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EDITORIAL	Manned Lunar Landing	267
ARTICLES	Insect Control in Mainland China: <i>T. Cheng</i>	269
	Good progress has been made through combining the knowledge and methods of scientists and farmers.	
	The Accuracy of Radiocarbon Dates: <i>W. F. Libby</i>	278
	Apparent discrepancies are examined for geophysical significance and for a general principle of correction.	
NEWS AND COMMENT	Birth Control—Academy Asks Action; Cambridge's Revenge—Question of Degree; Science Representative—New Man in Moscow; Civil Defense—House Draws the Line; Faculty Pay—Pleasing the Paymaster; Disarmament Agency—Seeking Some Changes	281
BOOK REVIEWS	<i>Studies in Genetics</i> , reviewed by <i>W. K. Baker</i> ; other reviews	285
REPORTS	Electroencephalographic Responses to Ionizing Radiation: <i>J. Garcia et al.</i>	289
	In vitro Culture of the Flagellate Protozoan <i>Hexamita salmonis</i> : <i>J. R. Uzzmann</i> and <i>S. H. Hayduk</i>	290
	"Applejack" Technique: New Application of an Old Approach to Solute Concentration: <i>H. M. Habermann</i>	292
	Stratospheric Cloud over Northern Arizona: <i>J. E. McDonald</i>	292

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Potentialiation by Adrenaline of a Proteolytic Activity Associated with Purified Myosin: <i>P. Gordon and R. Zak</i>	294
Tarichatoxin: Isolation and Purification: <i>M. S. Brown and H. S. Mosher</i>	295
Pattern Vision in Newborn Infants: <i>R. L. Fantz</i>	296
Scavenger Probe Sampling: A Method for Studying Gaseous Free Radicals: <i>R. M. Fristrom</i> ..	297
Acetylcholine and Cholinacetylase Content of Synaptic Vesicles: <i>E. De Robertis et al.</i>	300
Dieldrin Susceptibility: Partial Restoration in <i>Anopheles</i> Selected with a Carbamate: <i>G. P. Georgioui and R. L. Metcalf</i>	301
Hereditary Globulin Factors and Immune Tolerance in Man: <i>A. G. Steinberg and J. A. Wilson</i>	303
Coding Ambiguity in Cell-Free Extracts of <i>Chlamydomonas</i> : <i>R. Sager, I. B. Weinstein, Y. Ashkenazi</i>	304
Prolonged Immobilization of the Body: Changes in Performance and in the Electroencephalogram: <i>J. P. Zubek and L. Wilgosh</i>	306
Carbon Tetrachloride Poisoning in Rats: Alteration in Ribosomes of the Liver: <i>E. A. Smuckler and E. P. Benditt</i>	308
All-or-None Learning and the Role of Repetition in Paired-Associate Learning: <i>W. Kintsch</i> ...	310
Evaporation Enhancement by Protein Films: <i>L. K. James, Jr., and D. J. O. Berry</i>	312
Reticulocyte Protein Synthesis: Response of Ribosome Fractions to Polyuridylic Acid: <i>I. B. Weinstein et al.</i>	314
Histone and DNA in Isolated Nuclei from Chicken Brain, Liver, and Erythrocytes: <i>M. B. Sporn and C. W. Dingman</i>	316
Errorless Discrimination Learning in the Pigeon: Effects of Chlorpromazine and Imipramine: <i>H. S. Terrace</i>	318

ASSOCIATION AFFAIRS American Society of Clinical Hypnosis; Forthcoming Events	321
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COVER

Ring-shaped cloud seen at sunset on 28 February 1963 in northern Arizona and areas of nearby states. The height, as estimated from four photographs made in Tucson, Arizona, about 190 miles to the south of the cloud (which appeared overhead near Flagstaff), is about 35 kilometers. This photo was taken by Clarence E. Peterson of Bremerton, Washington, while he was looking almost due north from near Camp Verde, Arizona. The unusual nature of the cloud was evident to observers who noted its striking luminosity long after the sun had set at ground level. It was at least 11 kilometers higher than the upper limit of possible jet contrail formation, and was at least 5 kilometers higher than previously reported nacreous clouds of the arctic type. Its true nature is still unknown; more photos are being sought for triangulation purposes. See page 292.

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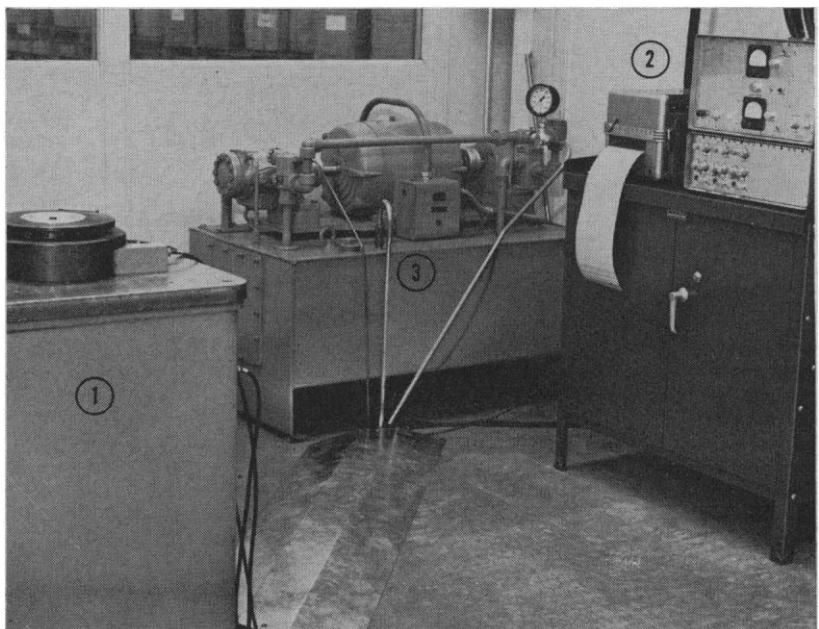
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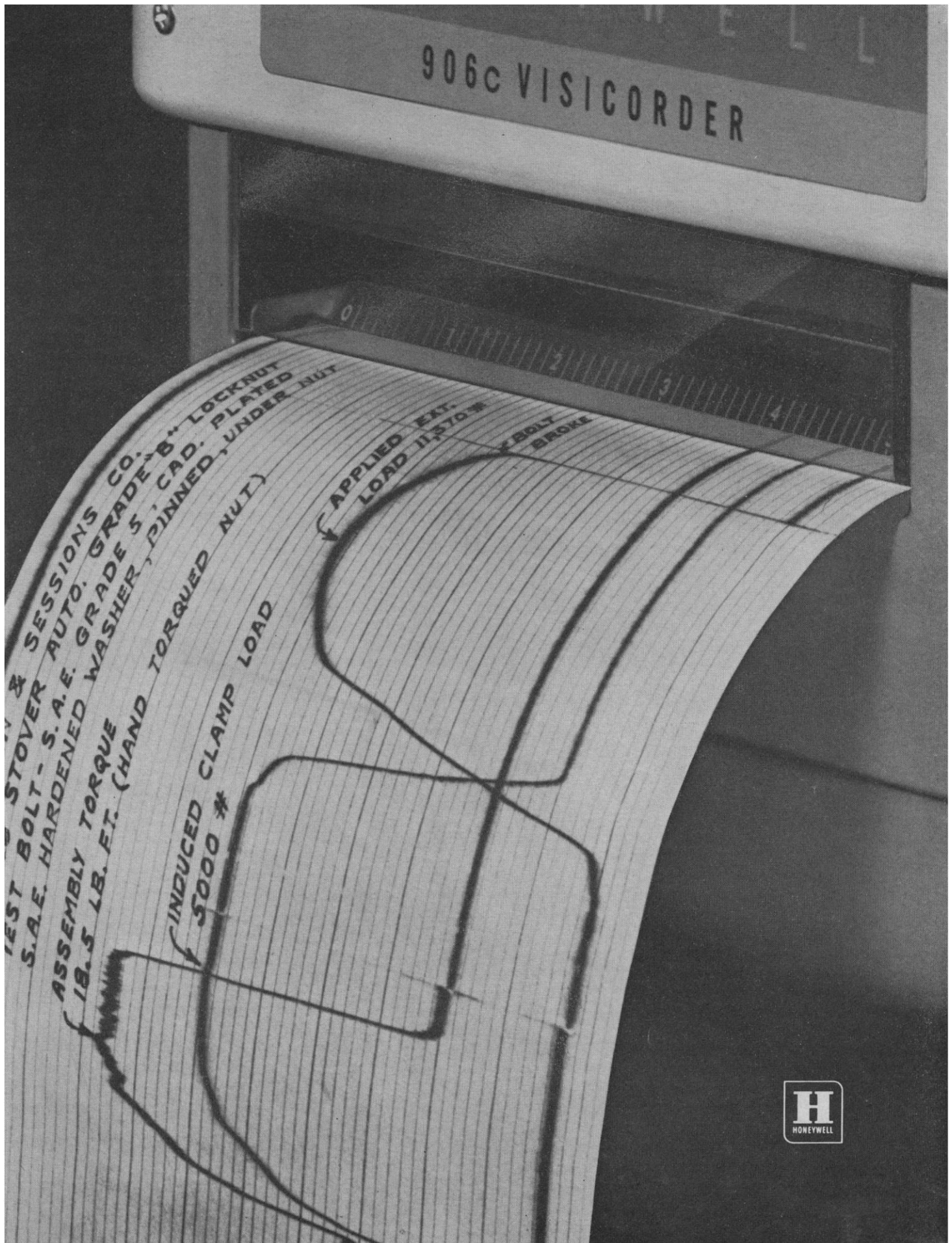
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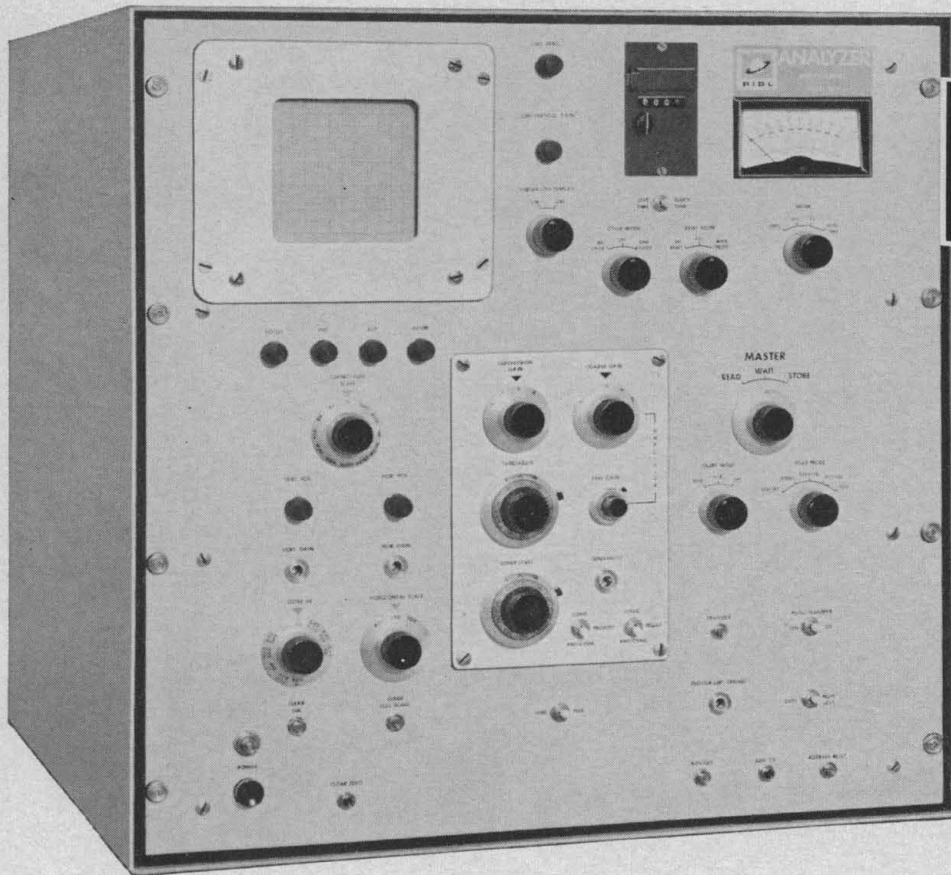
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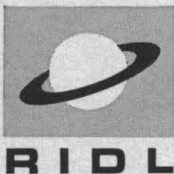
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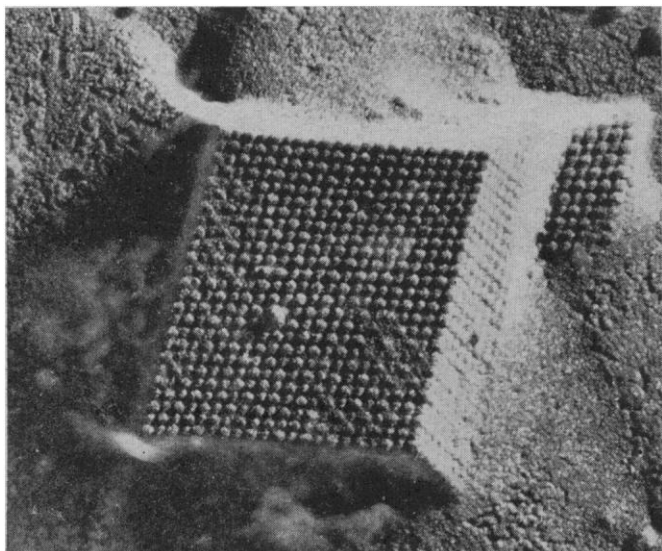
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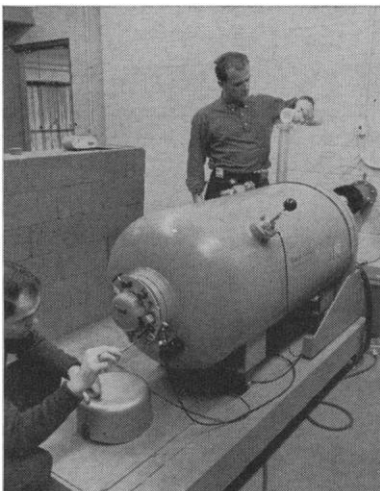
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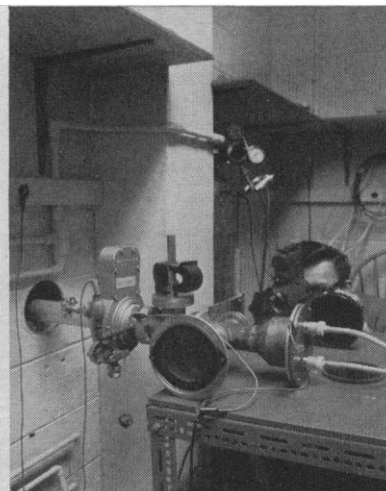
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The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects are to further the work of scientists, to facilitate cooperation among them, to improve the effectiveness of science in the promotion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

Manned Lunar Landing

The nation is committed to the manned lunar landing program. Nevertheless, the project seems certain to be the center of continuing controversy. Each year Congress will vote on appropriations, and this guarantees a recurring re-examination of the basic rationale of the program.

Four principal justifications have been cited: The propaganda value of beating the Russians, possible military applications, technological fallout, and scientific values.

The nation may sustain the continuing burden of the program principally because of man's spirit of adventure—his desire to conquer the inanimate. An earlier generation was excited about reaching the North Pole. Later, Lindbergh's flight was greeted with wild enthusiasm. However, the emotional peak was sharp and soon dissipated. The sequence of public reaction to the orbiting astronauts is instructive. Our first success was witnessed by a huge enthralled audience. A later episode was considered routine. The lasting propaganda value of placing a man on the moon has been vastly overestimated. The first lunar landing will be a great occasion; subsequent boredom is inevitable. Interest in lunar exploration will be sustained only if there are important military implications, exciting scientific accomplishments or technological fallout.

Military applications seem remote. The cost of a missile based on the moon would be about a hundred to a thousand times that of an earth-based device. The trajectory of a missile from the moon to the earth is complicated; a slight malfunction would be disastrous. Another proposed application is surveillance of other countries. The disadvantages of observing from a distance of 240,000 miles rather than from much nearer are obvious.

The National Aeronautics and Space Administration has sought examples of technological fallout from its program. To date, those cited have not been impressive. The problems of space are different from the problems of the earthly tax-paying economy. Not more than a small fraction of the cost of the moon program will be recovered through technological fallout.

The scientific exploration of the moon has been accorded a secondary priority in the lunar program. This has been indicated in the attitude surrounding presentation of the new budget to Congress and underlined by the decision not to have a scientist in the first lunar astronaut crew. If expert human observers are not to be employed, the alternative of exploration by electronic gear becomes exceedingly attractive. The cost of unmanned lunar vehicles is on the order of 1 percent of the cost of the manned variety; unmanned vehicles can be smaller and need not be returned. Most of the interesting questions concerning the moon can be studied by electronic devices. These include important puzzles concerning selenodesy (the analogue of geodesy), topography, and the particle size, chemical composition, and mineralogy of the lunar surface. Investigations of the internal constitution and seismicity could also be conducted electronically. Observations of the sun and other stars could be made in which a far wider segment of the electromagnetic spectrum could be employed than is available through man's vision. Unmanned exploration could provide the basis for realistic design of manned landing craft, thus decreasing the total costs and increasing the chances of success. A re-examination of priorities is in order.—P.H.A.

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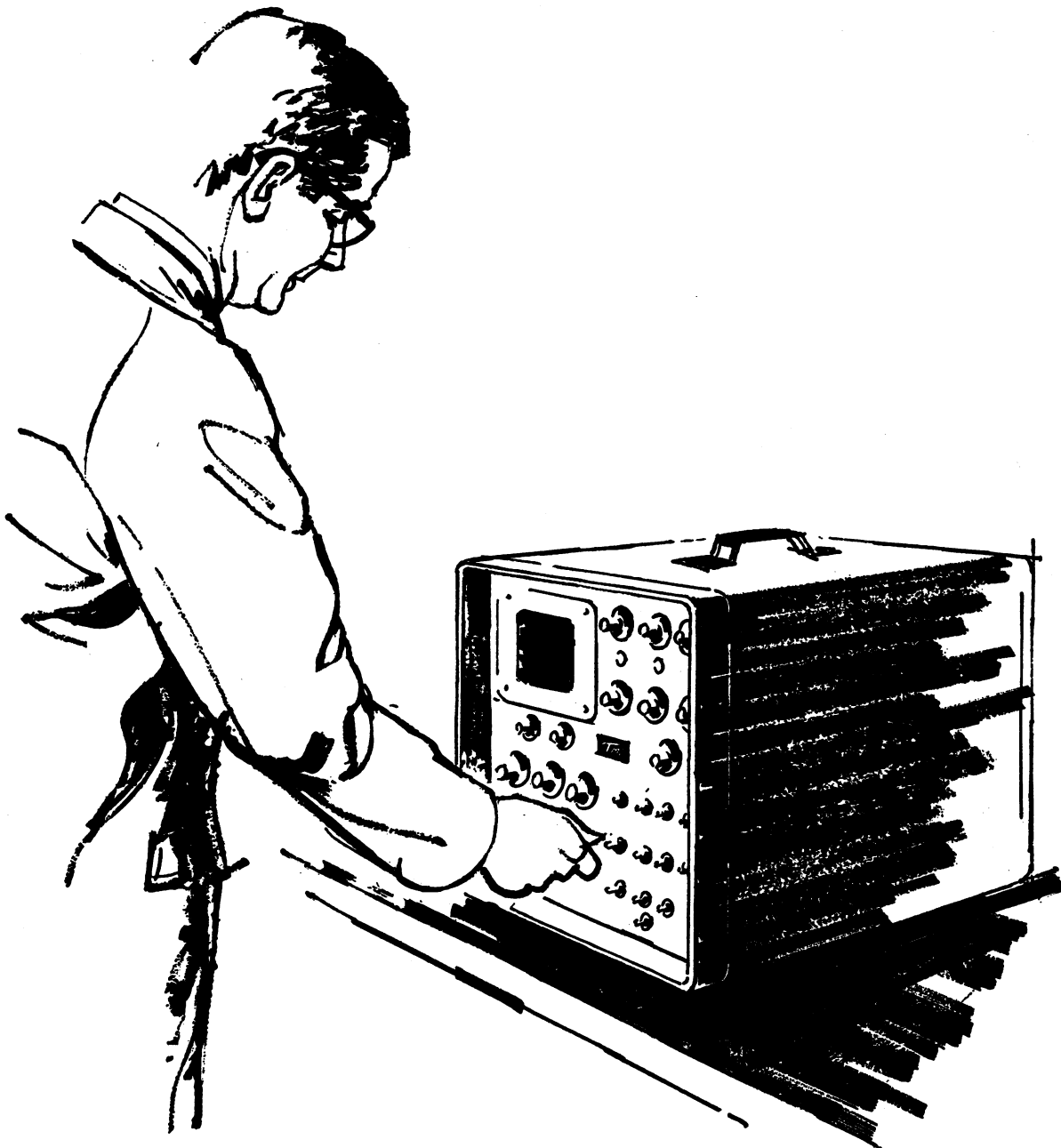
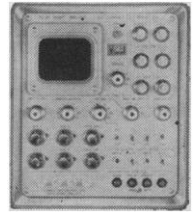
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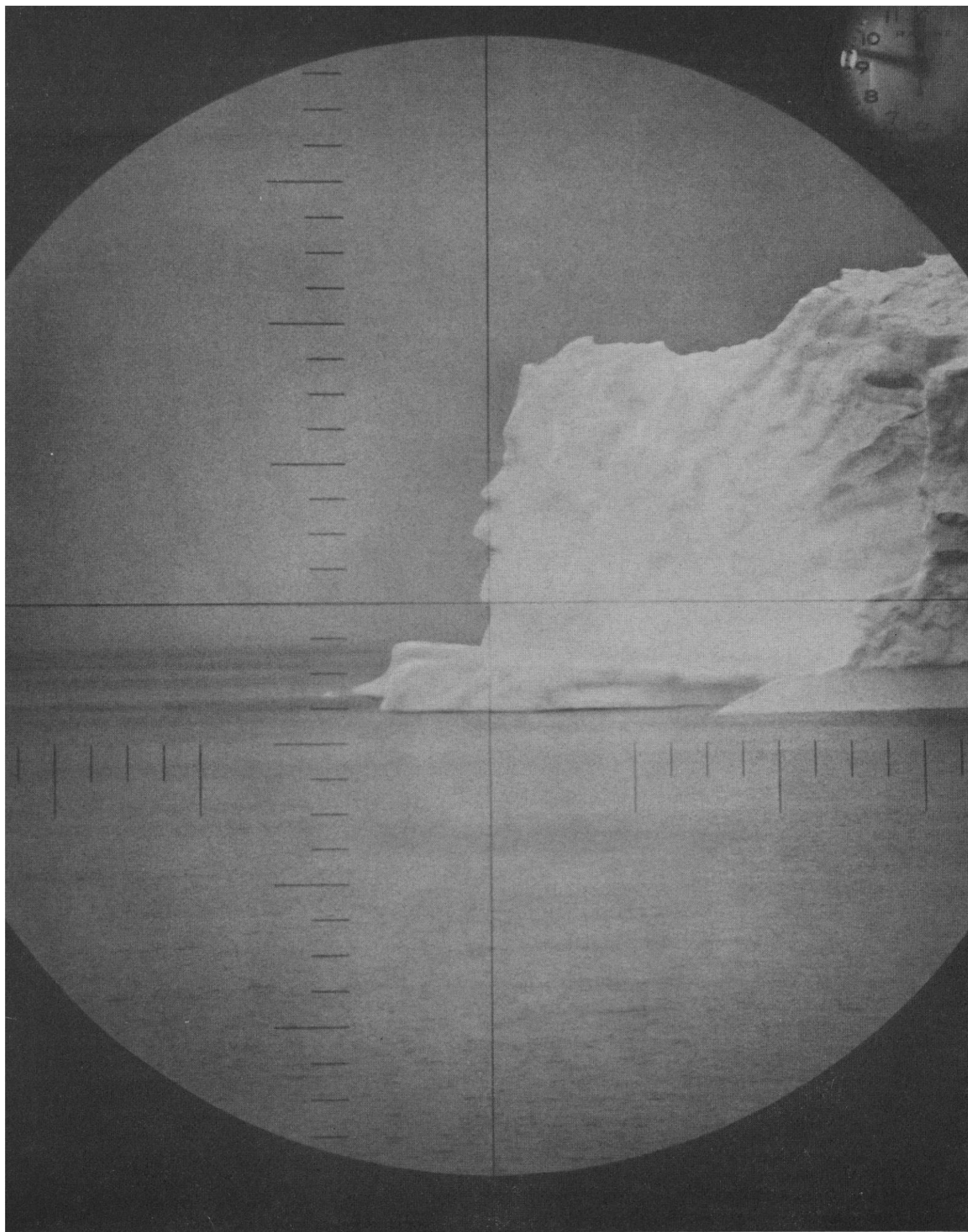
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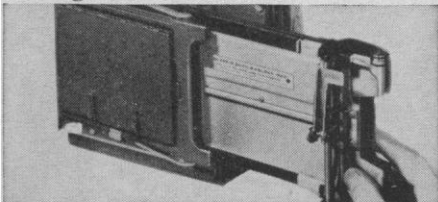
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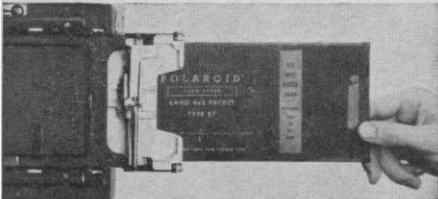
Photographed through the periscope on the nuclear submarine U.S.S. Seadragon, this low light-level picture of an iceberg was finished just 10 seconds later. The U.S. Navy photographer used a special camera and the Polaroid 4 x 5 Film Holder with **Polaroid 3000 Speed 4 x 5 Film**.

How 3000 speed film and finished prints in 10 seconds bring new versatility to 4x5 photography.

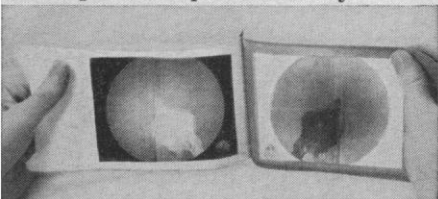
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AAAS Affiliate

American Society of Clinical Hypnosis

The American Society of Clinical Hypnosis, a new affiliate of AAAS, was formed in 1957 by a group of scientists interested in the therapeutic possibilities of hypnosis. The society grew rapidly, reaching a membership of 2200 physicians, dentists, and psychologists. Only those with a doctorate degree and membership in their respective national professional organization are admitted to membership. While the majority of members are from the United States, 16 foreign societies are affiliated on an equal basis with ASCH. This relationship fosters the exchange of ideas and knowledge of all types—clinical, experimental, theoretical, historical, and comparative.

The purpose of the Society is to "bring together professional people in medical, dental, and psychological fields using hypnosis, and to set up standards of training. It shall cooperate with all scientific disciplines in professional and public relationships in regard to the use of hypnosis and it shall stimulate research and publication in the field."

There are 35 component sections in the United States and Canada; each section manages its own local activities and has a representative on the board of governors, which is responsible for managing the affairs of the society.

An annual scientific meeting is held at which scientific papers on hypnosis and related fields of interest are presented by members of the society and nonmembers who are interested in the aims of the organization.

In 1958, the society founded the *American Journal of Clinical Hypnosis*, a quarterly publication which goes to each member and also to more than 600 nonmembers and institutions. The *Journal* publishes outstanding original articles, abstracts of scientific material concerning hypnosis from other sources, clinical reports, and book reviews. This publication offers a very convenient way of keeping abreast of not only the rapidly developing field of clinical hypnosis, but all other fields of hypnosis as well.

In 1962 the society formed a foundation, the American Society of Clinical Hypnosis—Education and Research Foundation (ASCH-ERF). This foundation is a separate corporation

but its trustees are chosen by the executive committee of ASCH; it received a large sum of money from a former independent foundation.

The functions of the ASCH-ERF are: (i) To promote research in clinical hypnosis; (ii) to provide instruction to professional people in clinical hypnosis until such time that the instruction is provided by professional schools; and (iii) to help professional people better understand the psychodynamic and interpersonal relationship so important in achieving the patient's welfare.

The foundation, a non-profit corporation, conducts periodic workshops in various parts of the country. These workshops are divided into two sections, the basic section and the advanced section.

The basic section is concerned with the teaching and demonstrating of the fundamental techniques of clinical hypnosis. The application of hypnotic techniques to certain problems of the psychologically normal patient is also taught by members of this section. This is primarily a matter of teaching the patient physical and mental relaxation and acquainting the professional man with the importance of his patient as a person and not of simply attempting to treat the disease as an isolated entity.

The sessions of the advanced section of the workshop are usually taught by psychiatrists who have the following purposes in mind: (i) to satisfy the desire and need expressed by many other psychiatrists for a course in hypnosis; (ii) to emphasize the psychosomatic aspects of medicine and dentistry; (iii) to teach psychotherapeutic principles and techniques; (iv) to place hypnosis in its proper relationship to psychotherapy; and (v) to give the clinician a better understanding of the fundamental motivations operating in his patients which are frequently the underlying cause of some of the organic symptoms presented by the patient.

Although hypnosis is of intrinsic interest both as a phenomenon and as a therapeutic technique, still there is more profound motivation which brings a group of therapists together in the society. It is a point which has always been mentioned but which is often lost in the modern-day development of new drugs and various mechanical or electrical techniques; the ill person is not just ill physiologically, but he is ill psychologically as well. Drugs and devices alone do not cure. The all-im-



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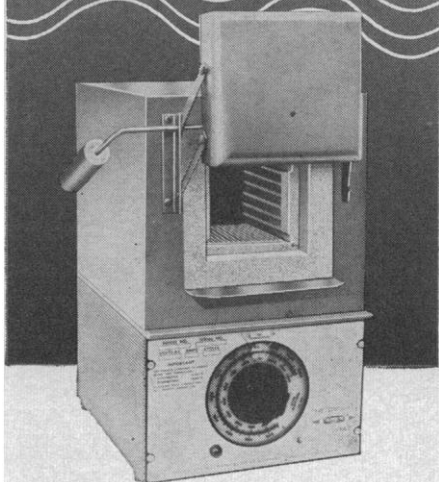


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portant doctor-patient relationship is a powerful therapeutic influence. It is this relationship which is being submerged in the present development of miracle drugs and devices, and its absence leaves so many patients with a feeling of incompleteness in their contacts with their physician and dentist.

The study of hypnosis is perhaps the best method of re-emphasizing the importance of the doctor-patient relationship. Because the society has, to some extent, brought a revivification of the importance of the interpersonal relation between the doctor and his patient, it has flourished and it will continue to attract more and more members of the therapeutic arts.

WILLIAM T. HERON
*American Society of Clinical Hypnosis,
Minneapolis 14, Minnesota*

Forthcoming Events

May

14-19. **Mass Spectroscopy**, 11th conf., San Francisco, Calif. (N. D. Coggeshall, Gulf Research and Development Co., P.O. Drawer 2038, Pittsburgh 30, Pa.)

15-17. **Transplutonium Elements**, symp., Argonne, Ill. (D. C. Stewart, Chemistry Div., Argonne Natl. Laboratory, 9700 S. Cass Ave., Argonne)

15-18. **Acoustical Soc. of America**, New York, N.Y. (W. Waterfall, American Inst. of Physics, 335 E. 45 St., New York 17)

19-24. **Mass Spectrometry and Allied Topics**, 11th annual conf., San Francisco, Calif. (N. D. Goggeshall, Gulf Research & Development Co., P.O. Drawer 2038, Pittsburgh 30, Pa.)

20-22. **Institute of Radio Engineers, Professional Group on Microwave Theory and Techniques**, symp., Santa Monica, Calif. (I. Kaufman, Space Technology Laboratories, Inc., 1 Space Park, Redondo Beach, Calif.)

20-23. **Humidity and Moisture—Measurement and Control in Science and Industry**, intern. symp., Washington, D.C. (A. Wexler, National Bureau of Standards, Washington 25)

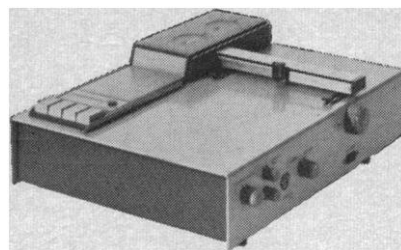
20-23. **Spectroscopy**, 14th annual mid-American symp., Chicago, Ill. (J. E. Forrette, Roy C. Ingersoll Research Center, Wolf and Algonquin Rds., Des Plaines, Ill.)

21-23. **Australian Mathematical Soc.**, Clayton, Victoria, Australia. (G. C. Smith, Dept. of Mathematics, Monash Univ., Clayton)

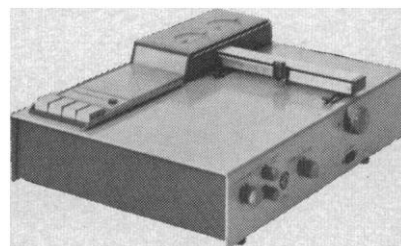
21-23. **Joint Computer Conf.**, Detroit, Mich. (B. W. Pollard, Burroughs Corp., 6071 Second Ave., Detroit 32)

21-23. **Radioisotopes**, 5th Japanese conf., Tokyo. (J. H. Kane, Div. of Special Projects, U.S. Atomic Energy Commission, Washington 25)

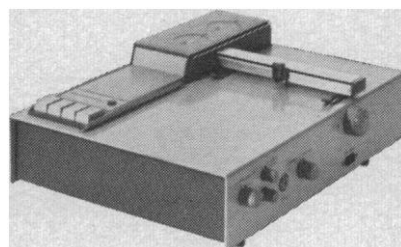
22-25. **Space**, 3rd European symp., Stuttgart, Germany. (U. Seeliger, Verkehrssamt der Stadt Stuttgart)



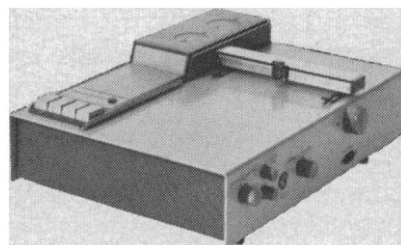
a push button recorder



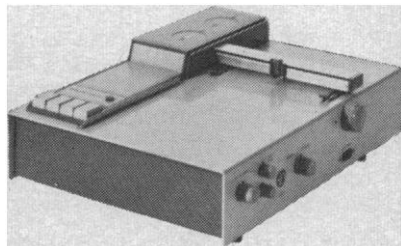
a bench recorder



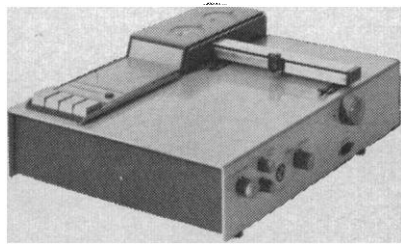
a linear recorder



a log recorder



an expanded scale recorder



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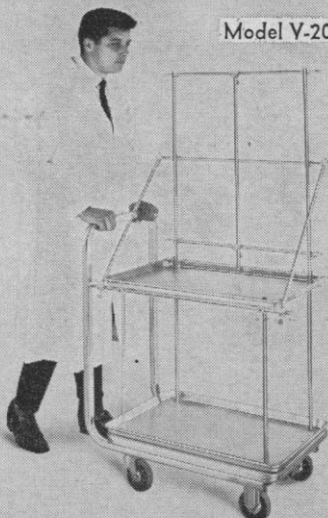
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22-31. **Scientific and Technical Press and Books**, 1st intern. exhibition, Paris, France. (Groupe des Editeurs de Livres de Sciences et de Techniques, Syndicat National des Editeurs, Cercle de la Librairie, 117 Boulevard St. Germain, Paris 6)

23-24. **Radiosensitizers and Radioprotective Drugs**, 1st intern. symp., Milan, Italy. (R. Paoletti, Inst. of Pharmacology, Univ. of Milan, Via A. Sarto 21, Milan)

23-24. **Southern Textile Research**, 3rd conf., Pinehurst, N.C. (M. P. Underwood, P.O. Box A-2, Greensboro, N.C.)

23-25. American Assoc. for **Cancer Research**, Inc., Toronto, Canada. (H. J. Creech, Inst. for Cancer Research, Fox Chase, Philadelphia 11, Pa.)

23-25. American Soc. for **Quality Control**, Chicago, Ill. (C. E. Fisher, Bell Telephone Laboratories, 463 West St., New York 14)

23-26. **Nuclear Fuel Reprocessing**, Eurochemic symp., Brussels, Belgium. (O.E.C.D., European Nuclear Energy Agency, 38 Boulevard Suchet, Paris 16^e, France)

26-27. Society for **Industrial and Applied Mathematics**, Menlo Park, Calif. (R. D. Gaskell, Dept. of Mathematics, Oregon State Univ., Corvallis)

26-29. Institute of **Food Technologists**, Detroit, Mich. (C. L. Willey, Inst. of Food Technologists, 176 W. Adams St., Chicago 3, Ill.)

26-31. American **Physical Therapy** Assoc., New York, N.Y. (L. Blair, APTA, 1790 Broadway, New York 19)

26-1. **Mineral Processing**, 6th intern. congr., Cannes, France. (D. A. Dahlstrom, Eimco Corp., 301 S. Hicks Rd., Palatine, Ill.)

27. **Operations Research** Soc. of America, Transportation Science Section, Cleveland, Ohio. (L. C. Edie, Port of New York Authority, 111 Eighth Ave., New York 11)

27-29. Canadian **Nuclear** Assoc., 2nd intern. conf., Montreal, Canada. (CNA, 19 Richmond St., W., Toronto 1, Canada)

27-29. **Frequency Control**, 17th annual symp., Atlantic City, N.J. (Headquarters, U.S. Army Electronics Research and Development Laboratory, Fort Monmouth, N.J.)

27-30. **Tissue Culture** Assoc., 14th annual, Boston, Mass. (R. L. Sidman, Laboratory of Cellular Neuropathology, Harvard Medical School, 25 Shattuck St., Boston 15)

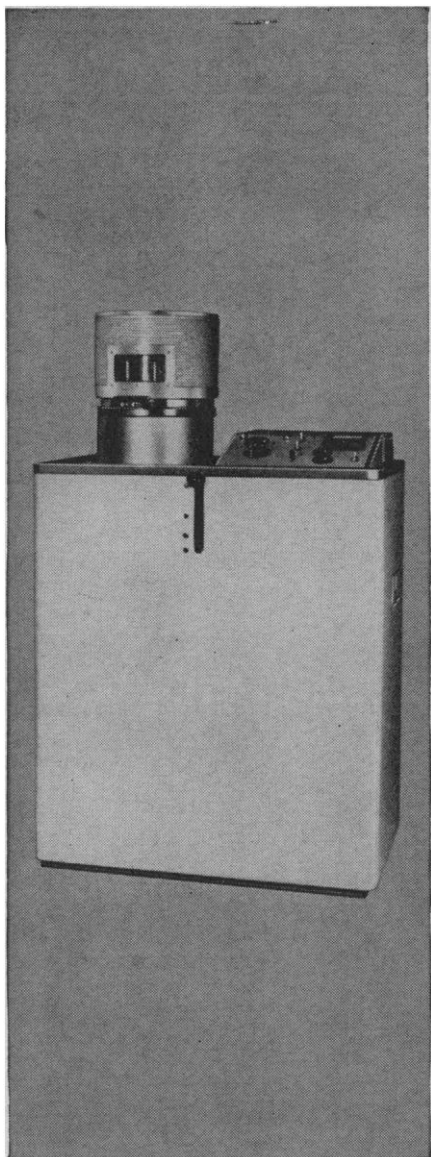
30-2. Society for **Applied Anthropology**, Albany, N.Y. (T. McCorkle, Div. of Behavioral Science, Pennsylvania Dept. of Health, P.O. Box 90, Harrisburg)

30-2. Stochastic Processes in **Mathematical Physics and Engineering**, symp. New York, N.Y. (Soc. for Industrial and Applied Mathematics, P.O. Box 7541, Philadelphia, Pa.)

31-4. **Child Psychiatry**, 2nd European cong., Rome, Italy. (Secretariat, Casella Postale No. 7130, Rome)

31-5. Cell Reactions in Adaptations of **Metazoa** to Environmental Temperature, intern. symp., Leningrad, U.S.S.R. (A. S. Troshin, U.S.S.R. Acad. of Sciences, Inst. of Cytology, Prosp. Maklina 32, Leningrad)

(See 29 March issue for comprehensive list)



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Cincinnati Division



NEWS AND COMMENT

(Continued from page 284)

response was the publication this winter of a new manual on the administration of research grants by the Public Health Service.

The new manual specifies that "The salaries of personnel paid from Public Health Service funds may be set by the grantee institutions under their own standards provided no monetary differential is allowed for such personnel because they receive salaries from grants."

This provision merely continued existing policy, but backed it up with a requirement that "estimates of effort" be made quarterly by all professional staff receiving salary on a federally supported research project. Some university administrators and faculty have complained that the new requirements increase the already heavy burden of paper work entailed by government grants and supplant an honor system which was suitable to the situation and worked well in a vast majority of cases.

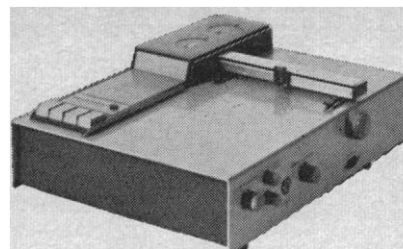
The A.C.E. committee's action is clearly designed to help forestall further elaboration of federal regulations. It also seems intended to encourage harmony inside the universities and comity between them.

It is not uncommon to find faculty who feel that their exertions in bringing research projects to their universities and in working on them are not recompensed as richly as they might be in other institutions. There have also been instances of universities using federal funds as bounty to attract researchers by paying salary differentials out of research funds and thereby gaining an advantage in the competition for capable researchers.

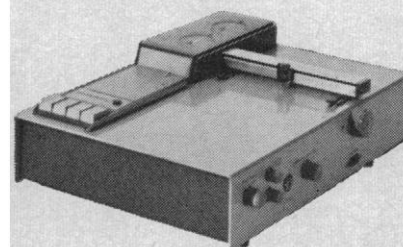
Policy on summer pay for faculty engaged in research on federal projects has been a special subject of discussion in recent years with resentment building up in the university community against institutions said to pro rate payment for summer research efforts so generously that the result is a premium payment out of federal funds.

The compensation problem centers on regular faculty members, who spend part of their time directing or working on supported research and part on regular academic duties, rather than those who spend full time on research.

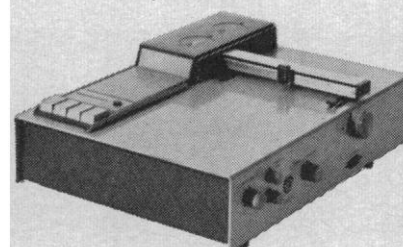
Therefore, the A.C.E. committee on sponsored research sought answers on established practices in paying those who lead double lives when it sent out



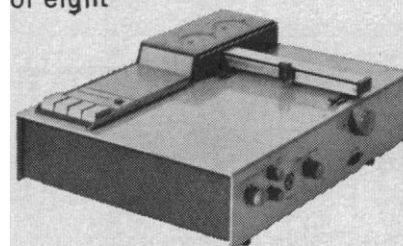
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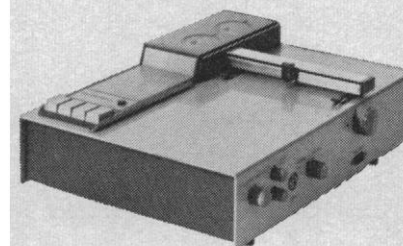
a recorder with 1" per minute standard speed



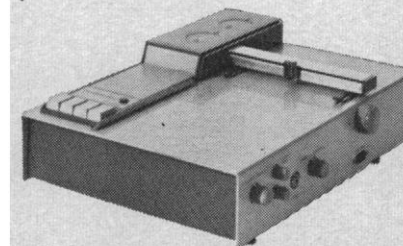
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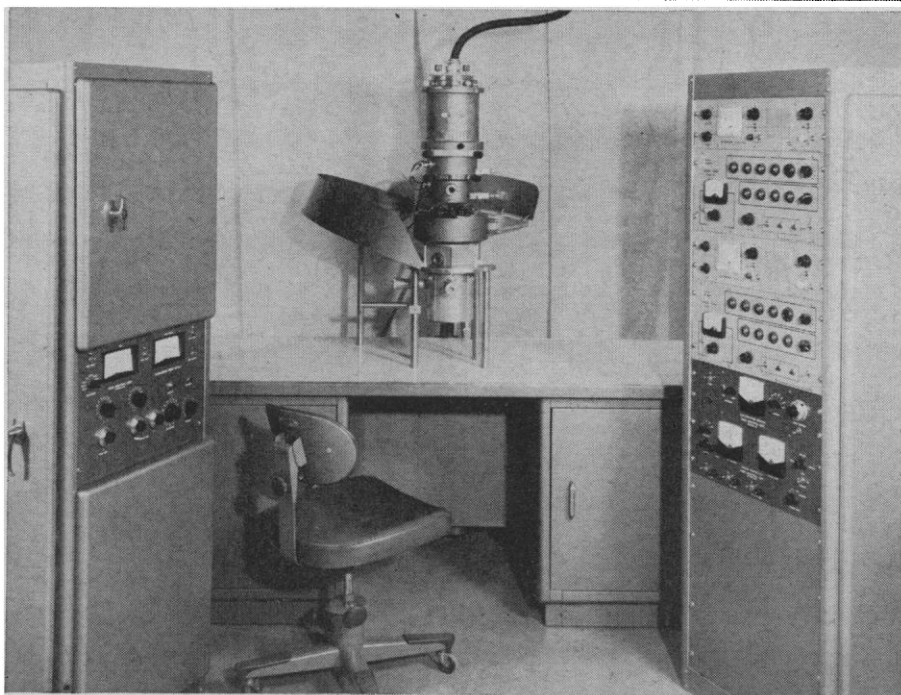


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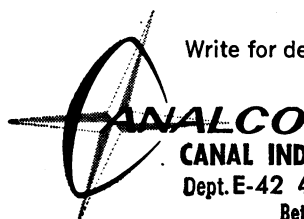
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questionnaires on salary-charging policies on federally sponsored research programs.

The questionnaires went to 60 institutions which are most heavily involved in government research projects and 59 have returned complete answers. The responses showed a broad variety of practices and the committee recommendations, partly because of this, are unspecific in detail.

To key questions, 16 of the 59 institutions that answered indicated they "compensated in excess of their base salary for effort expended on Government grant and contract work during the academic year," and only 5 of the 59 said that they paid higher salaries to research staff than to faculty members with tenure.

In general, though practices differed drastically in detail, most universities claimed to conform to what the federal agencies regard as good practice in salary charging.

A great majority said they claimed reimbursement for faculty on a pro rata basis during the year and also compensated faculty working on research contracts in the summer with a fraction of the academic year stipend computed according to time spent on summer research.

In the preamble to its recommendations, however, the committee notes that "such a wide variety of procedures and practices have grown up among universities and various government agencies that misunderstandings have arisen—and some abuses may have arisen—causing certain Government representatives to propose more uniform and rigid regulations covering salary reimbursement."

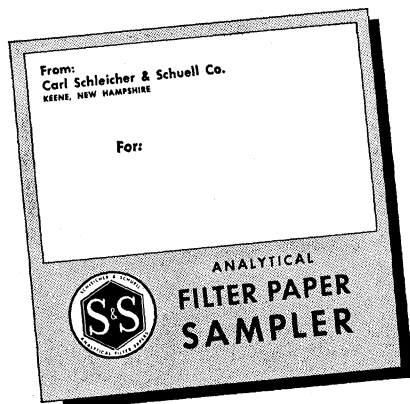
The committee then goes on to conclude that "the universities themselves must recognize that there must be one over-all guiding principle that is adhered to—namely, the Government should not be billed for more than that share of the total annual salary of a faculty member that is represented by the effort actually expended on the sponsored research project or projects. Careful adherence to this principle will avoid abuses and misunderstandings, as well as unreasonable intrauniversity salary competition for support by government funds."

The specific recommendations themselves are, in fact, rather general comments on practical ways to reinforce the principle of a fair quarter's pay for an honest quarter's work on research.

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seven presidents and vice presidents of universities with major research programs. Chairman is Lee A. DuBridge, president of California Institute of Technology.

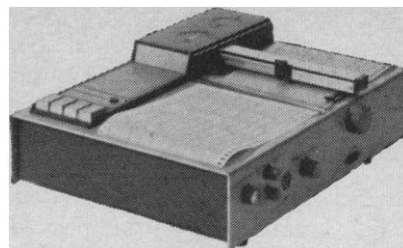
The A.C.E. is a voluntary association and its recommendations are not binding on its members. Its words, however, carry weight with both member universities and federal agencies, and in this case the council is talking in the spirit of a marriage counselor who recognizes that the honeymoon is over and that the principals better reconcile their differences before real difficulties develop.—J.W.

ACDA: Disarmament Agency Asks Congress for Some Small Changes That Probably Won't Change Much

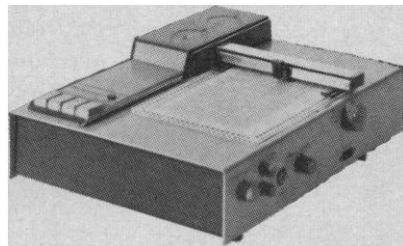
The Arms Control and Disarmament Agency has been in the news a good deal recently, weathering an icy winter in which Congress and the disarmament negotiations were in session simultaneously. What has been called the "test ban scare"—the few weeks in February and March when agreement with the Russians seemed almost possible—has now largely passed, but vestiges of controversy remain.

An exchange of letters on the test ban between Adrian Fisher, the agency's deputy director, and Senator Thomas Dodd (D.-Conn.), in which the customary protestations of respect only faintly obscured the suspicious way each viewed the other's position, has kept the agency on the editorial pages, but it has also antagonized several members of the Senate club. The letters may put the agency in bad graces elsewhere as well, since it now appears that in his latest installment, Fisher may inadvertently have trespassed on the Atomic Energy Commission's security restrictions by telling Dodd, who thought the agency was toying with national security, not to worry because the U.S. now possesses an "enhanced radiation weapon." Only the language was classified, apparently, and not the fact, but the slip leaves the agency open to charges of carelessness. And the agency continues to be harassed as well by nervous Congressmen demanding its immediate dissolution. These do not really threaten the agency, but they do reveal something of the harried atmosphere in which it must work.

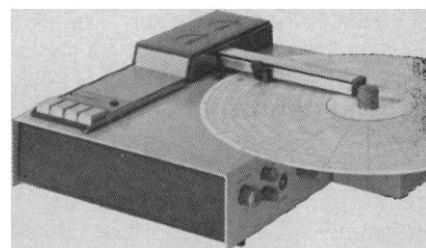
Neither does the agency really threat-



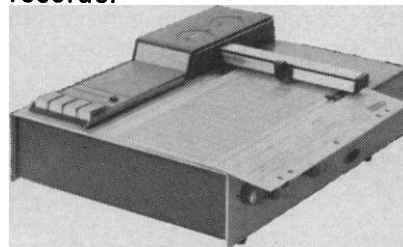
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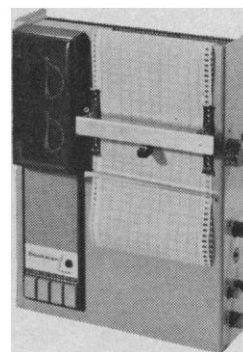
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en the military or political status quo—to the despair of the fervent partisans of disarmament who were once its strongest supporters. Comfortably ensconced in Washington's bureaucracy, the agency has developed a rather bland style of operation, a compound of modest goals and respectable demeanor in pursuing them.

The agency's work—the conduct of disarmament negotiations, and the establishment of a supporting research program—has been hampered by a small budget and extremely restrictive security procedures, both of which it is now seeking to change. It is asking Congress to replace its present \$10 million ceiling on expenditures with an open-ended authorization (standard practice for most agencies) and for a \$15 million appropriation for fiscal 1964. The security changes would permit people recently cleared by another "sensitive" agency to work for ACDA without undergoing a separate field investigation—a practice which in the past has delayed contracts for as much as 4 months, and has held up the agency's regular appointments as well. Since ACDA's Senate authorizing com-

mittee—Foreign Relations—takes a friendly view of its requests, they probably will go through, but while the agency may thus be strengthened, it will not be fundamentally changed.

When all deference has been paid to the limits—political, financial, procedural—which have impeded ACDA during its 20 months of life, the fact still remains that its performance has not been a very impressive one.

The Arms Control and Disarmament Agency has not been noticeably receptive to new ideas, and it has stirred up controversy, if at all, only by accident. This is a matter of some disappointment to serious supporters of disarmament, both inside and outside the agency, demoralizing the former, and making it difficult to attract the latter. A bureaucratic structure in some disproportion to the agency's small size (185 people) has also contributed to its lack of effectiveness, both in terms of its own research and in its dealings with other government agencies, as has its concern with "respectability," especially at the upper levels.

The misfortune here is that it really might as well be controversial, since

all the caution in the world will not immunize the ACDA from the attacks of those who fear disarmament more than they fear the arms race. As Senator Church (D.-Idaho) warned William Foster, the agency's director, in a friendly way at Senate hearings last week: "You best proceed very carefully. Unlimited arms production is very respectable; limited arms control very suspect. . . . Administer your affairs in a way purer than Caesar's wife, because you will be under scrutiny from all sides." Foster, surely, didn't need to have this pointed out; a Republican, a former Deputy Secretary of Defense, and a cautious man besides, it is difficult to see how much "purer" he could be.

The agency's purity extends even to its research program which has been small, and of a noncontroversial character, focusing mainly on inspection and verification of disarmament agreements. Although ACDA has pleaded poverty as one excuse for granting so few contracts (only 12 or 13 have been let so far), the fact is that with only 3 months left in fiscal 1963, they have yet to obligate about half of the \$4 million allotted for research. At this rate it is difficult to see where the \$11 million they have requested for research in fiscal 1964 will go.

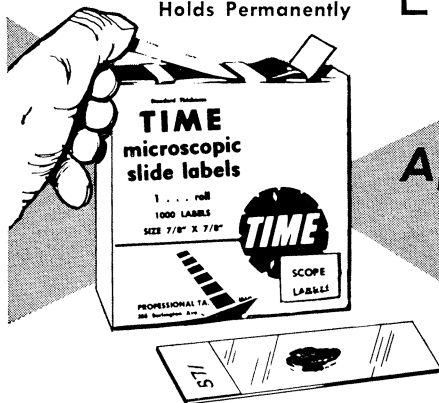
Finally, with respect to the agency's role in the test ban and disarmament negotiations at Geneva, the most that can be said is that it is not the agency's fault that the talks (at least those on general disarmament) are being pursued with only questionable earnestness by both sides. Here again the usual dichotomy between the agency's critics arises: some think it unfortunate that ACDA must spend so large a portion of its energy and time formulating detailed proposals on general disarmament to discuss around the barren tables of Geneva; others feel threatened simply by the fact that the negotiations are taking place at all.

With no notable laurels to their credit, ACDA officials are taking title to the proposed "hot wire" between Moscow and Washington as the first real international achievement in the arms control field. It must be recorded, however, that the idea is an old one, and that its acceptance now probably owes more to the Cuban crisis than it does to ACDA. The agency encouraged it, and will supervise the details, but its actual role is less than it claims.

—ELINOR LANGER

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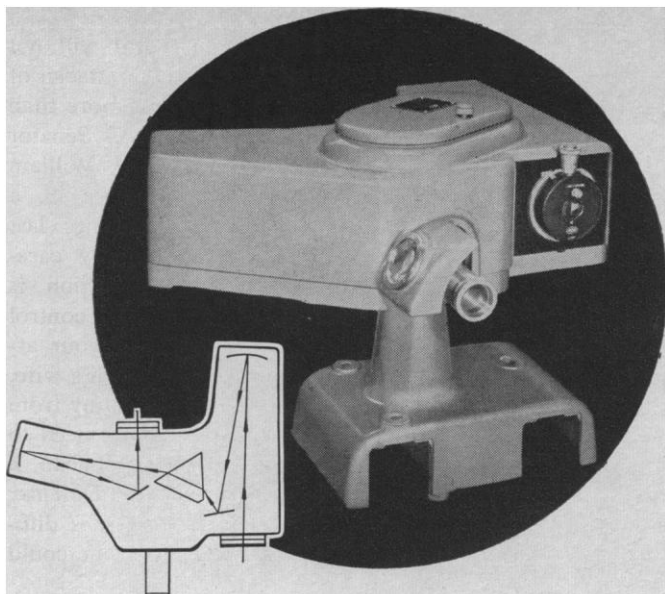
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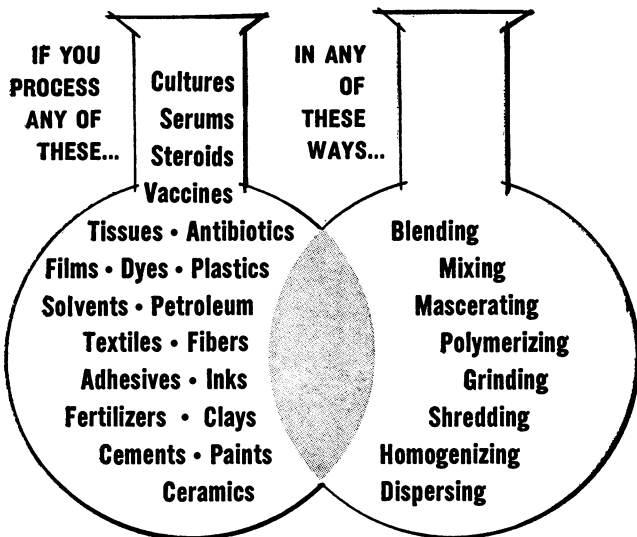
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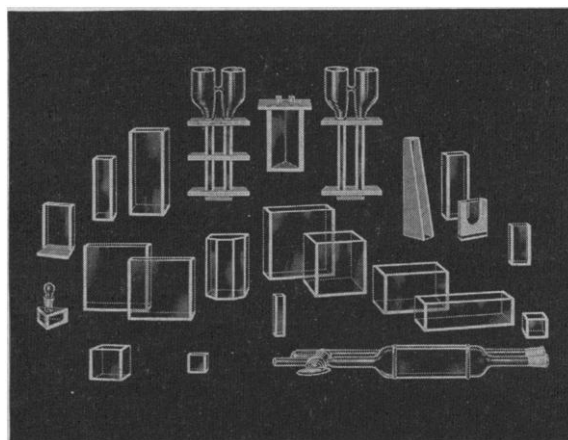
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