the University of Wisconsin's mathematics department until 1956, and former secretary of the mathematics section of the AAAS; 21 Aug.

Ora S. Morgan, 84; emeritus professor of agricultural economics at Columbia University; 14 Aug.


Gotthold Steiner, 75; chief nematologist for the U.S. Department of Agriculture until his retirement in 1955; 21 Aug.

George E. Tate, 56; nuclear physicist with the Foster Wheeler Corp., New York City, since 1930; 24 Aug.

Max M. Van Sandt, 58; medical director of the U.S. Public Health Service, Washington, D.C. 22 Apr.
in which the towns have grown up. They are local people, heavily dependent upon the wages they earn, for whom subsistence agriculture is either unattractive or impossible. For migrant workers, of course, wages are a supplement to farm income.

This is a pattern which, with substantial variations, is familiar elsewhere in Africa and in parts of Asia as well. The special merit of Elkan's work is that he questioned the usual assumption that short-term migration is essentially a transitional factor. He concludes that there are some decidedly positive advantages to migrant labor and that it is likely to persist.

Elkan provides the reader with a brief statement of his problem and with a summary description of Uganda, before proceeding to his more detailed discussion. The main part of the book provides a carefully drawn account of labor patterns: where and under what circumstances people are employed, variations in skill and in wages, the place of trade unions, the problem of labor efficiency, and the ways in which management enters into the picture. Since the employees are primarily Africans and the employers are ordinarily either Europeans or Asians, discussion of the former is most detailed.

Elkan draws useful comparisons with past and present English experience wherever possible and thereby highlights his own account. His writing is lucid, points which might be obscure to the nonspecialist are usually explained, and the implications for areas other than economics are often indicated. This book should appeal to—and be read by—a very wide audience.

ALFRED HARRIS
Department of Anthropology, Brandeis University

Schools in Focus


"Why another book about the nation's schools?" Some hard-pressed educators may add, "And why one by an outsider?" There has been so much analysis, comparison, attack, and defense in other recent volumes, what more is there to say?

One need read only a few pages of The Schools to find that these are the wrong questions. Let the author himself explain:

"It was because I had some sense of the unreality of the 'great controversy' in education that I wanted to write this book. . . . The critic shouts that the schools are lazy and the educators fools; the educator shouts back that the critics are reactionaries and their criticisms are ignorant. . . . "What follows is the result of some thirty months of observing, interviewing, reading and (briefly) teaching. The work has taken me as far east as Helsinki and as far west as San Francisco. I have visited about 150 schools and spoken privately with more than fifteen hundred people involved in one way or another with the education of the young. I have read forty or fifty linear feet of books and an uncounted weight of periodical literature. I would not say that my preparation was sufficient, but six thousand pages of notes are all the file will hold; and there comes a time when a man who writes for a living must sit down and write his book.

"The effort throughout has been to get at the realities of education, to cut below the controversy to the problems as they present themselves inside schools both in the United States and in some countries of Western Europe. Shortly after undertaking the job, I spent three months attempting to find and remove my own biases on this subject, so that I might enter the schools with as neutral a view as I could achieve."

From this neutral, reporter's background Mayer has produced a book that rates an A for reading by teachers, school administrators, critics, or parents. With sympathetic understanding instead of passion, in clear vivid English instead of jargon, with frequent specific examples, he describes the nation's schools, what they are like, how varied they are, how they became the way they are, the standards of quality expected, the preparation of teachers, the examination system and the uses of intelligence and other standardized tests, the teaching of different levels from kindergarten through senior high school, and the teaching of the native tongue, mathematics, science, the social studies, and foreign languages.

In all of this, Mayer's objective is to describe and analyze rather than to praise or blame or preach. He analyzes with skill, gives enough of the history of current problems to provide background, and intersperses illuminating vignettes from classroom observation in European and American schools. He contrasts some of the exciting and imaginative things being done in some schools with the dull and dreary work going on in others.

Two ideas emerge with special clarity. Neither is new, but both have been buried in much of the shriller writing. One is that the schools are extremely varied; they cover the whole range from indefensibly stupid to exceedingly good. The other is that slowly, gradually, but cumulatively, the schools improve. But if this conclusion is hopeful, it is also sober. Improvement requires better teachers, better preparation of teachers, better teaching materials, better understanding and support on the part of school board and society. The excellence of many schools indicates that we know how to improve others, but, in Mayer's words, "the damnable difficulty is that all those connected with schools insist on behaving like people."

DAEL WOLFE
American Association for the Advancement of Science

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


Kodak reports on:

Tenite Butyrate men . . . a job for the halogen-changer . . . when to remember our name and when to forget it . . . time-lapse at the professional level

A phantom

Dozens of these phantoms have been manufactured out of our Tenite Butyrate for government, industry, universities, and hospitals by Alderson Research Laboratories, Inc., 48-14 33rd Street, Long Island City 1, N. Y. We know an interesting phantom when we see one and will forgive you for not knowing that the word means a dummy which simulates the human body in studies with ionizing radiation. (In perfecting the new medical x-ray films mentioned below to make them give the kind of rendition that a radiologist best understands, our phantoms were radiographed so frequently they almost spit fire.) The Tenite phantom here shown acts as an emitter for calibrating whole-body counters and such, its Tenite thyroid, liver, lungs, spleen, kidneys, and other organs filled with radioactive solutions that simulate the radiative properties of a radioisotope-treated organ. Alternatively the Tenite shell can be equipped with a human skeleton inside and a system of dosimeter ports for studies of absorption of radioactivity.

How the mind wanders

Methanesulfonyl Fluoride (Eastman 8368) is the result of a day spent listening in on the ACS Division of Medicinal Chemistry and in particular a paper on “Preparation of Some Purinesulfonamides from the Corresponding Purinesulfonylfluorides.” We don’t recall its content with any precision. What the speaker succeeded in doing to us was to impress us with the strong role being played in biochemical thought today by the sulfonyl group. His mind was doubtless illuminating the big picture, but our mind was narrowing down to the little picture. Here was a trend, and we ought to make sure we were riding it well.

We offer Methanesulfonic Acid, Methanesulfonic Anhydride, n-Butyl Methanesulfonate, Ethyl Methanesulfonate, Methyl Methanesulfonate, and Methanesulfonyl Chloride. This fellow, we noted, was talking sulfonylfluoride. We have a man who is skilled in the art of exchanging any halogen for any other. We decided that as soon as we got home we would have him switch over some chloride to fluoride. That he has done. We are now ready to accept our small but rightful reward for thoughtfulness.

If you want some, or, what is more likely, a look at the list of some 3900 Eastman Organic Chemicals which we stock and which we properly reveal in our Catalog No. 42, get in touch with: Distillation Products Industries, Rochester 3, N. Y. (Division of Eastman Kodak Company).

A little x-ray news

More precious than rubies is confidence in the importance of what one does for a living. One thing we do for a living is to manufacture x-ray film. Unkind words are rarely spoken about society’s need for x-ray film. Now we have news about x-ray film and need to make it seem important. Easy.

The first piece of news has it that Kodak Industrial X-ray Film, Type M is now obtainable with emulsion on one side only instead of both sides, the way x-ray film usually comes in order to double the strength of the image. Simple, yes; trivial, no. Ties in to the very large subject of mankind’s current push for great structural strength in small mass. Load-bearing members are now getting so thin that putative flaws on their radiographs have to be checked out with a microscope. Since a microscope can focus on only one side of the film at a time, it’s better to have the other side blank. Enough of this is being done now so that x-ray dealers are stocking the single-coated film of high contrast and fine grain.

Eastman Kodak Company, X-ray Division, Rochester 4, N. Y., will be glad to guide you to such a dealer.

The second piece of news much exceeds the first in importance. The nuclear testing debate has gone on for years. As an intelligent citizen, you have been given estimates by various authorities of how much radiation you and your children can expect to soak up, barring disaster. You have been told how much to figure for medical and dental radiological examination over a lifetime. Meanwhile we have been quietly goofy ing the statistics! We have been upping the response of the films. With the latest step, the same amount of examination requires half or a third as much radiation as had been estimated.

No action is required on your part. Just privately rejoice a little at how the deal has been sweetened a bit for you, statistically.

Clear, steady movies

This is a professional motion picture camera. It is called the Kodak Reflex Special Camera (16mm). Its price is $1895. (Any amateur who buys it imperils his amateur status, but that’s his lookout, not ours.) For a professional camera the price is remarkably low, particularly since it is the latest and most versatile of professional 16mm cameras and everybody knows that the cost of professional equipment in most fields rarely goes in any other direction than up. The base price includes a removable synchronous motor for 24 frames/sec, both 400- and 100-foot film chambers, and a Kodak Cine Ekton Lens, 25mm f/1.4. An accessory is available for any kind of time-lapse photography. Another accessory records synchronized sound. Etc., etc.

However long this recital was spun out, we doubt that the person for whom we spent 10 years making this camera is the kind who would commit himself on the strength of this ad. If he will signify his interest to Eastman Kodak Company, Motion Picture Film Department, Rochester 4, N. Y., we shall work out some arrangement to bring him, the camera, and its accessories together.

Price subject to change without notice.
Laboratory) served as program chairman for the 1961 meeting. The local chairman was P. L. Walker, Jr. (Pennsylvania State University), who with S. Mrozowski and M. L. Studebaker (Philips Chemical Company) is a member of the executive committee of the American Carbon Committee. David S. Coleman (Pennsylvania State University) served as conference coordinator.

M. E. BELL
Pennsylvania State University,
University Park

Forthcoming Events

October

1-3. Council for Intern. Organizations of Medical Sciences, Paris, France. (CIOMS, 6 rue Franklin, Paris 16)
1-4. Process Engineers, annual, Vienna, Austria. (Österreichischer Intenieur- und Architektenverein, Eschenbachasse 9, Vienna 1)

1-8. International Congr. of Industrial Chemistry, 33rd, Bordeaux, France. (Société Chimie Industrielle, 28 rue Saint-Dominique, Paris 7, France)
2-7. Climatic Change, symp., Rome, Italy. (UNESCO, Place de Fontenoy, Paris 7, France)
2-7. Inter-Regional Leprosy Conf., Istanbul, Turkey. (WHO, Regional Office for Europe and Regional Office for the Eastern Mediterranean, 8 Scherfigsvej, Copenhagen Ø, Denmark)
2-11. International Council for the Exploration of the Sea, 49th annual, Copenhagen, Denmark. (Charlottenlund Slot, Charlottenlund, Denmark)
3-8. Aerosol Congr., 3rd intern., Lucerne, Switzerland. (Federation of European Aerosol Assoc., Waisenhausstrasse 2, Zürich, Switzerland)
4-10. Latin American Congr. of Electroencephalography, 5th, Mexico, D.F. (J. Hernandez Paniche, Instituto Mexicano de Seguro Social, Hospital La Raza, Mexico, D.F.)
4-10. Latin American Congr. of Neurosurgery, 9th, Mexico, D.F. (J. H. Mateas, Tonalá No. 15, Mexico 7, D.F.)
6-7. American Medical Writers' Assoc., New York, N.Y. (S. O. Waife, P.O. Box 1796, Indianapolis 6, Ind.)
6-8. Therapeutics, 7th intern. congr., Geneva, Switzerland. (P. Rentchnick, Case Postale 229, Geneva 2)
8-10. Zooplankton Production, symp., Copenhagen, Denmark. (J. H. Frazer, Marine Laboratory, P.O. Box 101, Victoria Rd., Aberdeen, Scotland)
9-11. National Electronics Conference and Exhibition, 17th annual, Chicago, Ill. (NEC, 228 North La Salle St., Chicago 1, Ill.)
9-12. Instrument Symp. and Research Equipment Exhibit, 11th annual, Bethesda, Md. (J. B. Davis, Natl. Institutes of Health, Bethesda 14)
9-12. Water Pollution Control Federation, 34th annual, Milwaukee, Wis. (R. E. Fuhrman, 4435 Wisconsin Ave., NW, Washington 16)
10-12. Nuclear Reactor Chemistry, 2nd conf., and Analytical Chemistry in Nu-
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\[
\begin{align*}
\text{CICH}_2\text{CH}_2 & \xrightarrow{\text{N-P}} \text{NH-CH}_2 \\
\text{ClCH}_2\text{CH}_2 & \xrightarrow{\text{O-C}^{14}\text{H}_2} \text{CH}_2 \cdot \text{H}_2\text{O}
\end{align*}
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The Norelco line of microscopes is extensive. There’s the EM-100 which can be seen wherever discriminating microscopists gather and also the EM-200 whose new features require pages to cover. Detailed information is available on any of all of these electron optical devices. Simply write Philips Electronic Instruments, Electron Optics Department, Mount Vernon, New York.
New Products

The information reported here is obtained from manufacturers and from other sources considered to be reliable. Neither Science nor the writer assumes responsibility for the accuracy of the information. All inquiries concerning items listed should be addressed to the manufacturer. Include the department number in your inquiry.

Time-code generator produces a serial readout of 20-bit, 24-hour code. Frequency stability is said to be 3 parts in 10^10 per day. The instrument also furnishes a 1-Mcy/sec differentiated square wave for synchronization with external standards and a 1-pulse-per-second output for comparison with time ticks from radio station WWV. The unit is designed for operation over an ambient temperature range of -20°C to +55°C. An external signal may be substituted for the internal crystal oscillator. (Electronic Engineering Co., Dept. Sci295, 1601 E. Chestnut Ave., Santa Ana, Calif.)

Automatic monitor has a scanning rate of up to 5000 inputs per second and measures any variable reducible to a voltage signal as well as the rate of change of the variable. The monitor compares measured values with preset values and converts the result into digital form. Alarm conditions are displayed by a cathode-ray tube. Five types of alarm conditions are recognized: high alarm; excessive rate of change; approach to trip; irrational high; and irrational low. The system can be expanded to 3600 input channels. Systems with self-healing as well as self-checking features are available. (Monitor Systems, Inc., Dept. Sci296, Fort Washington Industrial Park, Fort Washington, Pa.)

Digital readout device decodes either binary inputs or pulse trains and displays information in digital form. Sixteen 94- by 1/2-in. alphanumeric characters are displayed at rates up to 50 per second. Ten of the symbols are decimal digits; the other six can be specified by the customer. A built-in memory keeps the last character in position with no power requirement. Operation is on either 12 or 28 volts d-c with power requirement 0.57 watt sec per bit. Size is 1 by 3.1 by 2.5 in. (Data-scope Corp., Dept. Sci330, Culver City, Calif.)

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WRITE FOR CATALOG TCS/981

8 SEPTEMBER 1961
Vacuum desiccator maintains drying temperatures up to 150°C with accuracy said to be ±1°C. The apparatus consists of a sheet-metal base, carrying electrical controls, and a glass assembly. The latter includes the heating and drying chambers and the desiccant chamber with side arm and stopcock for vacuum connection. Heating oil is kept below its boiling point so that a cooling system is unnecessary. (Brinkmann Instruments, Inc., Dept. Sci342, 115 Cutter Mill Rd., Great Neck, N.Y.)

Oscilloscope camera, which uses the Polaroid-Land camera principle, allows up to nine trace exposures per print. Full-size prints may also be obtained. The camera uses a 1/1.9 Wollensak Oscillo-Raptar 75-mm coated anastigmatic lens. (Electronic Tube Corp., Dept. Sci309, 1200 E. Mermaid Lane, Philadelphia 18, Pa.)

Temperature controller uses as sensor a 500-ohm platinum-resistance transducer. Output is a set of relay contact closures that can be set from 2 to 15 amp at 115 volts a-c. Range of the instrument is 0° to 2000°F. Temperature differential between on and off is said to be less than 2.5°F over the entire range. A nulling meter indicates deviation from set point in degrees Fahrenheit; resolution is ±0.5°F. (Winsco Instruments and Controls Co., Dept. Sci281, 11789 W. Pico Blvd., Los Angeles 64, Calif.)

Impedance bridge measures capacitance and dissipation factor of capacitors, inductance and storage factor of inductors, and a-c and d-c resistance of resistors. Resistance is measured from 0 to 12 megohms in eight ranges with accuracy said to be ±(0.1 percent + 1 div.). Capacitance is measured in seven ranges from 0 to 1200 µf with accuracy of ±(0.2 percent + 1 div.). Inductance range is 0 to 1200 hy in seven steps with accuracy of ±(0.3 percent + 1 div.). Dissipation factor and storage factor are measured from 0 to 1000 at 1 kcy/sec with accuracy ±(2 percent + 0.005). (John Fluke Manufacturing Co., Dept. Sci311, Mountlake Ter., Wash.)

Phase generator-shifter consists of a tuning-fork oscillator, filter circuit, resistance-capacitance phase shifting networks, an electron-tube phase inverter, and two cathode followers. Phase angle is continuously variable from 0 to 360 deg. For direct phase reading, frequency is normally 400 or 800 cy/sec. Other frequencies from 50 to 1000 cy/sec. are available. Accuracy is said to be ±0.1 deg relative and 0.25 deg absolute. Impedances looking into the output terminals are 300 ohms nominal shunting resistance and 2 µf series capacitance for d-c blocking. Variation of load impedance is said to have no effect on accuracy of phase shift. (Ad-Yu Electronics Lab., Inc., Dept. Sci344, 249–259 Terhune Ave., Passaic, N.J.)

Joshua Stern
National Bureau of Standards, Washington, D.C.

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[Image of laboratory equipment]