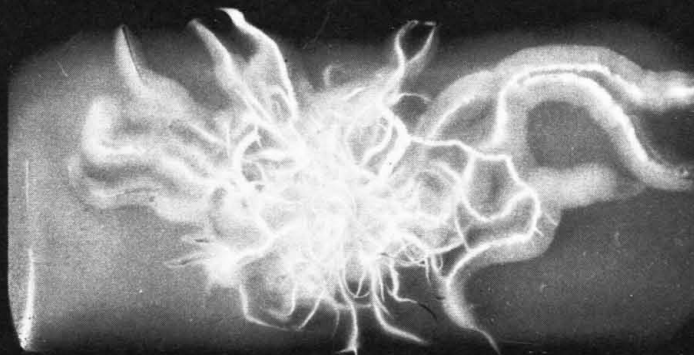
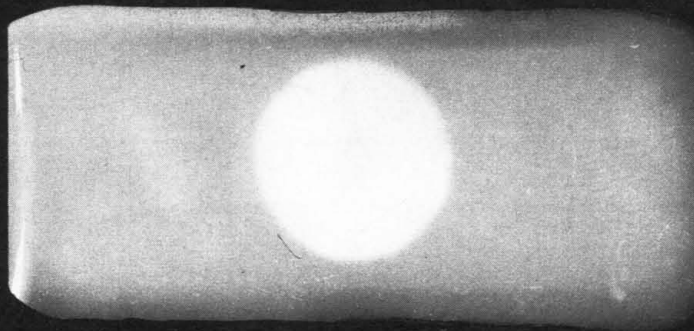


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22 November 1963

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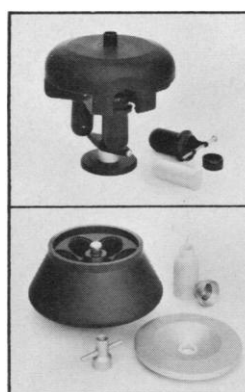


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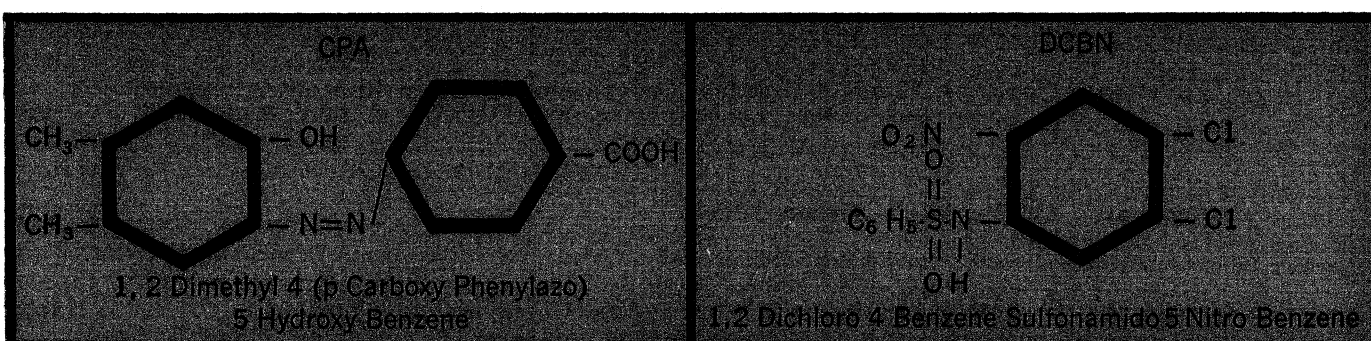
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Previously it was demonstrated that certain spontaneous mammary cancers of mice differed from normal mouse tissues in that cancer cells synthesized Vitamin B₁₂ ⁽²⁾ ⁽³⁾. This metabolic difference allowed the prediction and the realization of antimetabolites poisonous to the cancers that are harmless to the host mice ⁽⁴⁾ ⁽⁵⁾.

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⁽¹⁾ D. W. Woolley and J. M. Stewart, Biochem. Pharm. 11, 1163, (1962). ⁽²⁾ D. W. Woolley, Proc. Nat. Acad. Sci. Wash. 39, 6, (1953). ⁽³⁾ D. W. Woolley, Ibid, 41, 111, (1955). ⁽⁴⁾ D. W. Woolley, Cancer Res. 13, 327, (1953). ⁽⁵⁾ D. W. Woolley and G. Schaffner, Ibid, 14, 802, (1954).

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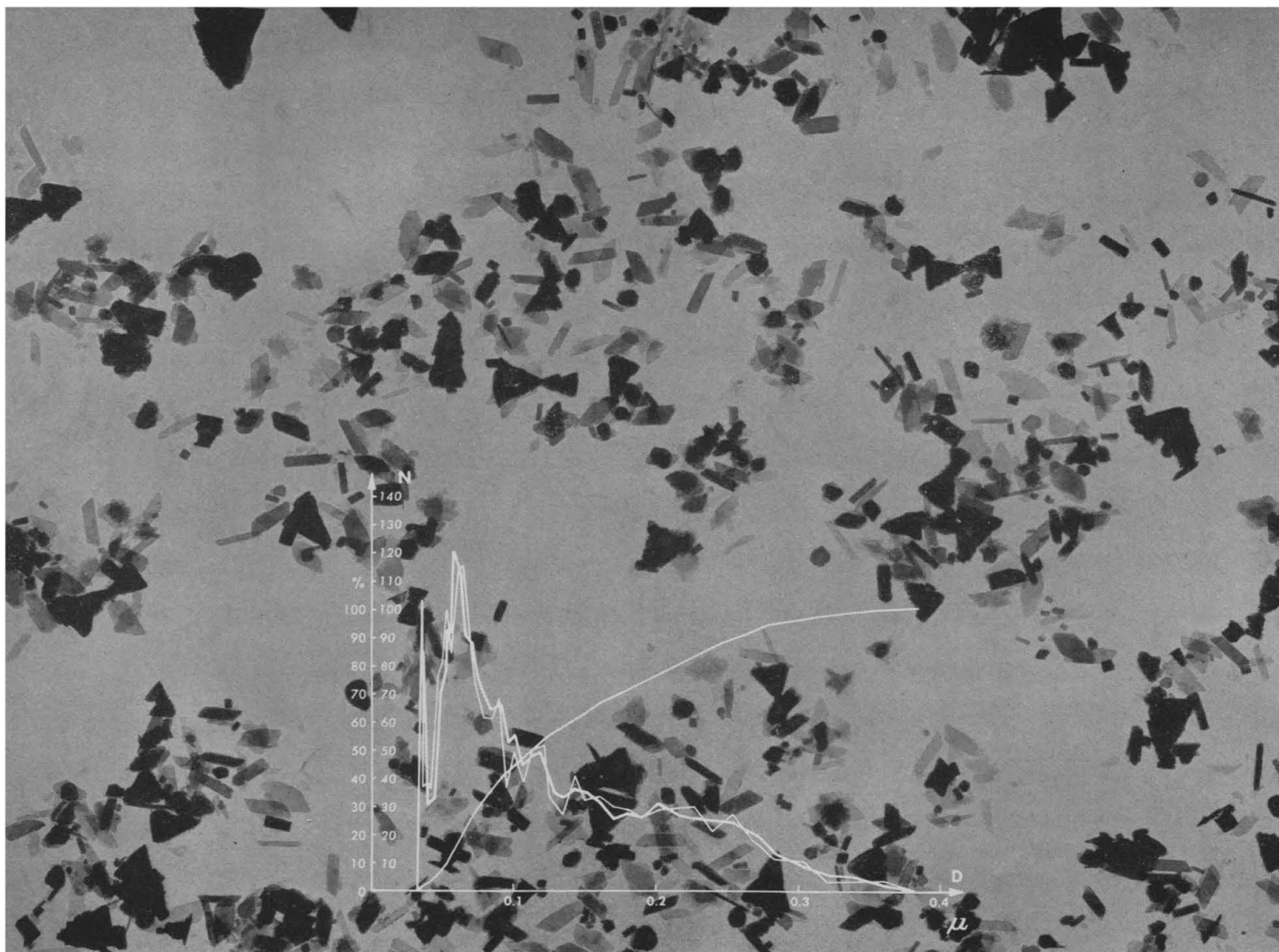
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COVER

Rhizomorphs of the soil-borne plant pathogen *Armillaria mellea* (Vahl) Quel in a chemically defined medium. Formation was stimulated by addition of ethanol to the medium. These structures show a high degree of organization. Under natural conditions they function in the pathogen's penetration of the roots of the host. See page 1065.



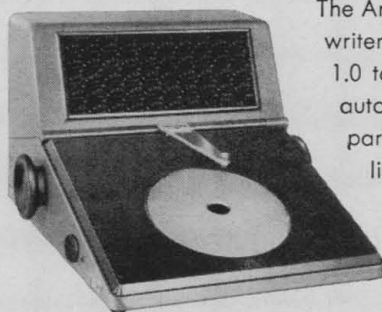
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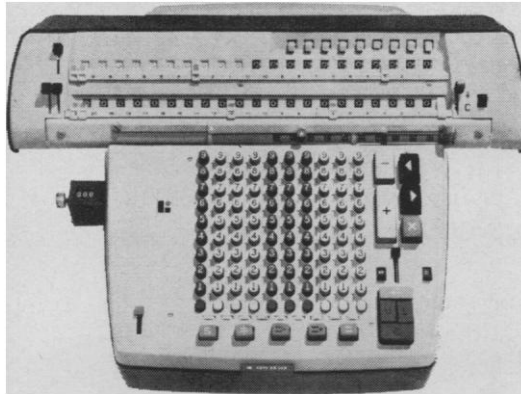
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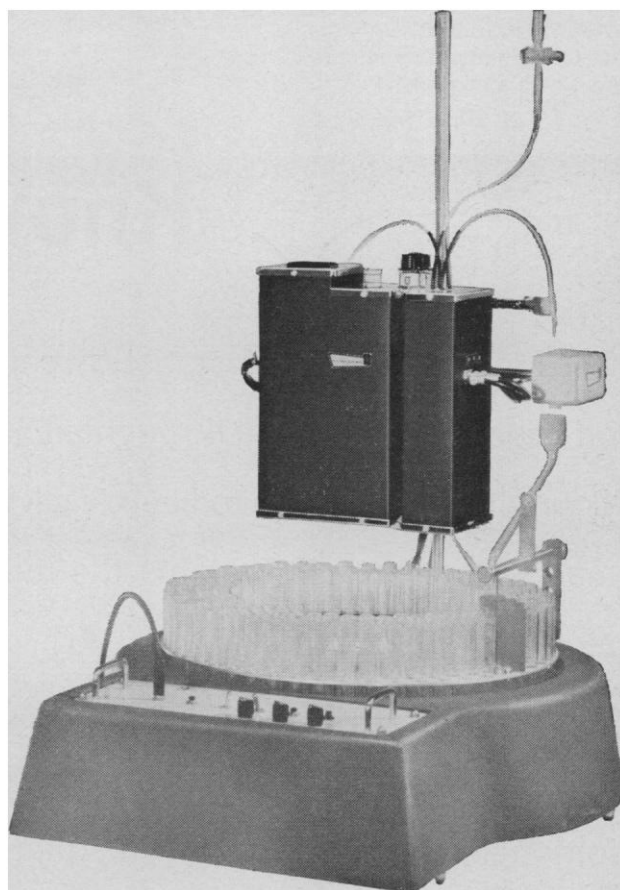
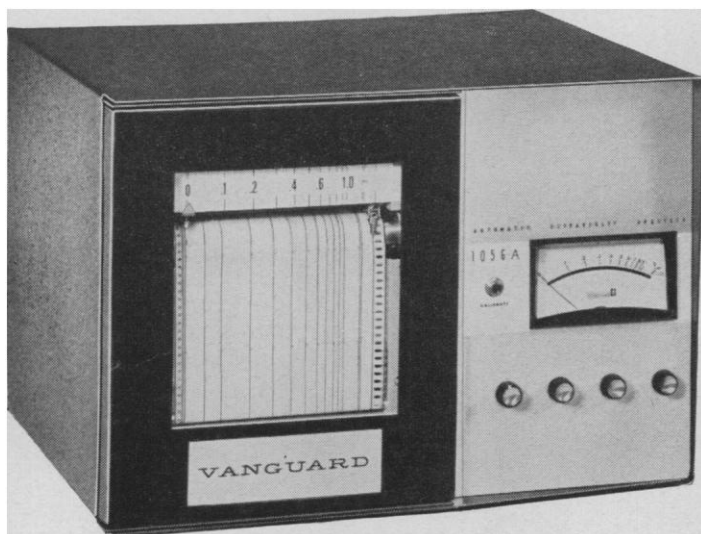
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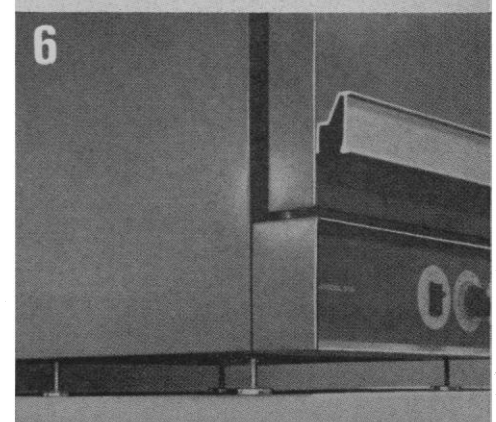
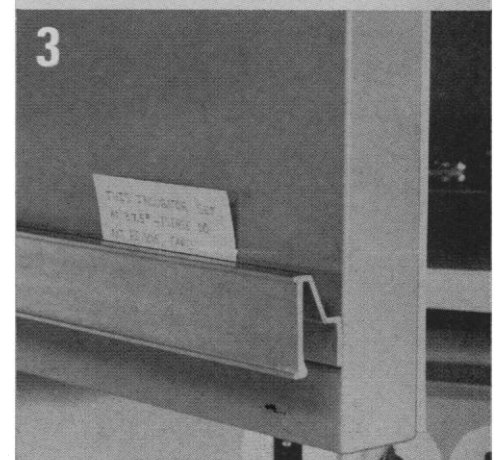
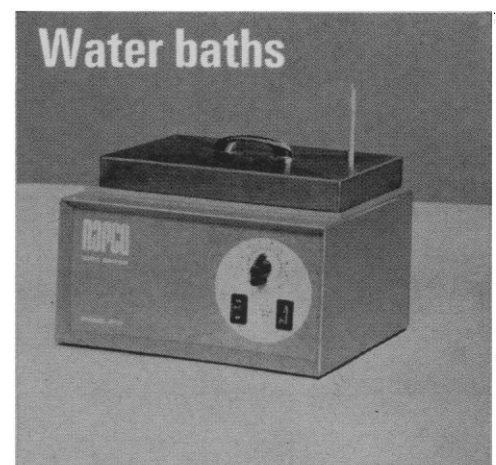
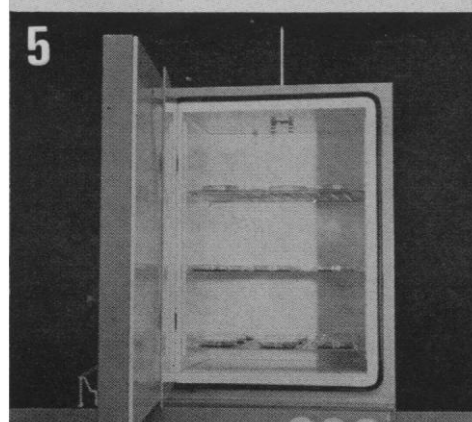
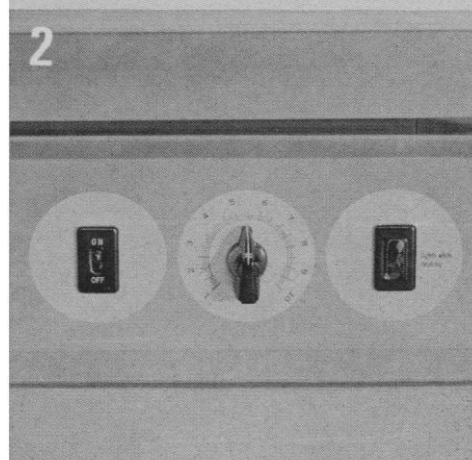
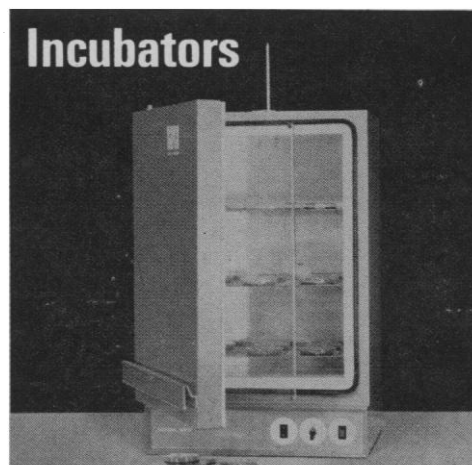
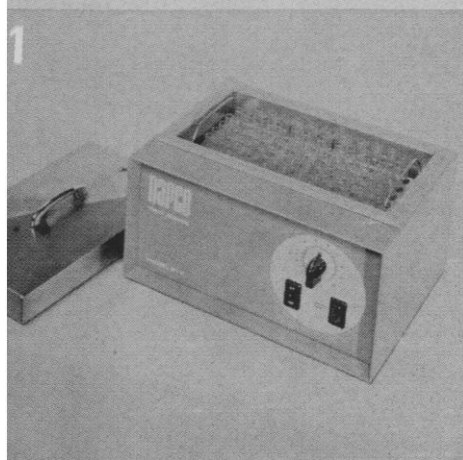
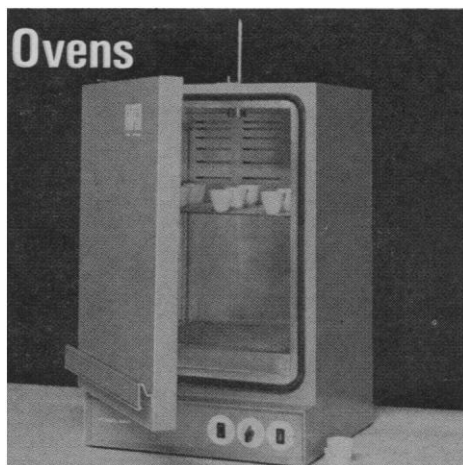
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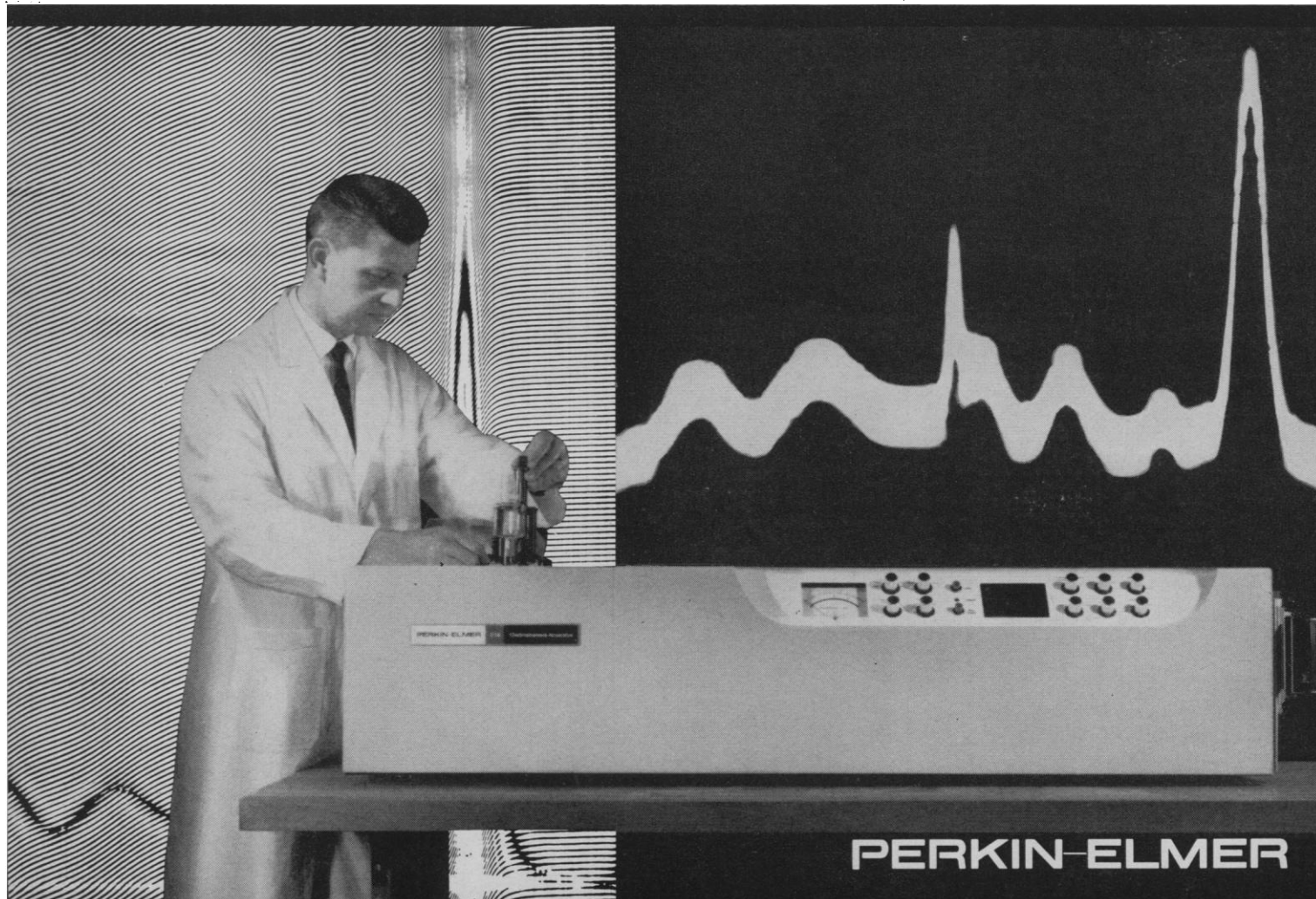
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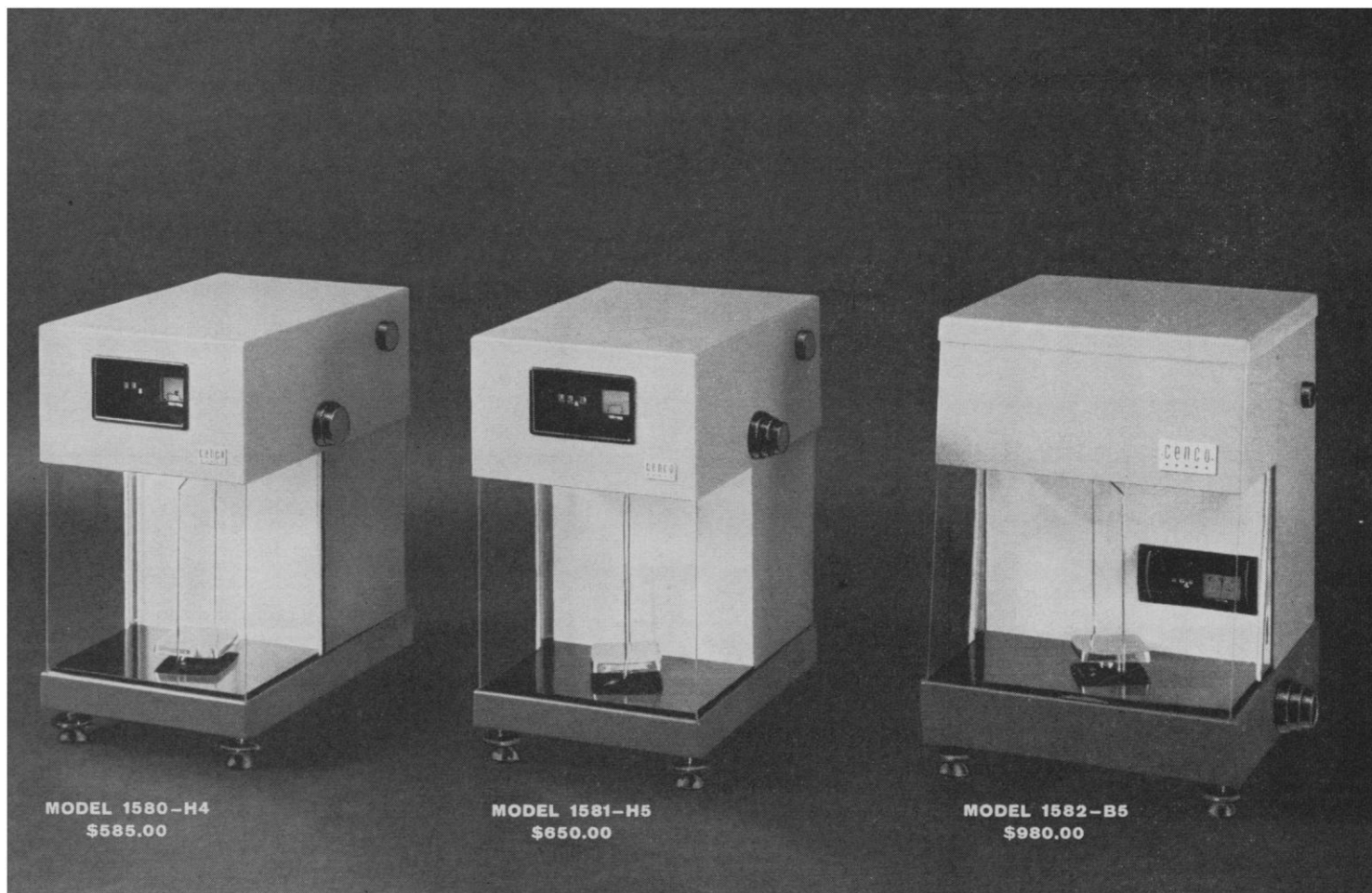
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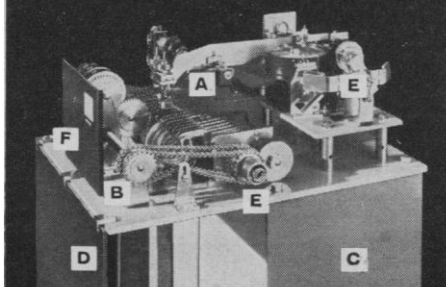


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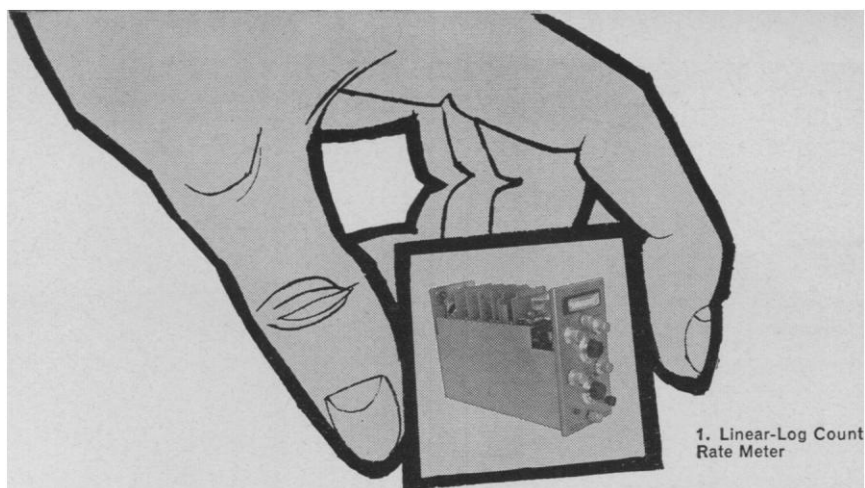
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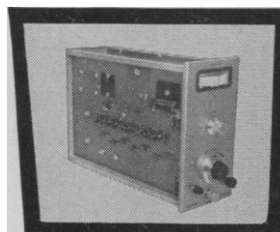
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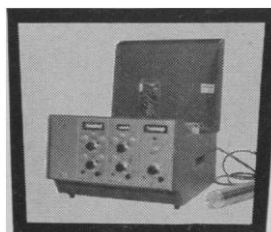
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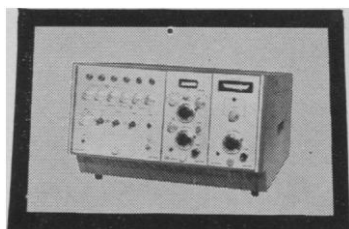
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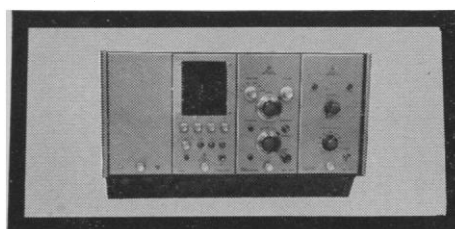
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Program Highlights

Moving Frontiers of Science A. M. Gleason on the evolution of an active mathematical theory; Gordon J. F. MacDonald on deep structure of continents; A. L. Schawlow on infrared and optical masers; V. G. Dethier on microscopic brains.

Interdisciplinary Symposia AAAS day: Uses of lasers and masers; philosophical aspects of present-day cosmogony and cosmology; developmental aspects of immunity; biological and sociological research on the effects of human reproduction control; the federal government, science, and the universities.

Special Sessions AAAS Presidential Address by Paul Gross; the AAAS Distinguished Lecture on ideology and income by J. K. Galbraith; the Joint Address of Sigma Xi and Phi Beta Kappa by Paul Sears; the George Sarton Memorial Lecture by Hudson Hoagland; and the National Geographic Society Illustrated Lecture on Mozambique by Volkmar Wentzel.

Other General Events Three-session symposium on the sciences in Japan sponsored jointly by the Science Council of Japan and the AAAS. Two symposia sponsored by the Office of Economic and Statistical Studies of the National Science Foundation: Planning and administration of scientific research programs, and the role of instruments and equipment use in research program planning.

AAAS Committees Joint symposium of the Committee on Meetings and the Committee on Science in the Promotion of Human Welfare on chemical control of heredity, arranged by Barry Commoner and David R. Goddard.

Sections and Societies The 20 AAAS Sections and some 70 participating societies are scheduling specialized symposia, and many have sessions for contributed papers.

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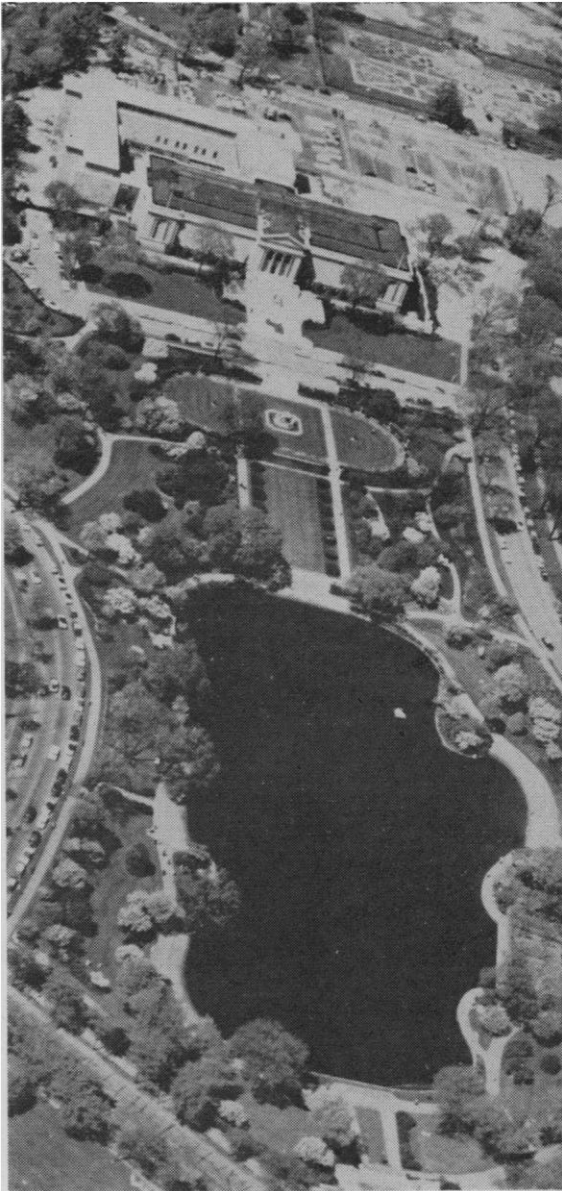
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Make sure you have the accommodations you prefer. A list of headquarters hotels of participating societies appears on page 280, 19 July, *SCIENCE*. The AAAS headquarters is the Sheraton-Cleveland.

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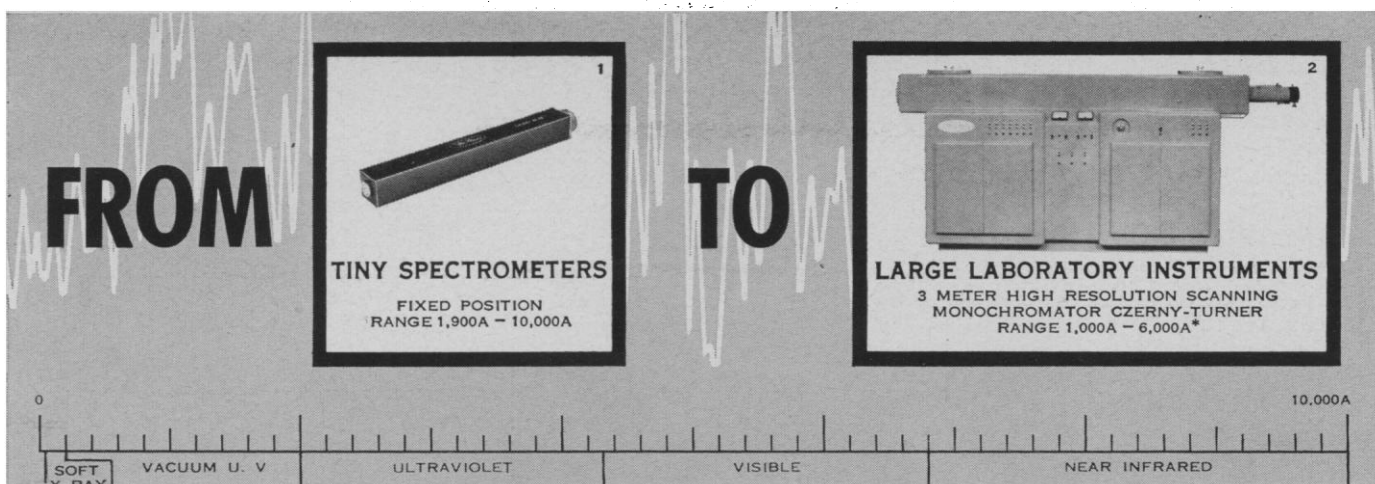
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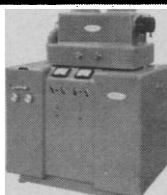
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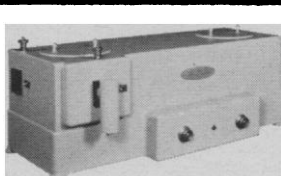
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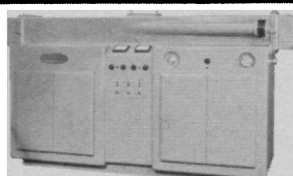
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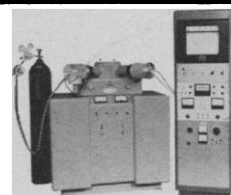
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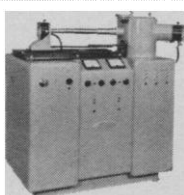
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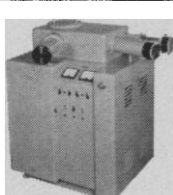
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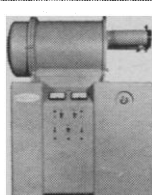
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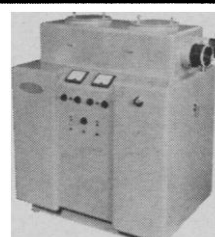
2 METER GRAZING INCIDENCE VACUUM U. V. SCANNING MONOCHROMATOR, ROWLAND CIRCLE RANGE 50A - 2,000A*



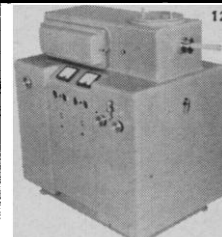
1 METER SCANNING MONOCHROMATOR SEYA AND NORMAL INCIDENCE RANGE 300A - 6,000A*



1 METER NORMAL INCIDENCE SCANNING MONOCHROMATOR ROWLAND CIRCLE, RANGE 300A - 6,000A*



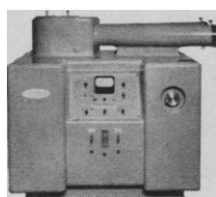
1 METER NORMAL INCIDENCE SCANNING MONOCHROMATOR MCPHERSON TYPE RANGE 300A - 6,000A*



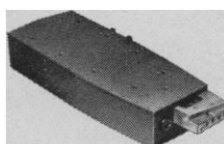
2 METER GRAZING INCIDENCE VACUUM U. V. SPECTROGRAPH, FIXED POSITION RANGE 50A - 2,000A*



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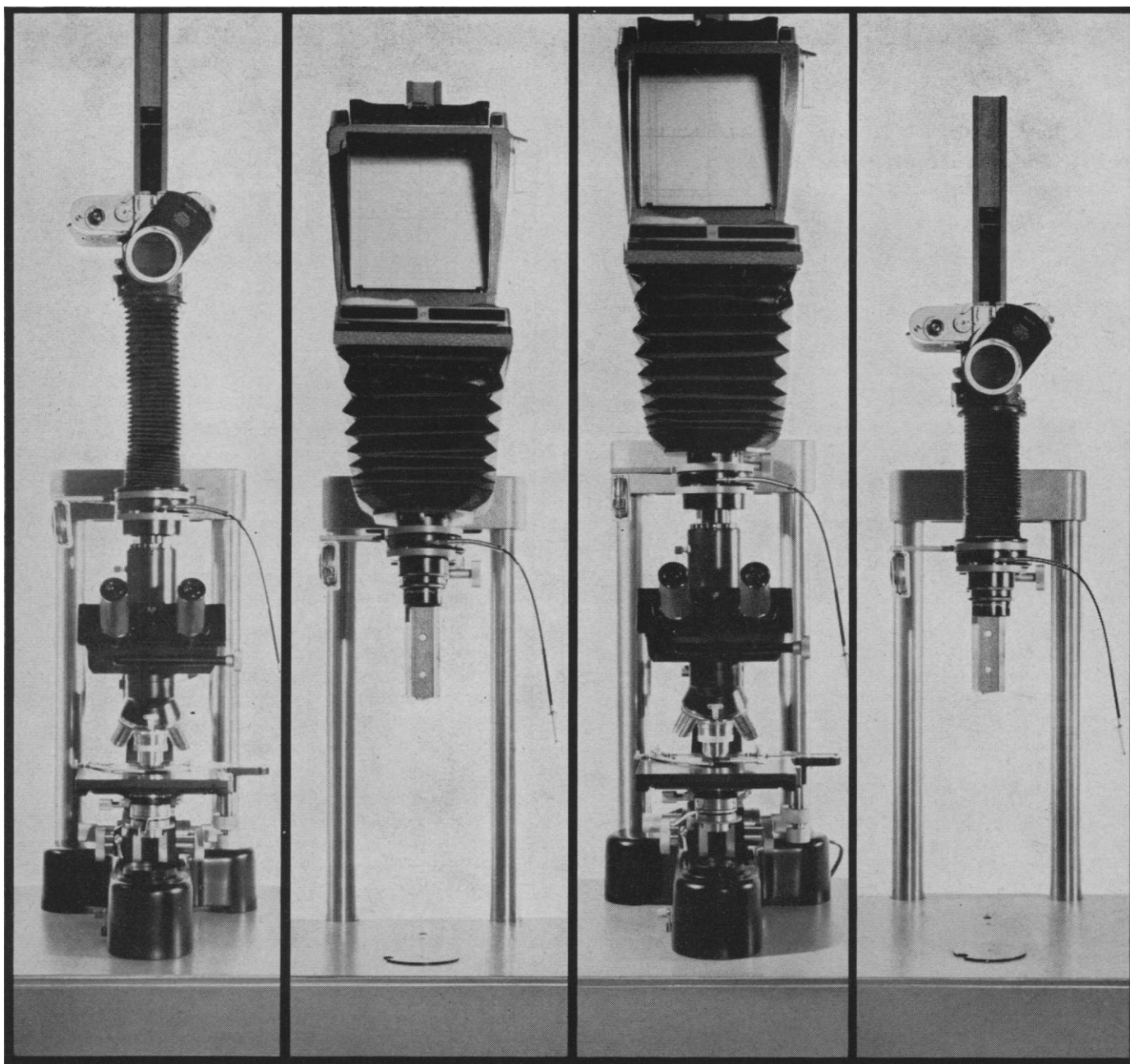
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The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects are to further the work of scientists, to facilitate cooperation among them, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.

The President's Science Adviser

Announcement of the retirement of Jerome B. Wiesner as the President's Science Adviser is an event which calls for stocktaking. Wiesner has served simultaneously in many roles—President's Science Adviser, chairman of the President's Science Advisory Committee, director of the Office of Science and Technology, and chairman of the Federal Council on Science and Technology. In addition he has been de facto director of the Bureau of the Budget for research and development and personnel procurement officer for scientific posts. He has had at his disposal perhaps more power than that enjoyed collectively by all other scientists connected with government. The principal sources of this authority have been access to the President, and control in budgetary matters.

In his many roles Wiesner has been required to present at least three differing visages to the world. As the President's adviser, his appropriate function has been that of self-effacing, impartial judge, often acting under tightest security. As director of OST, it has been in the public interest for him to wield authority as openly as possible. His power also implicitly has required him to be a Statesman of Science—a deep thinker—with long-term views of evolving patterns in science and technology and of the relations among society, science, and education.

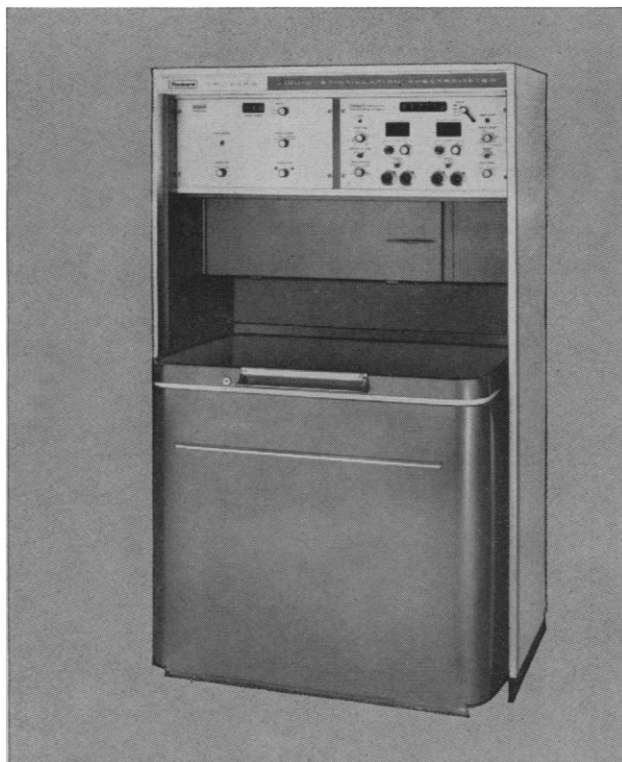
The realities of politics and power dictate that the role of President's Science Adviser and its needs should transcend all other functions. Almost inevitably the secrecy necessary to that office has been carried over into the Office of Science and Technology, which attempts to keep secret even the identity of its employees and consultants. The realities of human behavior also dictate that immediate operating decisions take priority over long-term thinking.

Wiesner has served the nation during a very difficult period. He has been among the most conscientious, hard-working individuals who have held high position in Washington. By tradition, comment at this time should consist of fulsome praise of his policies and accomplishments. Yet such comment would necessarily be an exercise in creative prose. After almost 3 years in which Wiesner has participated in countless decisions, there is little in the public domain to indicate the quality of his judgments or actions. For instance, the last annual report of the Federal Council for Science and Technology conveys the information that various studies are in progress.

When power is exercised, someone gets pushed around, and other executive agencies have been the resentful victims. In addition, the fate of the OST budget indicates misgivings in the minds of members of Congress. Thus, the PSAC-OST complex faces potential hostility on the part of Congress and government agencies, and it has provided almost no intellectual basis for support by the scientific community. To repair the situation will probably require more than changing the guard. It will certainly necessitate a less arrogant mode of operation. Means should be found to separate functions of the PSAC-OST complex into logical packages, with no one man asked to perform more than is humanly possible. The job of President's Science Adviser is a big one which merits full-time effort. A full-time director should head OST, and he should have a far better staff—one of high scientific stature. Finally, we need a Planning Office headed by a man who can think and who can marshal the wisdom of this nation in attempting to give guidance for the future.

—P.H.A.

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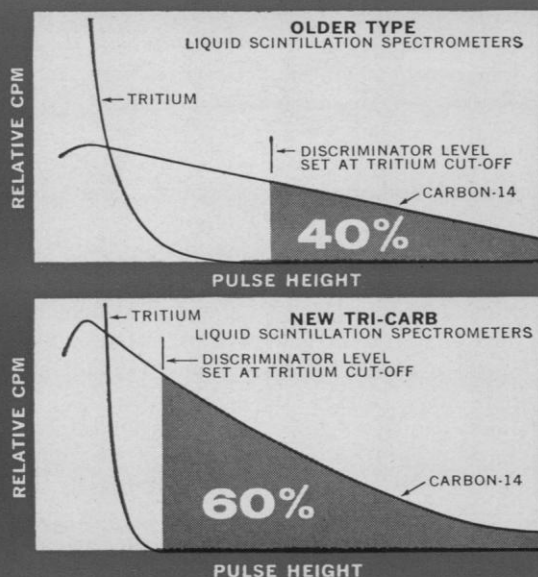
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Comparison demonstrating greatly improved isotope separation obtainable with the new TRI-CARB Spectrometers by showing percentage of total carbon-14 which appears beyond tritium cut-off. Data is directly comparable in both cases: discriminator levels were set so that only 0.01% tritium remained in the carbon-14.

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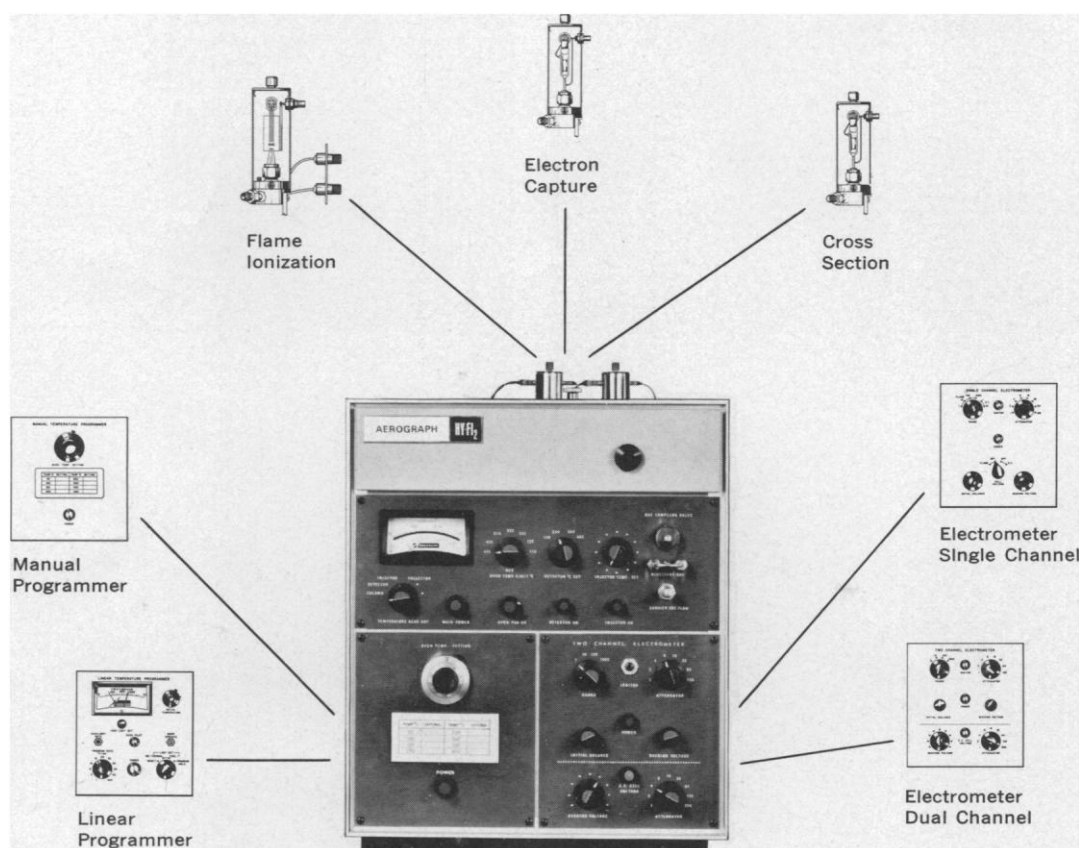
You may need to buy, for instance, a storage battery, or for a small additional fee of \$150

—a built-in power supply. Flow controllers for two-column instruments will be provided for only \$300. There are other little items which you can also dig up here and there, such as gas connecting tubes, filters, flow meters, septums, transformers, restrictors, etc.

As a sales inducement, Aerograph instruments are provided with those accessories necessary for its operation. A display of accessory items for the new Aerograph Hy-Fi₂ is shown on page 4.

The question is—who should take care of these little things?

The Hy-Fl₂ with a single column and multiple detectors

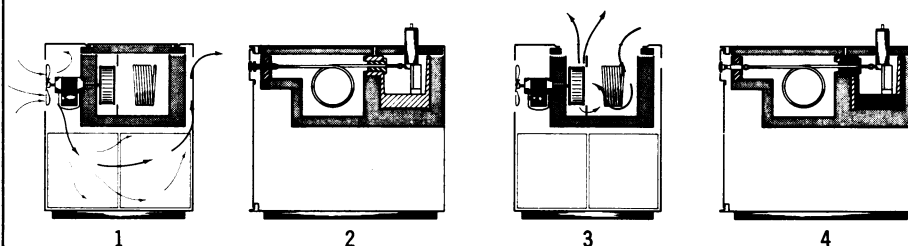


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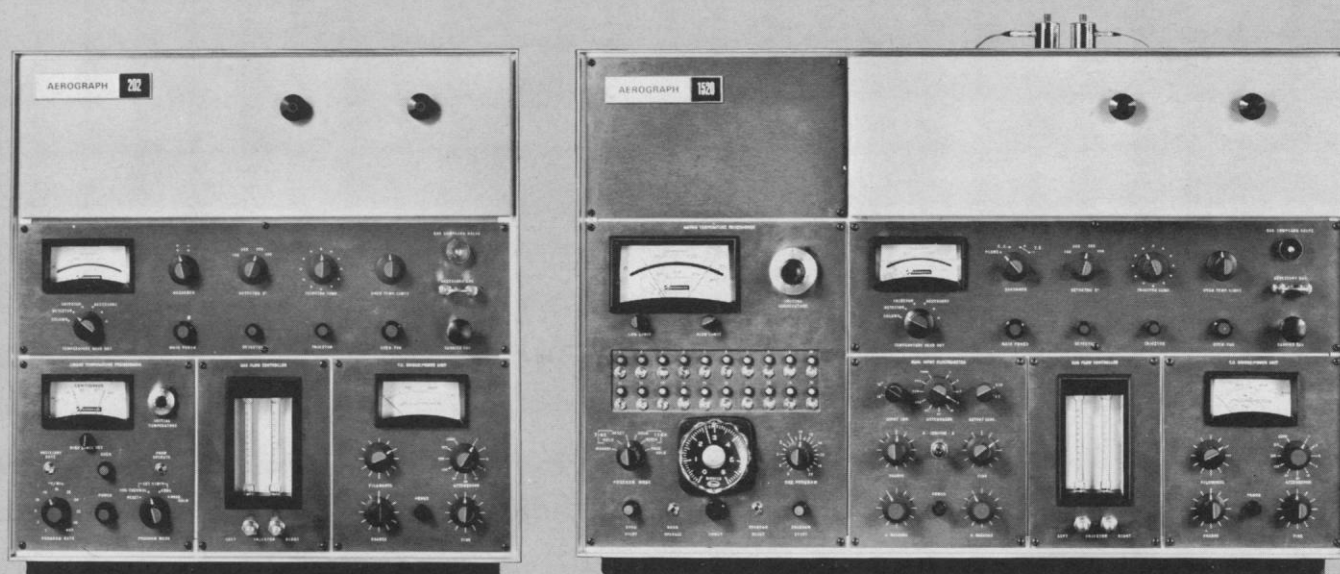


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The 202 & 1520 with dual columns, and dual flame & TC detectors



Both the Aerograph 202 and 1520 Moduline instruments contain dual columns with proportional flow controllers and flow meters. The separate detector oven is precisely held at any temperature with full proportional heat control.

The all stainless column oven, heated by an 800 watt coil, will program at 30°C/min to 400°C and will cool from 400 to 100°C in four minutes.

The injectors are heated separately. Temperature readout on an accurate pyrometer reads column

oven, injectors, detector oven, collector, and one auxiliary plug. An upper oven temperature limit control on all Moduline instruments protects columns and equipment from accidental overheating.

202

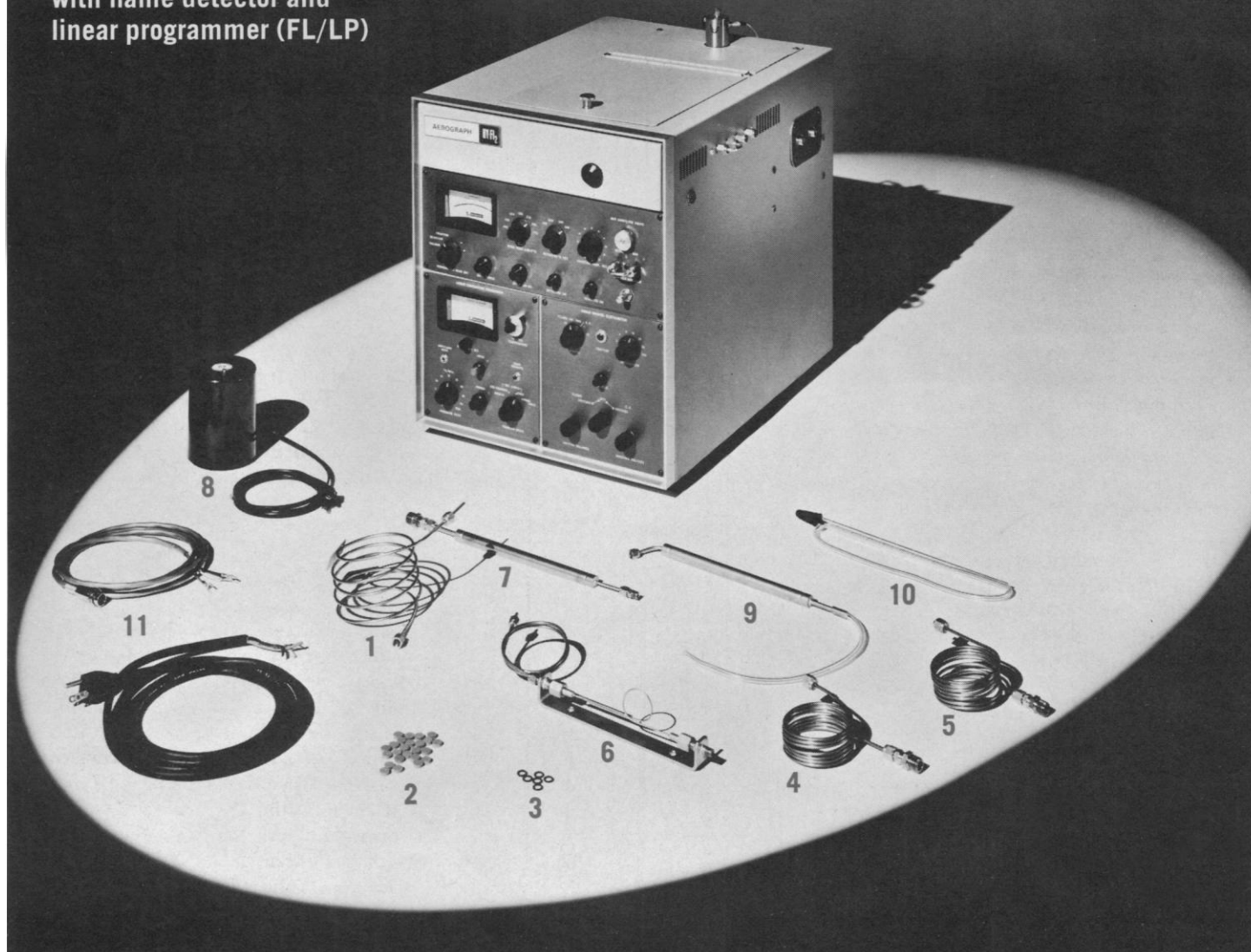
The Aerograph 202 incorporates either dual flame or dual input TC detectors. It may be used with the manual temperature programmer or the linear programmer (LP) modules. The LP is electronic without gears, motor, or clutch. A switch and matrix plug provide any programming rate desired.

1520

The 1520 is a more deluxe version of the 202. It contains both the dual flame and thermal conductivity detectors. The detector choice is made by re-connecting the downstream ends of the columns. The exclusive Aerograph matrix temperature programmer is standard. This deluxe programmer not only gives complete flexibility in pre-setting temperature programming rates but automatically closes the oven door after cool-down and re-establishes the start temperature.

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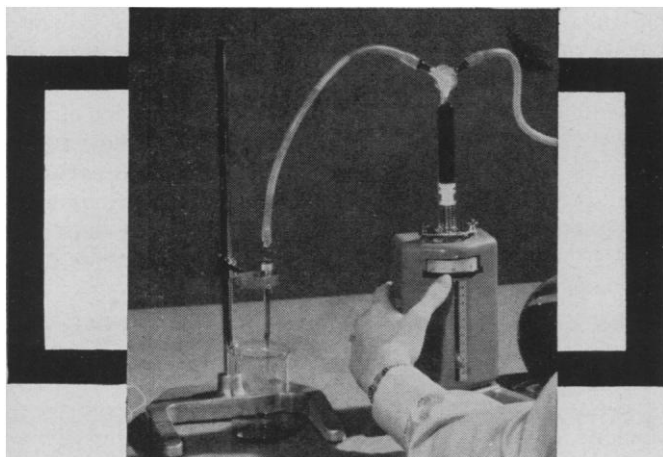
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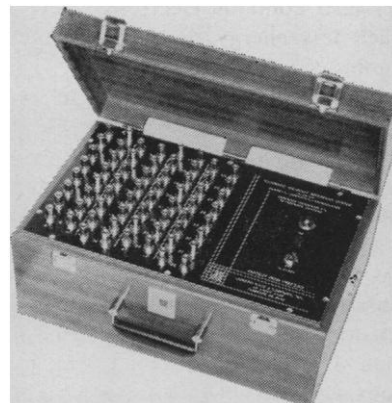


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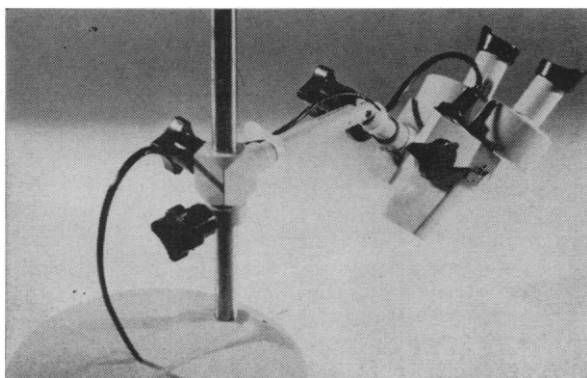
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older ones of the natural belt. This was rather simple because the "inner" Van Allen belt is predominately composed of protons. The bomb ejected electrons into the belt. While the inner belt also contains electrons, they have much less energy than those from the bomb.

Satellites were launched to watch what happened as the new electrons decayed or lost their energy, because the electrons would follow the same laws as the protons would under natural circumstances. In this manner it was discovered that the life of an electron varies from 4 months at the equator to 10 seconds at the poles. Data from three Russian test explosions were also included.

Hess discussed a similar "tagging" mechanism for exploring the behavior of particles in the outer Van Allen belt that extends as far as 4000 miles or more above the earth. Radioactive pieces of copper, positioned by satellites at an altitude of 16,000 miles, could inject an atomic particle called the positron into the outer belt. The outer belt is thought to contain no positrons, so there should be no difficulty in identifying them as newcomers to the area. According to Hess, some things which could be studied in this manner include any movement of the belt up or down, whether it ever changes its thickness, or whether acceleration forces ever act upon it.

Gerald S. Hawkins (Boston College Observatory) discussed the hazards of micrometeorites on future space voyages. The rate of bombardment of meteors, meteorites, and micrometeorites is the same for the moon as it is for the earth. However, due to the absence of a lunar atmosphere, there are more of these particles striking the surface of the moon than of the earth. Meteors burn up in the earth's atmosphere and meteorites and micrometeorites are stopped or slowed down.

Meteors normally are large objects resulting from the breakup of comets; the smaller meteorites are believed to have been created by the collision of asteroids in space. Many meteorites have been found on earth. Micrometeorites are best described as space dust, a mixture of solid fragments and fluffy objects. Some may be described as having the consistency of a cigar ash.

Hawkins said that if the U.S. Apollo moonship collided with a 1-ton meteor in space, there would be no chance of survival by the three pilots. But he said that on a 10-day round-trip to the

moon, the chances of such a collision are only one in 100 billion.

The first concrete information about micrometeorites was obtained in 1961 in the "Venus fly trap" experiment which was conducted 100 miles above White Sands, New Mexico. A rocket fired a device which opened in the same manner as the petals of a flower and collected millions of these dust-like particles before closing. The device was then parachuted to the ground and recovered.

As an example of the effect of micrometeorites, Hawkins related a hypo-

thetical situation of an astronaut walking about the surface of the moon for one week. At the end of the week every square inch of his space suit would be bombarded by more than a million tiny, fast-moving micrometeorites. A suit only .04 inch thick would protect him for that period, but the visor of his helmet would be so pitted that he probably would not be able to see through it. Eventually, the suit itself would erode under the sandblast effect of the nearly invisible space particles. Thus, space men planning long-term exploration of the moon will require protec-

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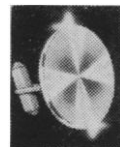
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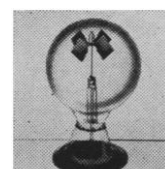


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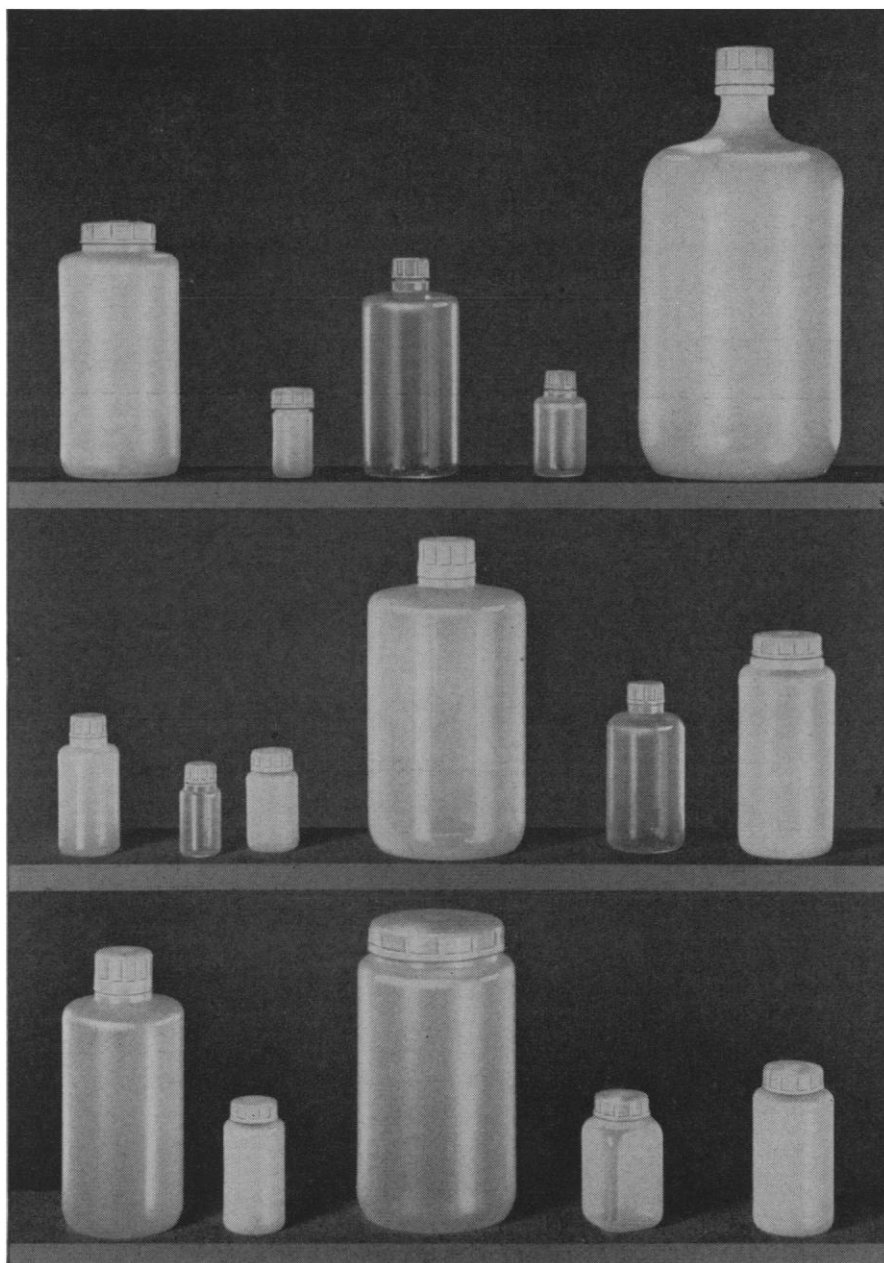
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tive shelters, which also must be fortified to withstand the eroding effect of micrometeorites, radiation, and the hot and cold temperature extremes of lunar days and nights.

Talbot A. Chubb (U.S. Naval Research Laboratory) discussed a relatively new branch of science called x-ray astronomy which is actually an additional tool for examining objects in interstellar space. X-ray astronomy had a rather firm beginning only a few months ago when a rocket was launched from White Sands, New Mexico, carrying aboard a "soft x-ray" detector. Soft x-rays are produced by low-energy electrons of about 1500 volts, whereas the x-rays used by medical doctors are produced by electrons with 40,000 volts of energy.

It has been only in the past year that an instrument capable of recording soft x-rays in space has been developed and used. The soft x-ray detector was developed by two scientists at the American Science and Engineering Company, Ricardi Giacconi and Bruno Rossi. The problem, Chubb said, was to build a detector that could be sensitive enough to distinguish between incoming x-rays and the cosmic ray background, yet having narrow enough view of space so that soft x-ray sources could be pin-pointed with reasonable accuracy. The first detector, an array of geiger counters, was flown by its developers a year ago last spring in an attempt to make x-ray studies of the moon. As the rocket tumbled through space, the detector picked up a source which Giacconi and Rossi later said was the center of the galaxy. The detector used by Chubb was a refinement of the first one and had a tighter field of view, thus allowing a greater accuracy in locating the source.

In Chubb's experiment, the soft x-ray detector made observations for 5 to 6 minutes at points 60 to 100 miles above the earth's surface. During six successive sweeps of the detector, six blips appeared on the graph-paper recording. Chubb said that this graph shows a source roughly 15 degrees from the center of the galaxy, near the Milky Way, which is emitting soft x-rays. If a second rocket flight confirms the location, then scientists can be sure that they are viewing an object which cannot be "seen" by conventional telescopes or by radiowave "telescopes" which listen to the noise caused by the activity of stars and other matter in space. However, the field of view of the detector in space still has not been

sufficiently defined to give scientists the certainty that they would like to have on the location of the unknown x-ray source.

"If this star is seen again in the same location by another x-ray detector, then we can expect that the location of the source has been confirmed," Chubb said. It is planned to check this observation with another rocket flight, probably next February. Verification will mean the start of x-ray astronomy which Chubb predicted would be similar to radioastronomy in that graphs rather than photographic techniques would be used.

It is possible that the source may be a star which has exploded only a short time ago, as astronomical time is measured. The closest known object to the supposed location of the x-ray source is Kepler's star, a supernova discovered in the 17th century. Even if the mysterious x-rays' source should be linked to a star which has been observed by a conventional method, the usefulness of x-ray astronomy would still have been proven.

Nancy Roman (NASA) related that observations made by a U.S. satellite indicate that it may be possible to predict flare eruption on the sun and thus schedule manned space flights around the period of intense solar activity. She said that x-ray detector devices aboard the Orbiting Solar Observatory are limited but very promising. The solar observatory showed that small microflares seem to occur in series with increasing or decreasing strength and with a predictable relation between both the intensity and time lag of each succeeding flare. "If this holds up during future information," she said, "it will be the first time we have been successfully able to predict any facets of flare activity." She reported, "With OSO we watch the birth and death of a series of small flares in the soft x-ray region. They occurred at equal space periods and we were able to predict when the next one would occur within one minute. Whether this orderliness also will apply to larger flares which are of importance to manned flight we can't tell now. But the initial OSO findings are certainly encouraging."

The next period of extreme activity will occur from 1967 to 1969 when the United States plans to send three-man Apollo spaceships around and to the moon.

Roman reported a second solar observatory is scheduled for launching later this year and will carry a coronograph.

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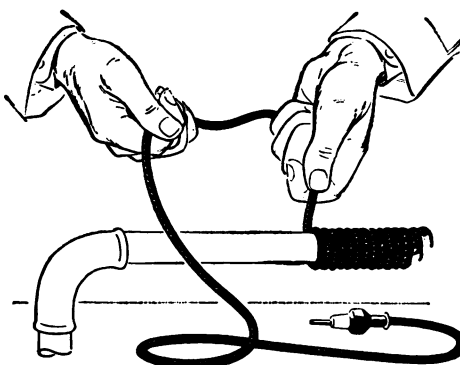
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J	800	6	5/16	115	600	64.60
K	800	6	5/16	230	600	64.60
L	800	10	5/16	115	1000	93.75
M	800	10	5/16	230	1000	93.75
N	800	16	5/16	110	2500	138.60
O	800	20	5/16	115	2000	148.00
P	800	20	5/16	230	2000	148.00
Q	800	20	5/16	110	3700	164.00
R	800	24	5/16	110	5000	189.00

TEMPERATURE INDICATING EQUIPMENT

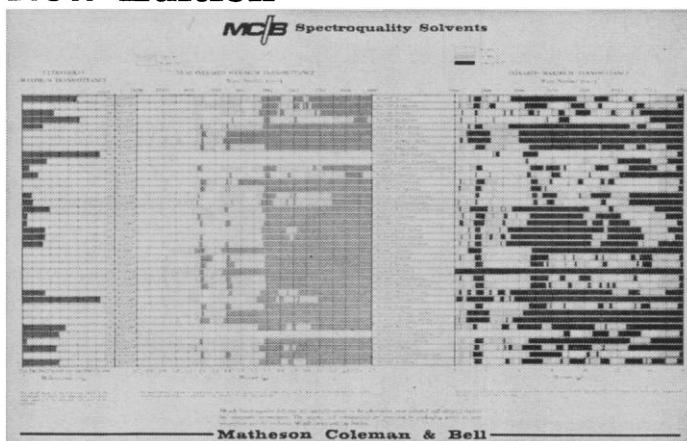
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graph, a device to produce an artificial eclipse of the sun. Roman also outlined space agency plans to launch a series of orbiting astronomical observatories to study the stars and other celestial bodies above the disturbing influence of the earth's atmosphere.

The chief of the Manned Spacecraft Center of NASA, Chris Kraft, related that one of the first steps in the upcoming Gemini space projects will be a rendezvous of a manned satellite with an unmanned satellite in outer space. The unmanned vehicle will rendezvous with a satellite containing two astronauts and will be used to alter the orbit of the manned craft. Both satellites will be launched from Cape Canaveral.

The Gemini project, which will get under way next year, will be followed by project Apollo which has as its end result a manned landing on the moon probably around 1970. However, Kraft said that no definite date could be set for a moon shot: "We'll land on the moon when we see it is feasible." At present, Kraft said, "we know all that is necessary to go to the moon," with one exception, a "knowledge of the surface of the moon." This information will probably not be learned until an actual lunar landing is performed. Two men will go on the moon trip and either or both will be able to walk from the space ship and explore the moon's surface.

Kraft noted that the actual purpose for making a moon shot is for its value in further space probes. The moon is "the first step to outer space," a "jumping off place" which will be the "key to open the door to planetary exploration."

Richard B. Kershner (Applied Physics Laboratory, Johns Hopkins University) reported that information received from the satellite Anna has confirmed earlier observations that the earth is shaped like a pear with its stem at the north pole, and that the earth's equator is elliptical instead of circular in shape. Anna has measured the true shape of the earth more accurately and faster than any previous observation. For example, three days of data from Anna could have confirmed the pear-like shape of the earth with greater accuracy than the original calculations which required 1½ years. Kershner added, "We get a fantastic amount of data compared to that which is available from optical observations." He also said that Anna has shown that the earth's ocean areas are farther from

Two Books by 1963 Nobel Prize Winners

JOHN CAREW ECCLES
1963 Nobel Prize Winner
for Medicine

The Physiology of Synapses

January 1964, about 200 pp.,
101 figures, \$10.00

This new book covers all aspects of the physiology of synapses. There have been such remarkable developments during the past twelve years that the book makes little reference to work earlier than 1951, apart from historical introductions. Relatively few types of synaptic actions have yet been subjected to intensive investigation by these new procedures; nevertheless, general principles of a synaptic action have been established because there has been a remarkable uniformity of the essential features of synaptic actions for a wide variety of synapses in invertebrates as well as vertebrates.

Chapters range from discussions of the development of ideas on the synapse, through physiologic analyses and responses.

A Springer-Verlag title, published by Academic Press in the United States and Canada.

EUGENE P. WIGNER
1963 Nobel Prize Winner
for Physics

Group Theory and Its Application to the Quantum Mechanics of Atomic Spectra

Translated from the German by
J. J. Griffin

1959, 372 pp., \$8.80

Review:

"The fine qualities of this superb book are surely well known . . . it is remarkably modern in its approach and of great value to the theoretical physicist of today . . . The neophyte should have little difficulty, while the more informed will find this book will broaden his understanding of the important concepts and methods."
—*Physics Today*



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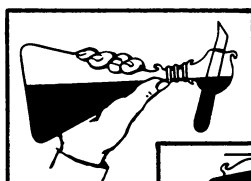
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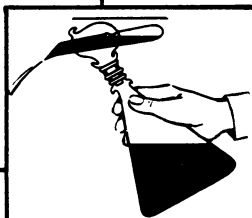
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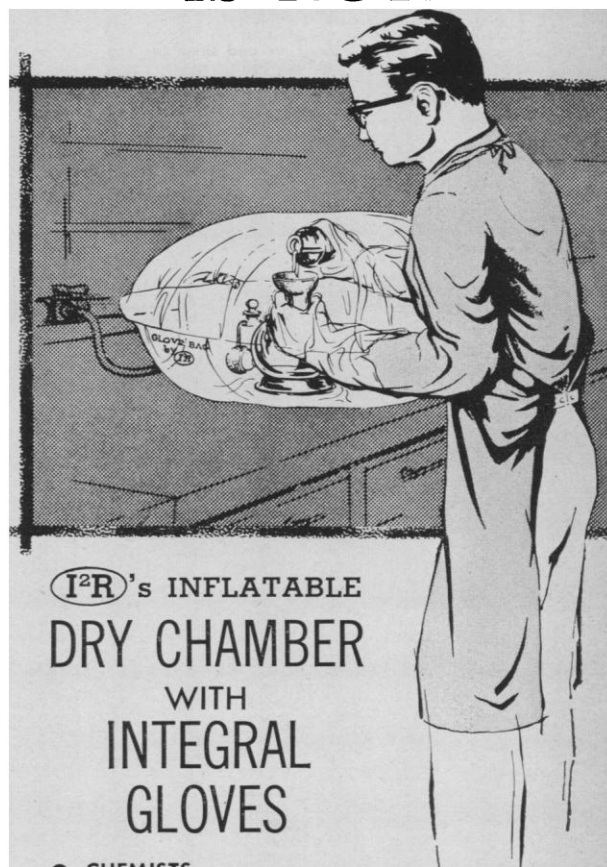
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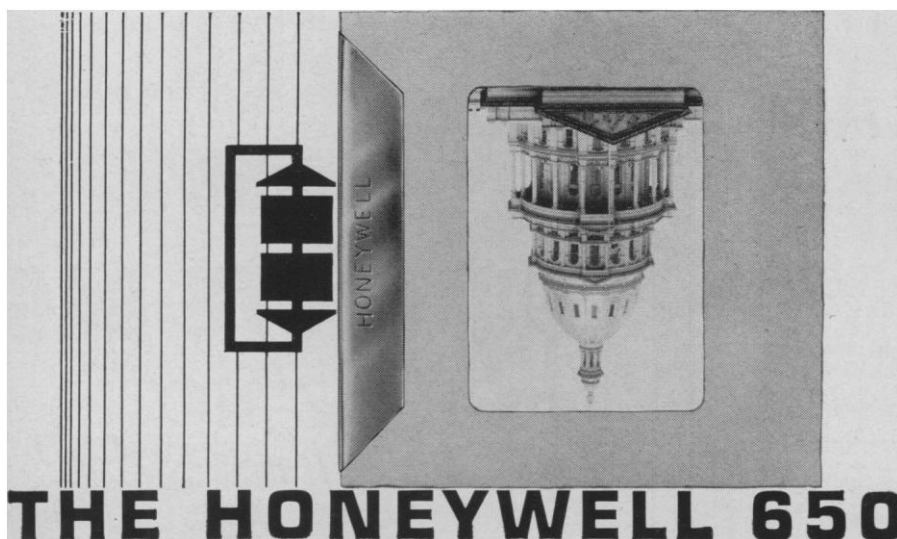
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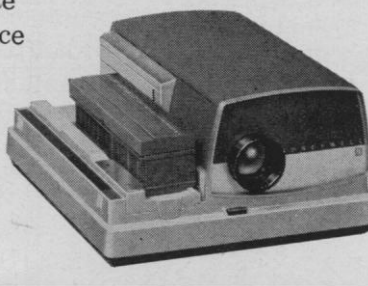
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the center of the planet than the land areas; the calculations were made from deviations from the satellite's orbit.

Satellite Anna is equipped with five winking lights. "The behavior of this light system has been a little odd," Kershner said. "They worked fine the first two months, then they cut to four, then we had three, and finally none." It appeared as though part of the electrical system had shorted out and the lights would wink no more. Then about $2\frac{1}{2}$ weeks ago, the lights started flashing beautifully. This sort of thing is extremely hard to believe. The short must have burnt itself out. Kershner related that Anna was another example of a satellite that fixed itself while humans stood by helplessly on the ground. He went on to cite an occasion when Mariner II, on its journey to the vicinity of Venus, was struck by a tiny meteorite which apparently ripped some wires from the power supply. The records show a jolt to the spacecraft as if some object had struck it and show a corresponding power cut-off at the same time, he said. Yet the power eventually returned, meaning the wires must have soldered themselves back to their proper connections.

Both Telstar communication satellites have had mysterious trouble. Telstar I refused to obey commands from the ground on two occasions. The first time, Bell Telephone scientists fixed the satellite by remote control but the second time, in February, the situation looked hopeless until the satellite spontaneously began functioning again. In a humorous vein Kershner suggested, "Maybe it's space gremlins."

The conference was sponsored by Virginia Polytechnic Institute in cooperation with the National Science Foundation and the Langley Research Center, NASA.

ROBERT WERLWAS
Virginia Polytechnic Institute,
Blacksburg

Forthcoming Events

November

26-30. **Endocrinology**, 16th meeting, Paris, France. (Secrétariat du Service du Dr. Albeaux-Fernet, Hopital Laënnec, 42, rue de Sévres, Paris 17)

29-30. **Biomagnetics**, intern. symp., Chicago, Ill. (J. F. Barnothy, Biomagnetic Research Foundation, 833 Lincoln St., Evanston, Ill.)

29-30. **American Mathematical Soc.**, Cleveland, Ohio. (AMS, 190 Hope St., Providence 6, R.I.)

31-1. American College of Chest Physicians, Portland, Ore. (M. Kornfeld, 112 E. Chestnut, Chicago 11, Ill.)

31-2. Paint Technology, Federation of Societies, 41st annual, Philadelphia, Pa. (The Society, 121 S. Broad St., Philadelphia 7)

December

1-3. Isotopically Labeled Drugs in Experimental Pharmacology, Chicago, Ill. (Intern. Atomic Energy Agency, 11 Kärntner Ring, Vienna, Austria)

1-3. Association for Research in Ophthalmology, annual, Iowa City, Iowa. (The Association, 10515 Carnegie Ave., Cleveland 6, Ohio)

1-4. American Inst. of Chemical Engineers, 56th annual, Houston, Tex. (AICE, 25 W. 45 St., New York, N.Y.)

1-4. American Medical Assoc., clinical meeting, Portland, Ore. (R. M. McKeown, 510 Hall Bldg., Coos Bay, Ore.)

1-7. Anatomical Pathology, 4th Latin American congr., San Salvador, El Salvador. (R. Masferrer, Latin American Soc. of Anatomical Pathology, Dept. of Pathological Anatomy, Hospital Rosales, San Salvador)

1-7. Pharmacy and Biochemistry, 6th Pan American congr., Mexico City, Mexico. (G. B. Griffenhagen, Div. of Communications, American Pharmaceutical Assoc., 2215 Constitution Ave., NW, Washington, D.C.)

1-7. American Phytopathological Soc., 3rd Caribbean meeting, San Jose, Costa Rica. (B. H. Waite, c/o United Fruit Co., La Lima, Honduras)

2-5. Agronomical Research, 2nd world congr., Rome, Italy. (Intern. Confederation of Technical Agriculturalists, 24 Beethovenstr., Zurich, Switzerland)

2-5. Entomological Soc. of America, St. Louis, Mo. (ESA, 4603 Calvert Rd., College Pk., Md.)

2-6. Chemical Industries, 29th exposition, New York, N.Y. (Publicity Dept., 480 Lexington Ave., New York, N.Y.)

2-13. Immunization in the Control of Communicable Disease, seminar, Manila, Philippines. (World Health Organization, Regional Committee for the Western Pacific, P.O. Box 2932, Manila)

4-6. Oceanographic Data Exchange, working group, Intergovernmental Oceanographic Commission, Paris, France. (W. S. Wooster, Office of Oceanography, UNESCO, Place de Fontenoy, Paris 7°)

4-6. Ultrasonics Engineering, symp., Washington, D.C. (T. R. Meeker, Bell Telephone Laboratories, Allentown, Pa.)

4-8. Central American Medical Congr., San Salvador, El Salvador. (R. C. Bustamante, 25 Calle Poniente 10-25, San Salvador)

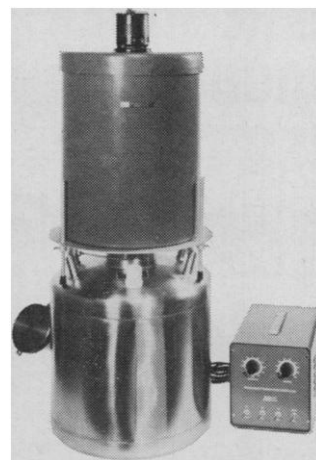
4-10. American Acad. of Optometry, Chicago, Ill. (C. C. Koch, 1506-1508 Foshay Tower, Minneapolis 2, Minn.)

5-6. Thermal Stability of Polymers, symp., Columbus, Ohio. (P. M. Stickney, Battelle Memorial Inst., 505 King Ave., Columbus, Ohio 43201)

5-6. Syntagmatic Organization Language, 2nd seminar, New Brunswick, N.J. (Graduate School of Library Service, Rutgers Univ., New Brunswick, N.J. 08903)

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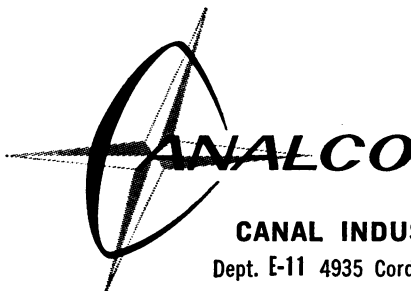
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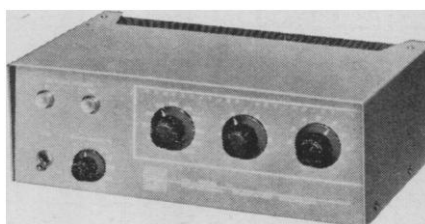
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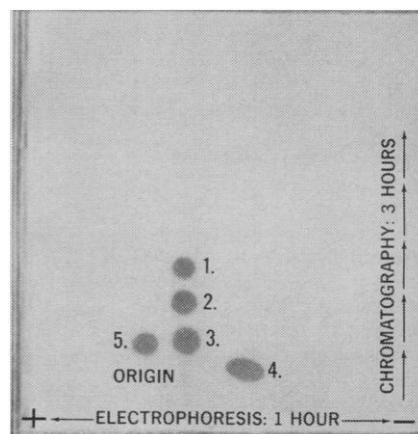
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