SCIENCE

21 October 1966

Vol. 154, No. 3747

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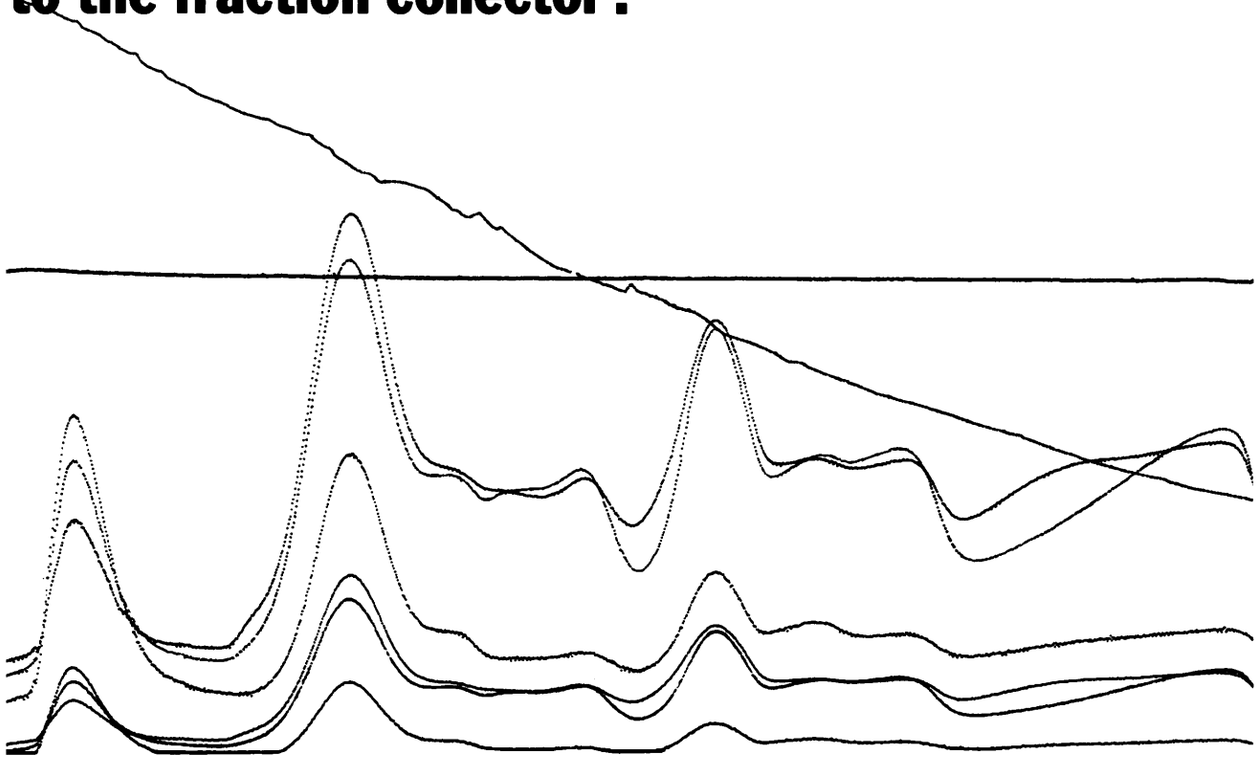

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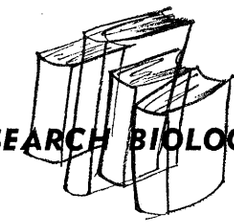

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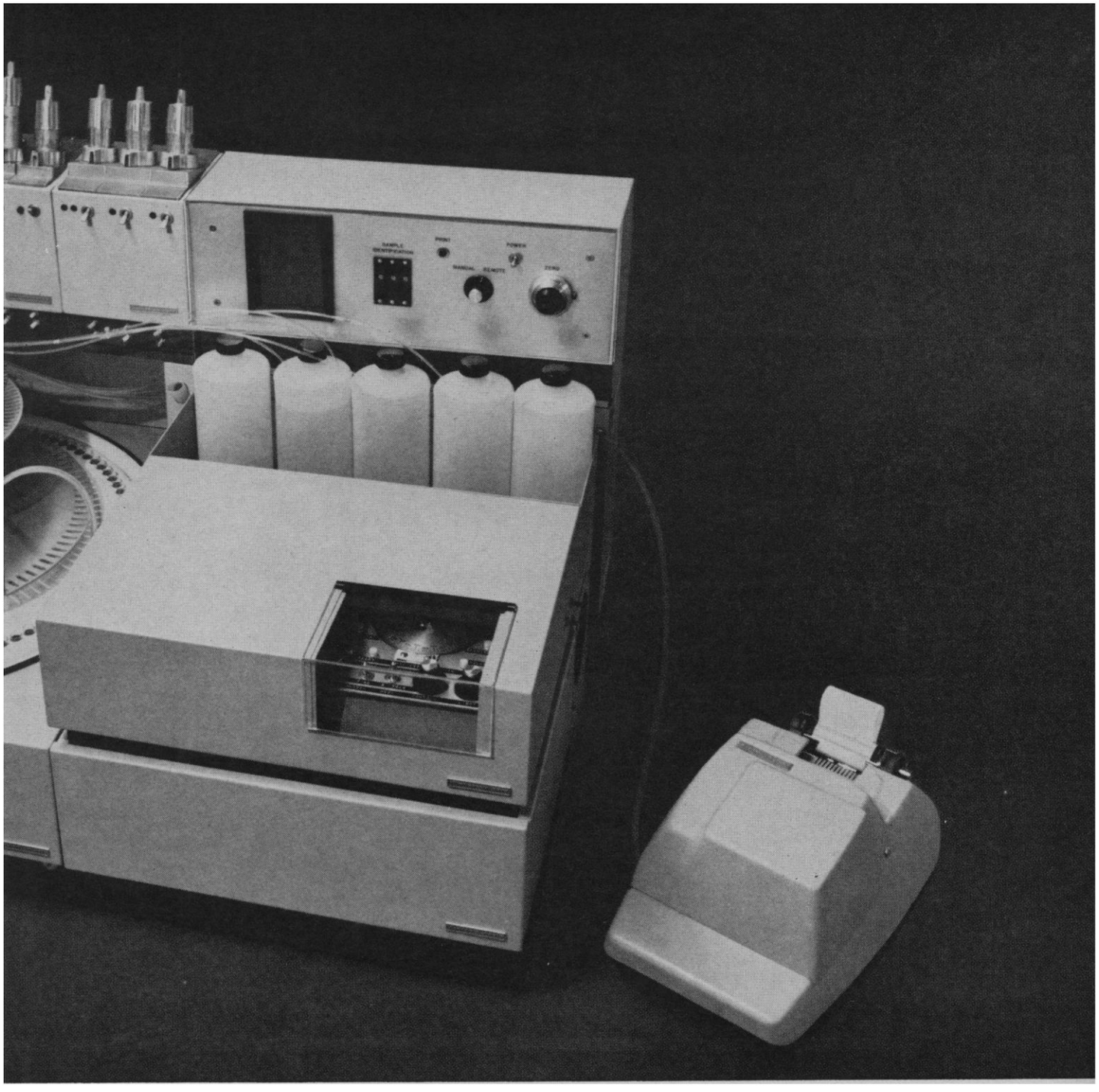

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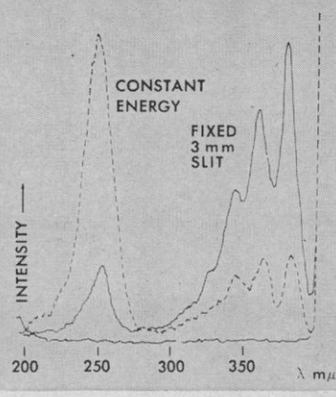

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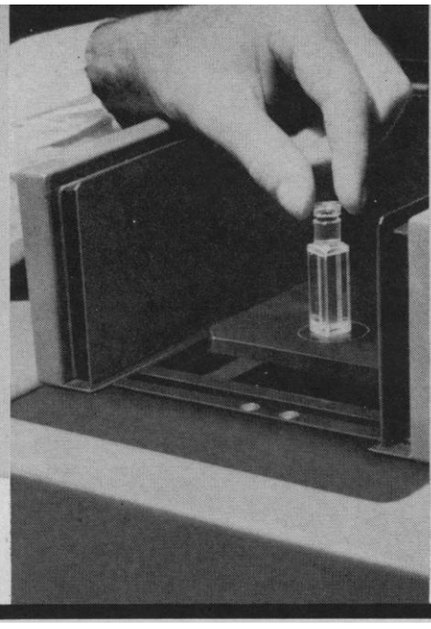
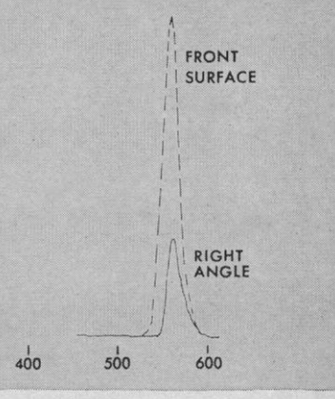


FRONT SURFACE vs. RIGHT ANGLE VIEWING



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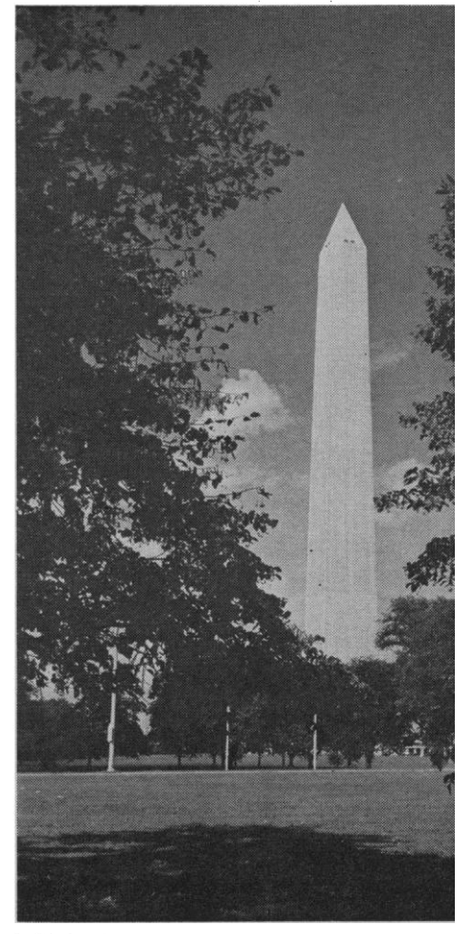

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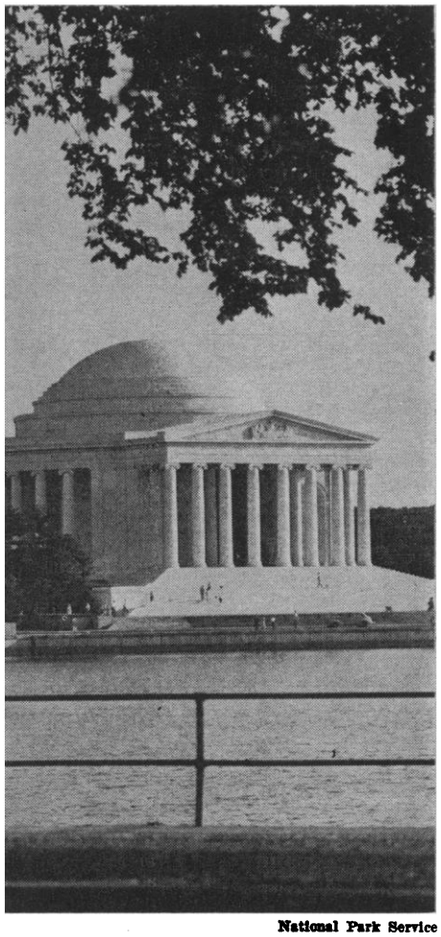

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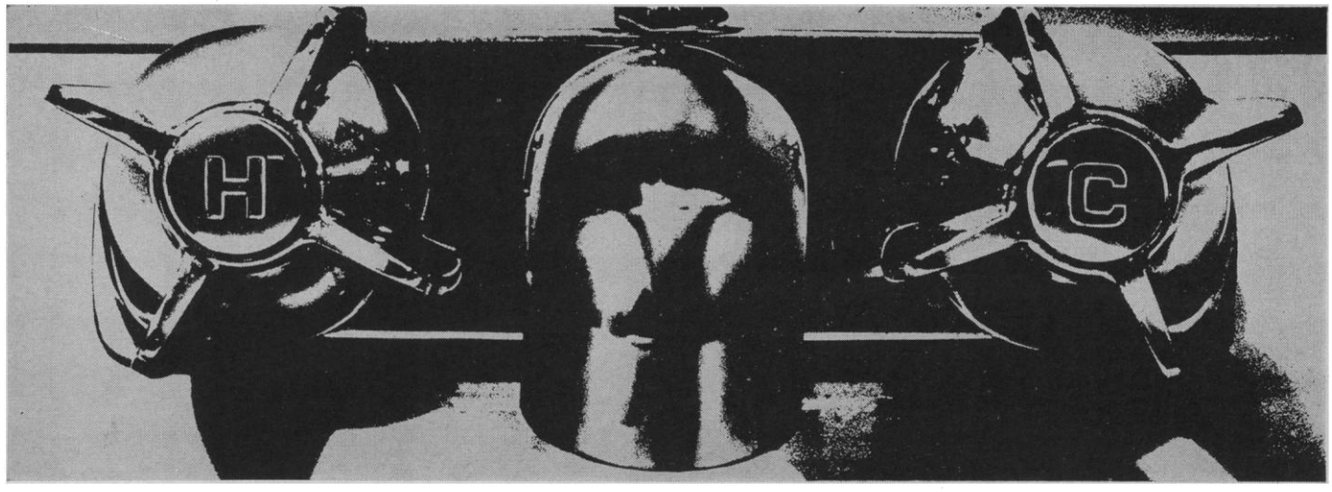

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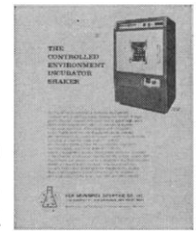

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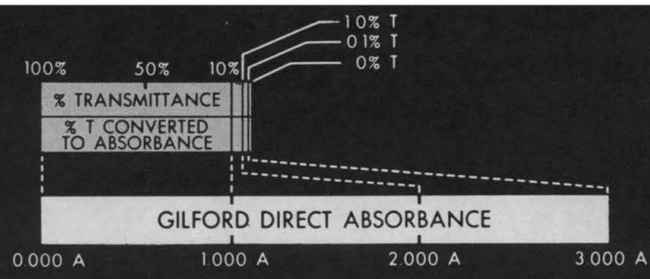

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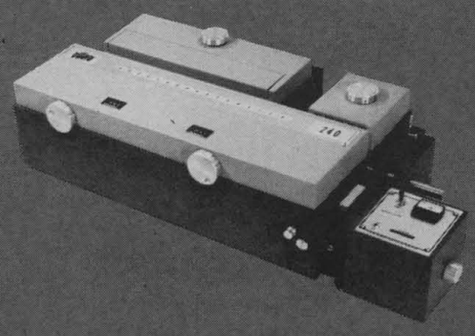

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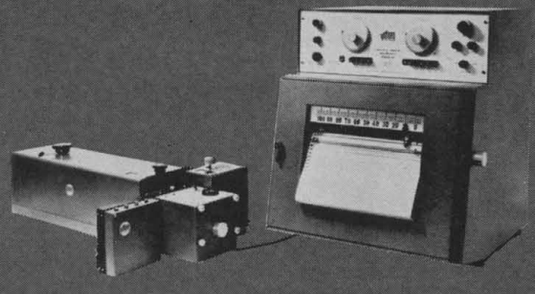

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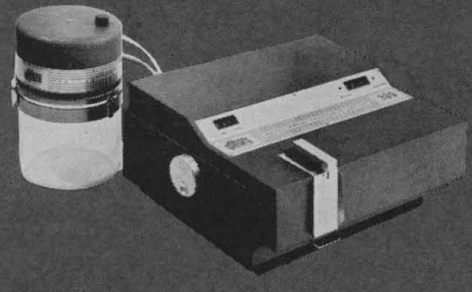

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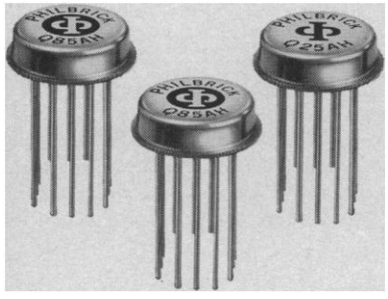

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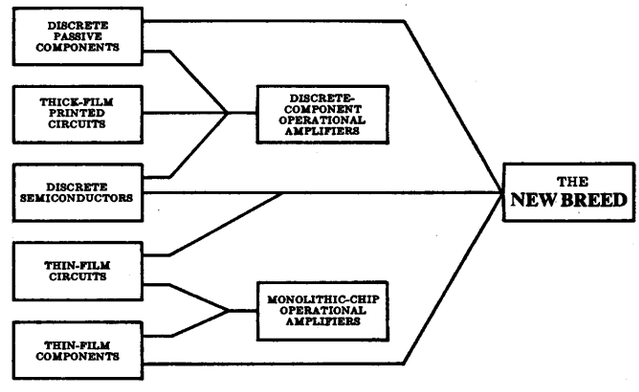

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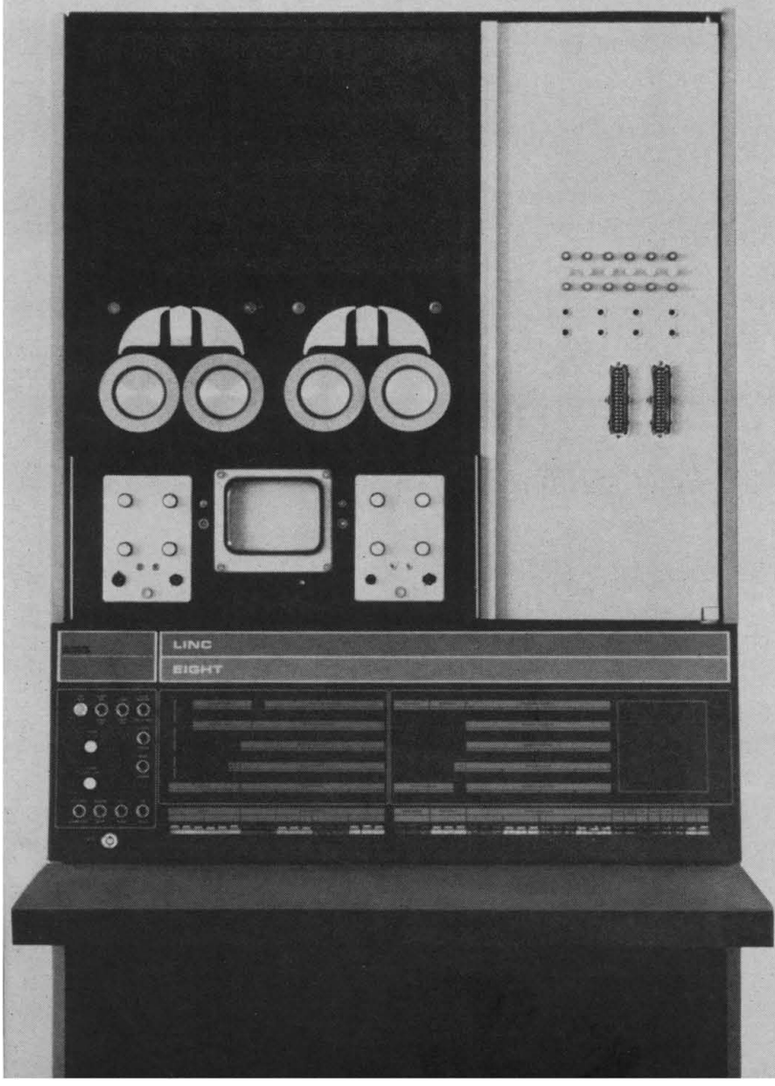

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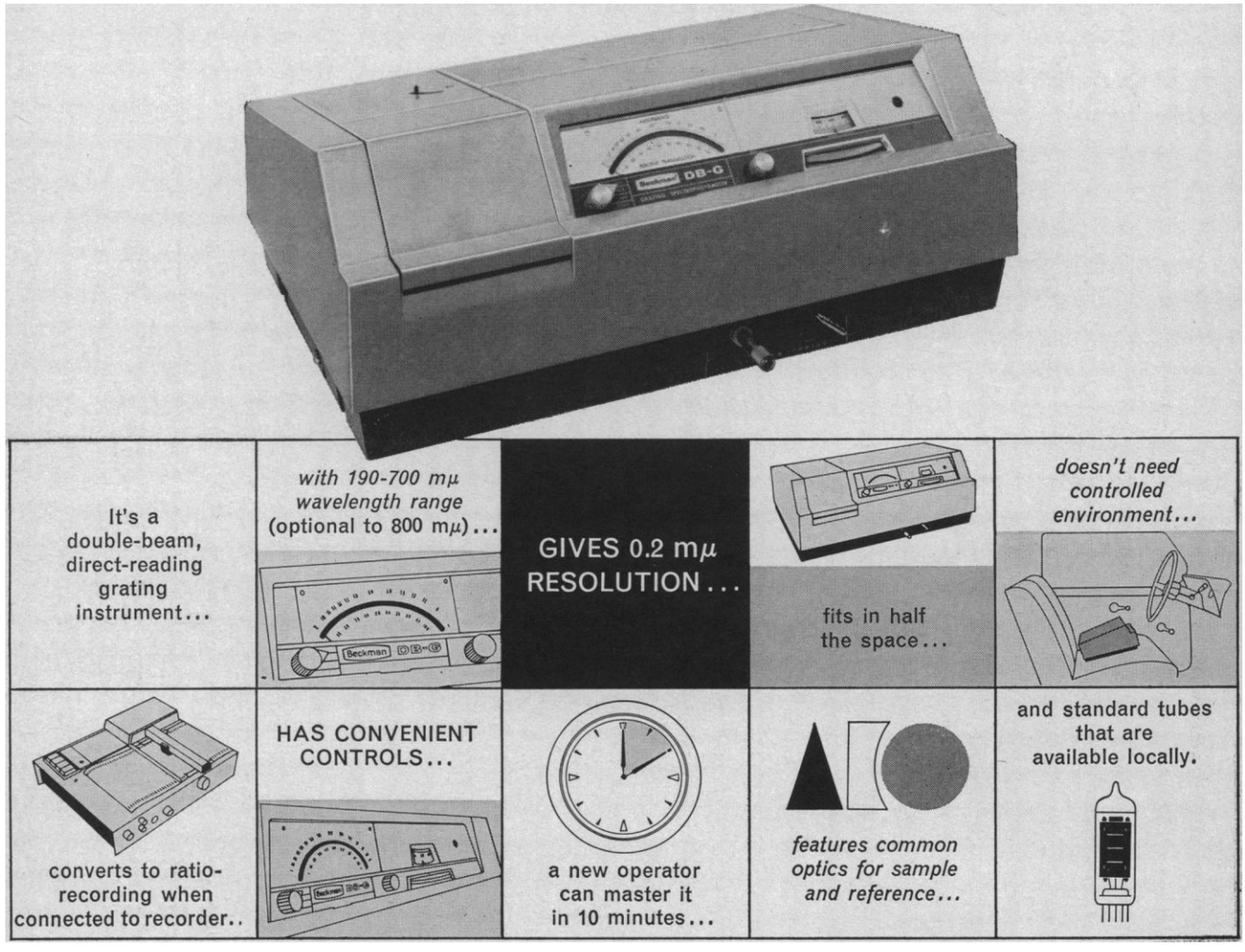

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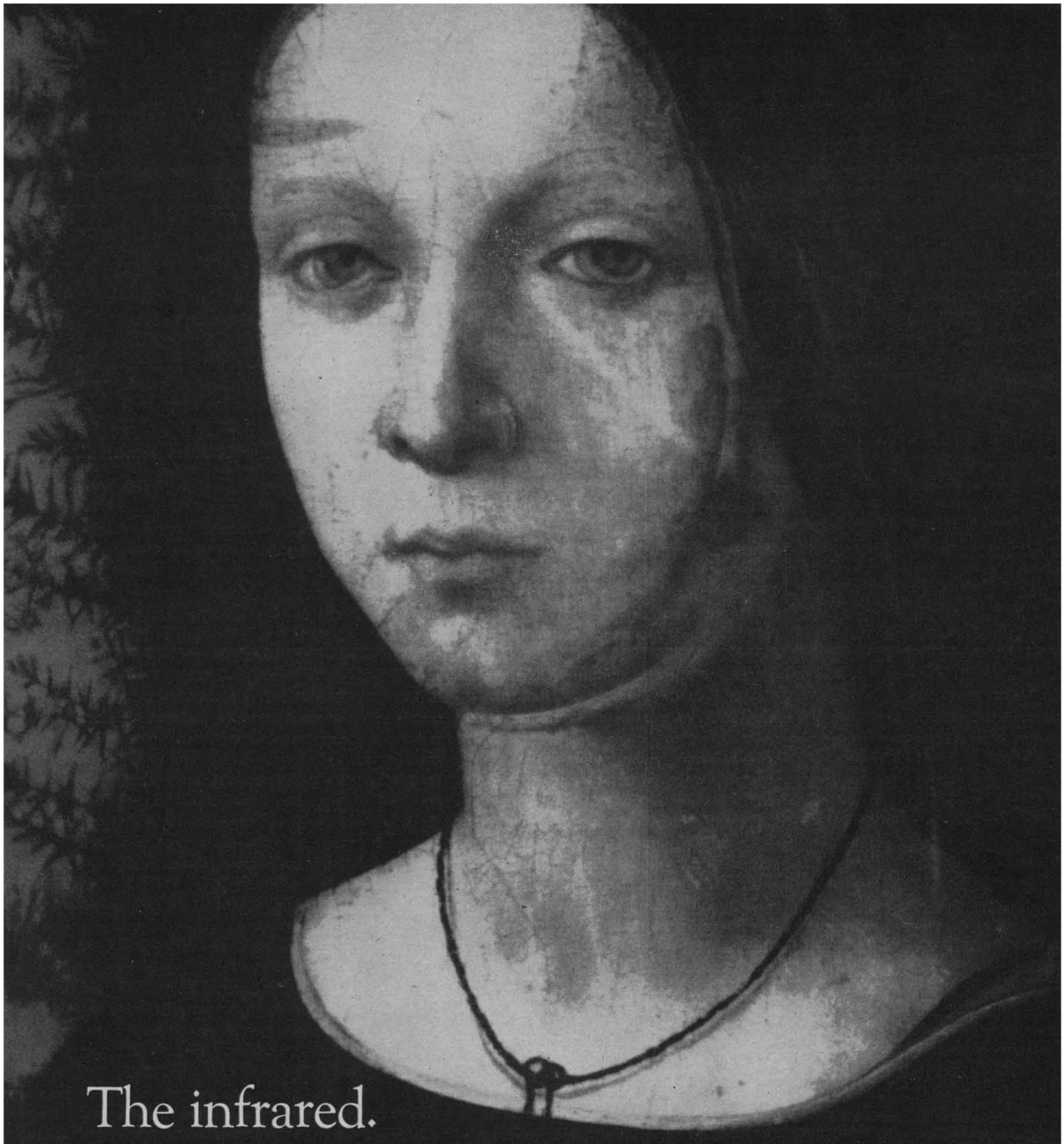

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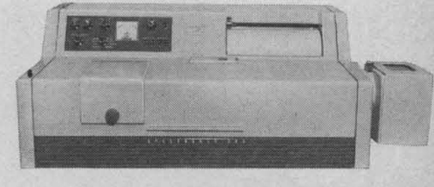

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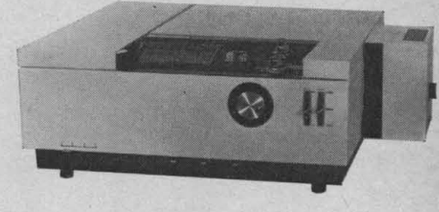

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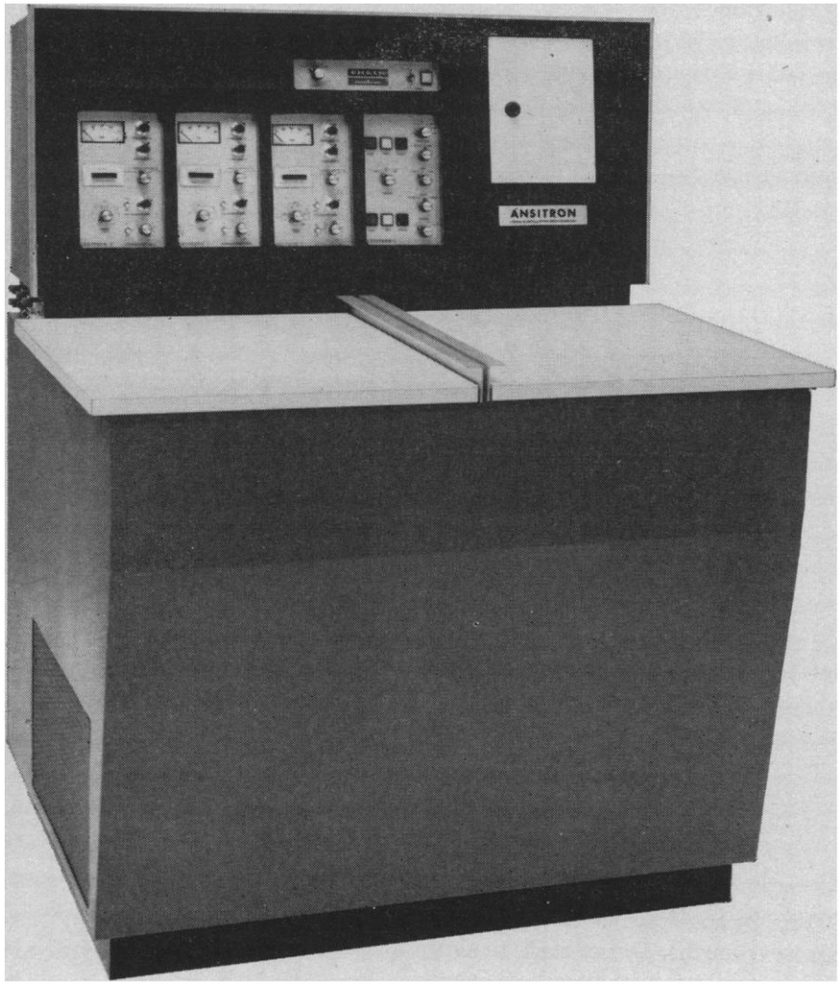

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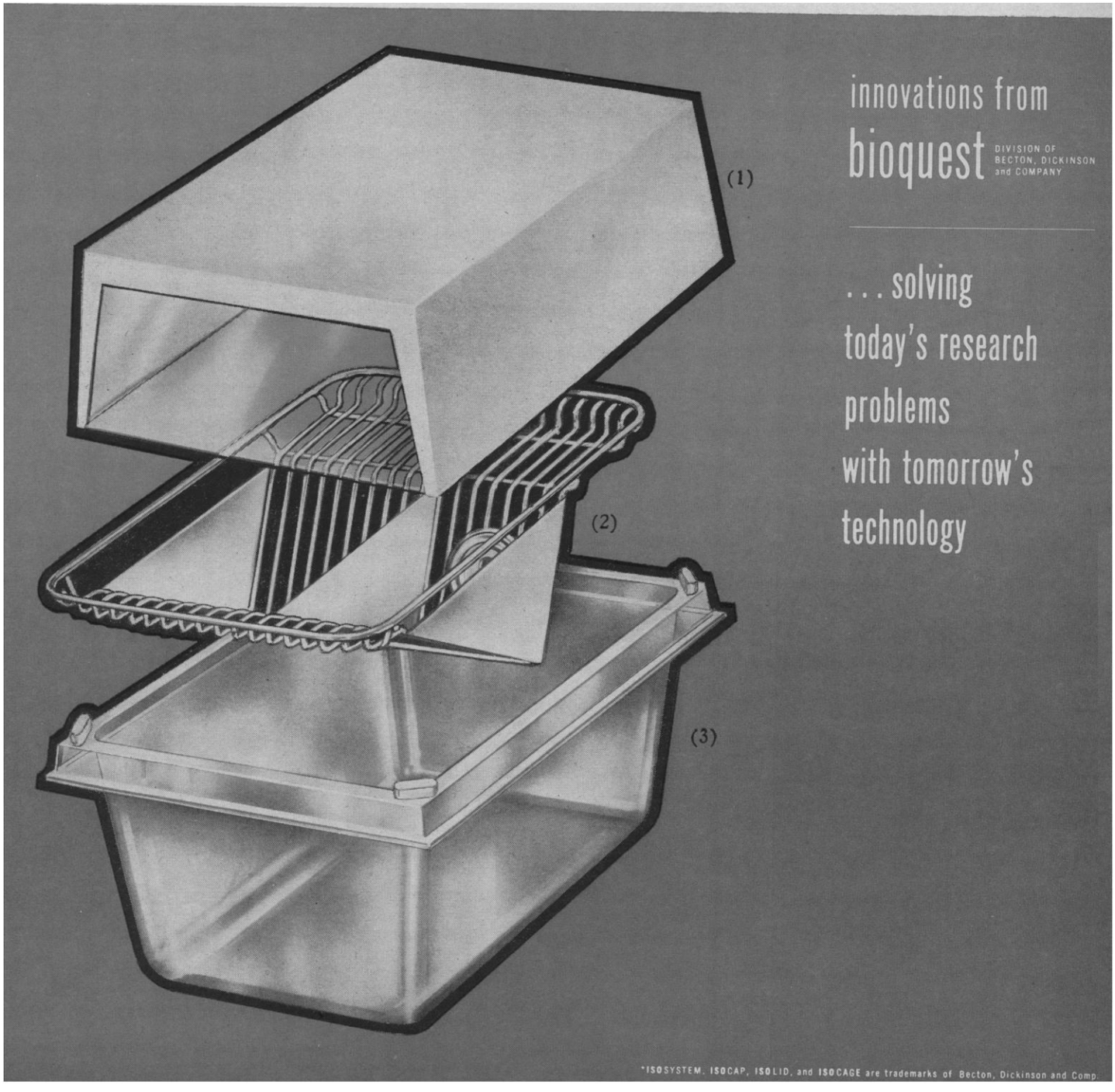

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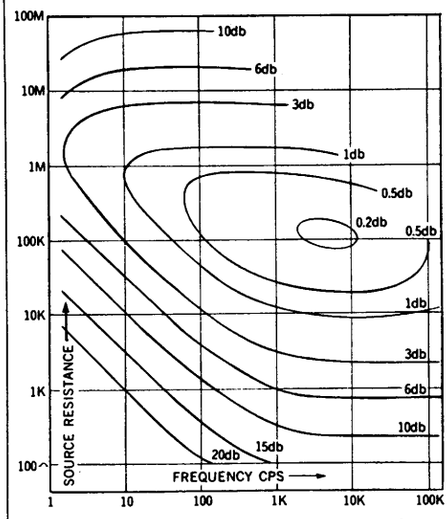

Contours of constant noise figure for a typical PAR Type A preamplifier plotted to show dependence on frequency and source resistance at 300° K. Amplifier operated single-ended.

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HUAC Methods and Motives

. . . In Martin's comment on Langer's HUAC note (Letters, 19 Aug.), he asserts that when the Soviets bring Sinyavsky and Daniel to trial on heresy charges, they show their "implacable resolve to prohibit freedom of thought, expression, and dissent." On the other hand, if HUAC goes heresy-hunting, it is merely trying to "keep itself informed." Martin is asking us to use suppression as a remedy for the disease of suppression. This amounts to ascribing opposite motives to the same performance, depending on whether it is done by our side or theirs.

I would hope that "the academic community might itself be concerned" as much about Martin's kind of thinking as it is about HUAC. . . .

WILLIAM SCHWARTZ
School of Social Work, Columbia University, New York City 10028

Martin appears to identify un-American activities with acts to "alter the form of our government." Does this make George Washington and the American Revolution un-American? Are we to consider our American Constitution un-American because it provides for amendments to itself? This inability to define what in America is "un-American" poses a greater threat than witnesses before HUAC. For, like the Roman Empire and its successors, we are more likely to decline through reluctance to adapt than through too great eagerness to do so.

R. HOBART ELLIS, JR.
Physics Today, *335 East 45 Street, New York 10017*

. . . May I suggest that the kernel of the problem has been expressed in [Martin's] own words: ". . . the word 'un-American' is certainly not precisely definable. . . ." It is because this is true that many academicians regard this committee as a dangerous menace to civil liberties. Such a word can be conveniently defined and redefined to suit the momentary political objectives of the definer, much as the words "Jew" and "Communist" were employed by the Nazis to impound and liquidate whomever they wished.

VICTOR G. WIGHTMAN
Department of Sociology, Wisconsin State University, Eau Claire 54701

When Martin asks why the academic community should object so strenuously to HUAC, he dismisses too quickly the question of HUAC procedures. The committee's methods greatly injure individuals and organizations. Despite some change in its pattern of operation over the years (the more flagrant abuses of the McCarthy era are no longer present), the committee violates constitutional rights by:

1) Conducting public hearings without traditional due process safeguards; seeking vast publicity, then tossing witnesses to the community and the local press for later punishment; attempting to act as prosecutor, judge and jury of witnesses (all functions of the executive and judicial branches of government); and inviting economic and social sanctions against uncooperative witnesses by holding them up to public exposure and scorn.

2) Encouraging Americans to become informers on past associates' political beliefs and associations.

3) Allowing abuses of its raw, unevaluated files; failing to supervise the use made of information it has gathered, which results in character assassination and widespread smears grounded on admittedly unproven items.

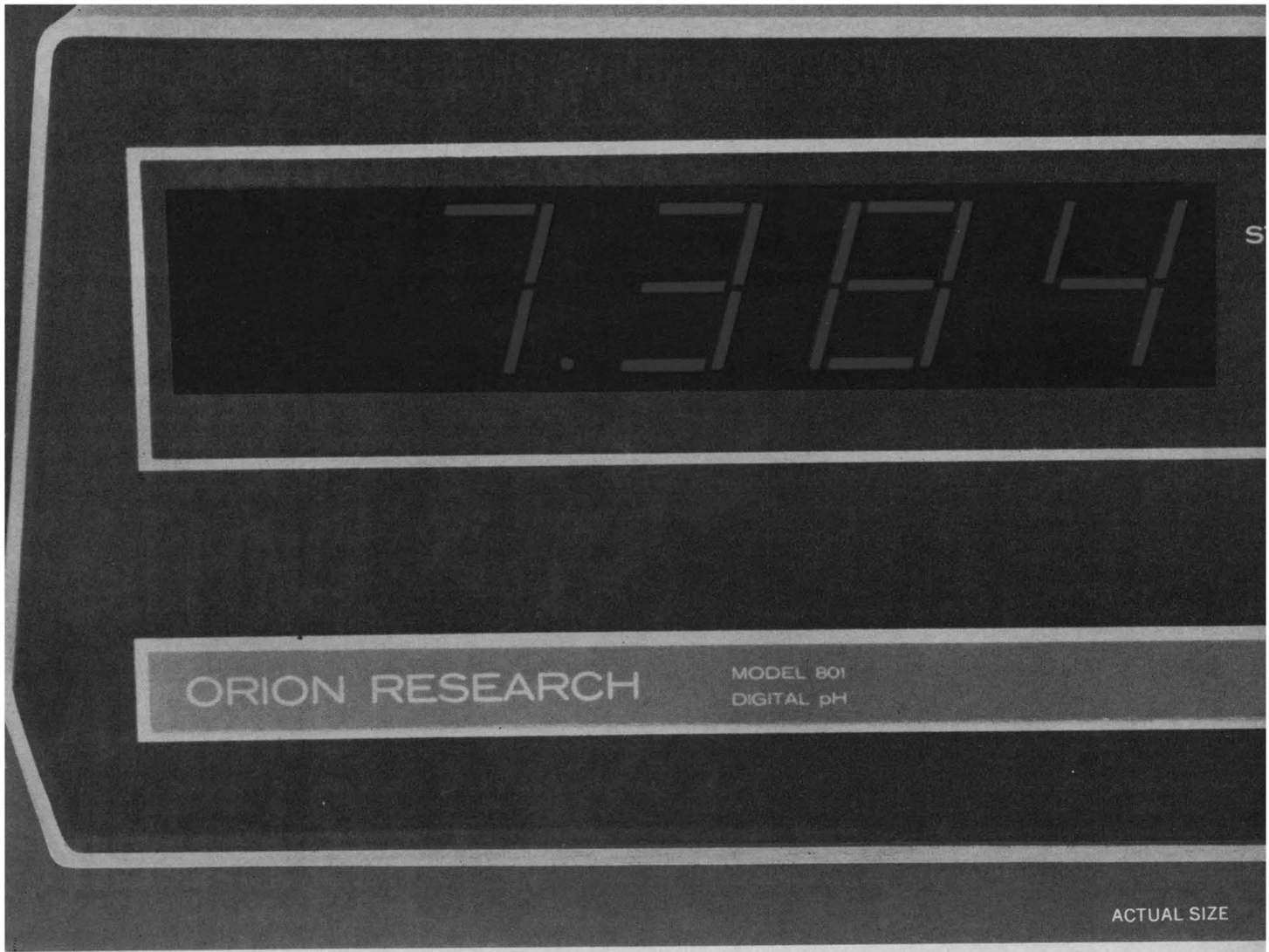
The committee has hurt vital areas of American life by (i) attacking education and educators so persistently as to curb discussion of controversial issues, and (ii) by assaulting individuals and groups which are motivated by religious or ethical concerns and are active in various social movements. This summary of the case against HUAC is based on a pamphlet by the American Civil Liberties Union entitled "The Case Against the House Un-American Activities Committee."

It is to be hoped that members of the academic and scientific community generally will raise their voices even more strongly against HUAC. While Congress needs to hold hearings pertinent to proposed legislation relating to national security, this function can surely be handled more justly and effectively by other congressional committees, such as the Judiciary.

LOUIS K. ACHESON, JR.
17721 Marcello Place, Encino, California 91316

When Are Statistics Appropriate?

In their letter (19 Aug.) "On using inferential statistics," Driessen and Derbyshire criticize nine reports of the 22 April issue which "could have used



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inferential statistics" but did not. "How 'significant' these observations are is a matter for the reader to judge."

As Fisher pointed out in the 1920's (*1*), the assumption underlying statistical inference is that the experiment to which it is applied meets the following conditions: (i) There has been a random selection of units from the population under study, from which the population parameters can be estimated. And (ii) for the estimation of experimental effects, there has been a random assignment of experimental treatments to experimental units (and of nontreatment to control groups).

Unfortunately many biological and social scientists do not achieve these controlled experimental conditions. Hence, inferential statistics would be inappropriate since they do not meet the assumptions.

Mark Twain said, "There are lies, damn lies, and statistics." Using inferential statistics in preexperimental studies without randomization does not lead to "significance" but to the implication of Twain's third case.

HERBERT J. WALBERG
Graduate School of Education, Harvard University, Cambridge, Massachusetts 02138

Reference

1. R. A. Fisher, *Statistical Methods for Research Workers* (Oliver and Boyd, Edinburgh, 1925).

IEG's: Some Evaluations

Hooray for the American Association of Immunologists in its attempt to discontinue the use of IEG No. 5 (Letters, 12 Aug.). I agree with them. I find the IEG's are becoming a dangerous nuisance because these bulky "preprints" are piling up, mostly unread. At this moment they are no longer being rapidly published, but are coming to me rather simultaneously (within a few weeks) of the truly published, edited, and refereed papers. They are dangerous because a parallel publication system is being set up for complete papers (and they are being referred to as complete papers), a system which has none of the safeguards associated with scientific publication, which makes up its own rules as it goes along, which has its own little "czar" telling scientists how and what to publish (hurry up, you will get priority), and which is seemingly out of the control of scientific bodies such as editorial boards or societies.

I suggest that we all stop sending completed papers to the IEG's. I further suggest that there still is some usefulness left in parts of the original idea in setting up this system; namely, that it be used solely to acquaint people in the field, by means of short letters, of new findings and developments with regard to methods, with regard to simple salient findings concerning single points and which would not be suitable for a full paper, and with regard to comments and criticisms of papers already published in the scientific press. I think it is a good idea to try to get some controversy back into print in science, and the IEG's, it seems to me, would be just the forum for such an exchange of controversial views about data and interpretations.

Finally, one last, though not minor, point. Why the rush? Suppose the "code" is to be learned two months later; so what? Let us leave a little for our children to do; anyway we will all die before we learn the "final" answers. The work in the laboratories is less gay now; the enthusiasm is becoming misplaced, from the acts of discovery to the works of quick publication. The practice of science is becoming less for its own sake than for the advancement of scientists. A slow terror is descending upon us, compounded of fear and pride and envy, of hate and waste and misguided zeal, of lacks of joy and satisfaction; let us stop this before it becomes complete.

PHILIP SIEKEVITZ
Rockefeller University,
New York 10021

We wish to second all of the nine objections which led the Association of Immunologists to vote for discontinuation of IEG No. 5, particularly the following two reasons: no refereeing process is provided for what is, in essence, a form of publication; and the IEG places undue emphasis on priority.

We would add two points. First, it has been our experience that each of us discards more than half of the communications received from IEG No. 7, no matter how rapidly they have been transmitted from the author's typewriter to our wastebaskets. Moreover, of the manuscripts we do examine, the majority are either published rapidly (*Proceedings of the National Academy of Sciences* and *Biochemical and Biophysical Research Communications*) or are of insufficient urgency to warrant immediate attention. If our experience is typical, then the IEG must be considered an inefficient function. NIH funds would be more efficiently employed in supporting research.

Second, we are concerned, as a matter of scientific values, with the overemphasis placed by the IEG on speed. Standards of scholarship should be the dominant concern in any form of scientific communication.

AUGUST H. DOERMANN
JONATHAN A. GALLANT
BRIAN J. MCCARTHY
DAVID R. MORRIS
EUGENE NESTER
WILLIAM J. RUTTER
Departments of Biochemistry, Genetics, and Microbiology, University of Washington, Seattle 98105

The desire to impose censorship can take various forms, such as Dray's ingeniously worded letter listing the following nine reasons which summarized the Immunologists' objections to IEG No. 5:

1) *IEG communications are sent only to a limited number of members of the scientific community*. One shudders to think what would happen if all scientific communications were sent to all members of the scientific community.

2) *The preprints are read by the same scientists who will later read the published articles*. Evidently it is undesirable to read the same articles twice. Many of us, however, customarily forego such a temptation because of a lack of time.

3) *Informal publications may not be cited in bibliographies*. Most authors surely are aware of how to cite a private communication by a footnoted reference.

4) *The preprints may ultimately supersede existing journals*. This process is commonly termed "evolution" and the struggle for existence leads to the survival of the fittest. The current tendency is for journals to multiply rather than to disappear.

5) *No refereeing process is provided for what is, in essence, a form of publication*. This objection seems to be overcome by Dray's proposal that "each memorandum should be clearly marked with the warning that it does not constitute a formal publication."

6) *The IEG places undue emphasis on priority*. This is a common attribute (or failing) of most scientists.

7) *Preprints infringe upon copyrights.* IEG communications are not sold.

8) *Little or no free discussion takes place in the IEG.* Surely this is the fault of scientists rather than of the IEG.

9) *The IEG costs money at a time when funds available for research are limited.* Everything is comparative; one IEG memo could potentially save large sums of money by forestalling duplication of research or by providing ideas that will enable research to advance more quickly.

Seminar clubs and discussion groups have sprung up during the past year in various parts of the country for the purpose of reviewing the communications in IEG No. 7. The preprints have acquired an international flavor. Let us hope that an immunological reaction will not agglutinate this useful means of communication.

THOMAS H. JUKES
Space Sciences Laboratory,
University of California, Berkeley

An account of the Information Exchange Groups as an experiment in communication among scientists was given in *Science* on two occasions [**143**, 308 (1964); **148**, 153 (1965)]. With the approach of their sixth birthday, a summary statement about the IEG's may be in order. Seven groups in different areas of biomedical science have been established, with membership ranging from 100 to 1500. So far as the scientific community is concerned, the IEG's have passed the experimental test of usefulness, as shown by the participation of active workers in each of the fields represented by the seven groups—a participation that extends to 38 foreign countries. In that it has emerged as an aid to communication with a potential as great as that of the scientific journals or international conferences, the IEG would seem sufficiently acceptable as a device for facilitating speedy interactions and communications among scientists. This is not to say that the final form of IEG has been reached. Further modification and experimentation may be expected. It is significant that the success of the IEG concept in the biological sciences has created great interest in setting up similar groups in the physical sciences.

Fortunately the IEG has been spared negative criticism during its formative years. The organizers have been able

to enlist the cooperation of scientists representing all shades of opinion. What is even more remarkable, the venture has consistently enjoyed the benevolent and essential cooperation of many individuals representing the scientific journals and societies. The IEG program, administered under the direction of E. C. Albritton, has shown itself to be unusually receptive to suggestions for improvement, reform, and change.

The American Association of Immunologists recently passed, at a business meeting held in April 1966, by a vote of 56 to 39, a resolution recommending that IEG No. 5 be discontinued. The officers announced this in a letter to *Science* and evaluated IEG's generally [see *Science* **153**, 649 (1966)].

At the time of its submission to *Science*, a copy of the letter was sent to the IEG. The chairmen of the various IEG's pointed out to Sheldon Dray, the secretary of the association, that the letter contained many inaccuracies and unjustified assumptions. Yet no correction was made of any of these errors of facts, and the letter was published in virtually its original form. As chairmen of four of the IEG's, we feel that an answer to such criticism, point by point, would assign more value to the letter than it deserves. There may, indeed, be valid reasons for the dissatisfaction of some immunologists with the management of IEG No. 5. But to proceed from a specific complaint to an attack on IEG's generally, without detailed knowledge of the relevant facts, is unwarranted.

D. E. GREEN
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J. GERGELY
Retina Foundation, Institute of Biological and Medical Sciences, Boston, Massachusetts

W. DAMESHEK
Department of Hematology, Mount Sinai Hospital, New York

S. BARON
National Institute of Allergy and Infectious Diseases, Bethesda, Maryland

The published form of the letter concerning Information Exchange Group No. 5 (12 Aug.) failed to make it clear that this letter was transmitted by Sheldon Dray in his official capacity of secretary-treasurer of the American Association of Immunologists. The letter represents a report of discussions at the annual AAI business meeting. The original version, which was drafted and approved for publication by the Council of the Association of Immunologists, was somewhat shortened by the editors.—ED.

Ancient China

The legend for the cover of the 12 August issue errs (p. 671), as several readers have noted, in stating that "the miners were attached to winches by a safety line." The line is clearly attached to the basket at the miner's feet rather than to his neck.

NATHAN SIVIN
Department of Humanities, Massachusetts Institute of Technology, Cambridge 02139

. . . The discussion of the meanings of the word "*ch'i*" in Sivin's book review ("A Chinese classic," p. 730) is interesting. The word also has the meaning of "anger." In the illustration Sung Ying-hsing used an expression for poison gas which definitely is not ambiguous. It is literally translated as "poison smoke gas," or possibly, "poison smoke essence."

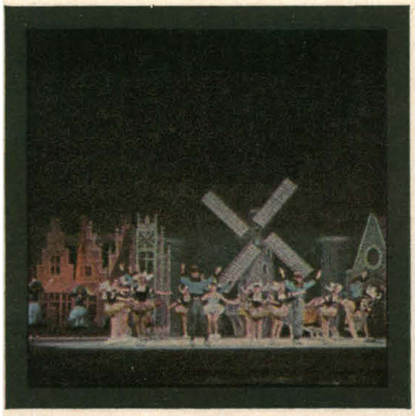
L. A. LOVEGREN
Cherry Grove, Oregon 97119

Cruelty in the Laboratory

Letters published in this section have at times revealed the concern of readers over the type of experiments conducted on laboratory animals. I would like to voice a marked distaste for the experiments on sleep deprivation ("Sleep deprivation and brain acetylcholine," 16 Sept., p. 1416). These strike me as objectionably cruel in view of the length (96 hours) and conditions of the procedure. It is to be hoped that no further experiments along this line will be pursued; the act of slowly depriving animals of an activity essential to life is comparable to inducing death by starvation or thirst. Research scientists, even if committed to objectivity, are still ethically bound to refrain from inflicting unnecessary suffering on other sentient beings, particularly in a situation not crucial to mankind.

F. A. VELAY
500 South 47 Street, Philadelphia, Pennsylvania 19143

Why does "the system" have an interchangeable everything? Ask Dan Rubin.



"The system" we refer to is the Hasselblad system. A unique combination of components not to be confused with a "camera." We wondered why most pros had to own one.

Dan Rubin put it this way: "There are lots of cameras. But there's only one 'system.' Take those Ice Follies shots (above). They would have been impossible without it. For instance, I knew the 'Dutch Town' number would be great in color. By clipping on my color back and my Zeiss 50mm wide angle lens, I caught the whole scene. Seconds later the adagio team was on. Back to black and white, and my 250mm telephoto got this 'leg pull' on the button. Turning, I saw my daughter was entranced. The look in her eyes was too good to miss. Being able to switch from black and white to color mid-roll, my 80mm lens captured that faraway expression only known in childhood, just 14 seconds later.

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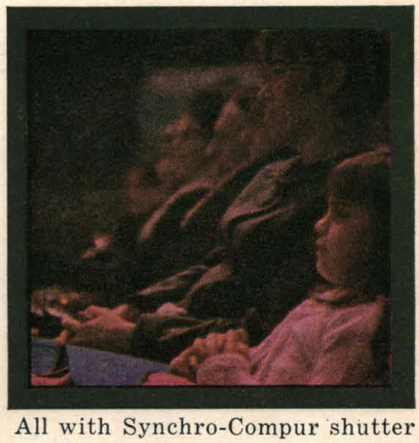

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Clockwise: Hasselblad 500C with light meter knob and 80mm lens, 250mm lens, 150mm lens, magnifying hood, sunshade, filter, and 2 film magazines.

U.S. Camera sees Dan Rubin as symbolic of the "new breed" of all-round photographers. Look for Dan at Chamonix, Sebring, Yankee Stadium, or in his studio, and you'll probably find him behind "the system." It's one of the things that makes him all-round.

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Nobel Chairs Are Privileged

I have observed an important difference between a Nobel laureate and other scientists. Although the number (one) of observations is small, my finding is remarkable.

At the overcrowded 1966 Cold Spring Harbor Phage Meeting, a small number of comfortable chairs close to the speaker's platform were highly desirable. Before leaving such a chair, a scientist found it necessary to leave a notebook, clipboard, swim trunks, or other personal possession in order to insure a finite chance of reclaiming his seat. At the time of observation, the Nobel laureate left nothing in his chair, but upon his late return from a coffee break, his chair was still available.

Determination of causality in this observation can only improve human welfare. It may be that scientists who can lay claim to a good seat without leaving personal belongings are destined to become Nobel prize winners. If this be so, a great improvement in our ability to predict scientific greatness would be available. Demonstration of the other possible relationship, that possession of a Nobel prize insures a good seat, would make this great honor even more coveted and spur scientists to greater endeavor.

To follow up this observation and determine causality, I intend to seek funding from Breakthrough Institute (1 Jan. 1965; 11 Mar. 1966).

MICHAEL GOUGH
Department of Human Genetics, University of Michigan Medical School, Ann Arbor 48104

Humility and Constitutional Rights

After reading Rutman's letter on the Russian peace questionnaire (16 Sept.), I feel compelled to express my view in defense of our government.

Rutman is absolutely correct that our Constitution guarantees freedom of expression and government must not meddle. He then states, "I see no way in which the international nature of the public interchange alters this restriction." Well, do all governments in the world provide freedom of speech to their scientists? If not, then we are not working with the same ground rule and additional guidelines might not be out of the question. Remember Lysenko? Remember Nazi persecution of Jewish scientists? Notice the Chinese chemists who synthesized bovine insulin claiming that this achievement was inspired by the correct thinking of Chairman Mao Tse-tung? Are these events not offensive? Are these not even more opposed to "the international character of science and the normal attitude of scientists?" Where are the teach-ins and the demonstrations? Where are the complaints about principle and arrogance?

I think it might be a good idea if we ask ourselves the following questions: Are we lacking in humility and too sure of our judgment? Is it wrong for scientists to listen to diplomats on foreign affairs and to economists on tariff? We are trained in a scientific discipline; does that mean, *ipso facto*, that we scientists have the only truth and the right answers to all problems?

If we want genuine and permanent "growth of respect and amity between peoples," we might have to appreciate the problem of the other side, including, in this case, our own State Department.

ARTHUR J. YU
97 Forsythia Drive North, Levittown, Pennsylvania 19056

Calendar Distortions in 1642

As a supplement to Crew's interesting note (Letters, 16 Sept.) relative to Newton's death, it might be noted that there is also a particularly notable confusion relative to his birth date. The death of Galileo came on the evening of 8 January 1642, and Newton was born on 25 December 1642. It has, therefore, been frequently, and incorrectly, written that Newton was born the year that Galileo died. However, the death of Galileo is given in terms of the new calendar and the birth of Newton according to the old calendar. According to our current calendar, Newton was born on 5 January 1643.

For those who will be involved in commemorations of Newton's birth or death, there will be considerable exasperation resulting from the calendar change. The confusion is augmented by the fact that the adoption of the new calendar did not take place simultaneously in all countries.

E. SCOTT BARR
Box 714, University, Alabama 35486

21 October 1966, Volume 154, Number 3747 **SCIENCE**

EDITORIAL CORRESPONDENCE: 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Phone: 202-387-7171. Cable: Advancesci, Washington. Copies of "Instructions for Contributors" can be obtained from the editorial office. ADVERTISING CORRESPONDENCE: Rm. 1740, 11 W. 42 St., New York, N.Y. 10036. Phone: 212-PE 6-1858.

International Meetings

When conducted under optimum conditions, international scientific meetings provide a splendid setting for constructive interchange. As important as formal sessions is discussion in small groups and person-to-person. Such contact permits mutual quick evaluation of quality of mind and character. Judgments can lead to long-lasting confidence. In a world ceaselessly troubled by tensions and antagonisms, international friendships should be fostered.

But most international meetings are not conducted under optimum circumstances. Indeed, Americans who complain about their own national meetings find that, by comparison, the large international gatherings held abroad are often a shambles. The complaints are many. Under unfavorable circumstances the visiting scientist is harassed almost endlessly. There are problems about visas and travel. Housing reservations are not honored, and the visitor is consigned to a third-class hotel far from the meeting. Advance programs are not available, and no one seems to know where and when sessions will be held. When a schedule is available, it is not honored. No central directory of participants is maintained, and personal interchange is difficult.

To the long list of annoyances a new one has been added, which could destroy the possibility of holding truly international meetings. The new factor is the injection of cold-war politics. This year five major international meetings were held in Russia. Four were marred by controversial political activity.

The oceanographers began this summer's series of meetings in Russia. The consensus of those attending was that the meeting was well conducted and worth while. However, there were cold-war overtones. Prior to the meeting, informal assurances were given that a visit by a U.S. oceanographic research ship would be welcomed. At the last minute the Russians reneged.

The crystallographers, who were next, enjoyed a pleasant, noncontroversial session.

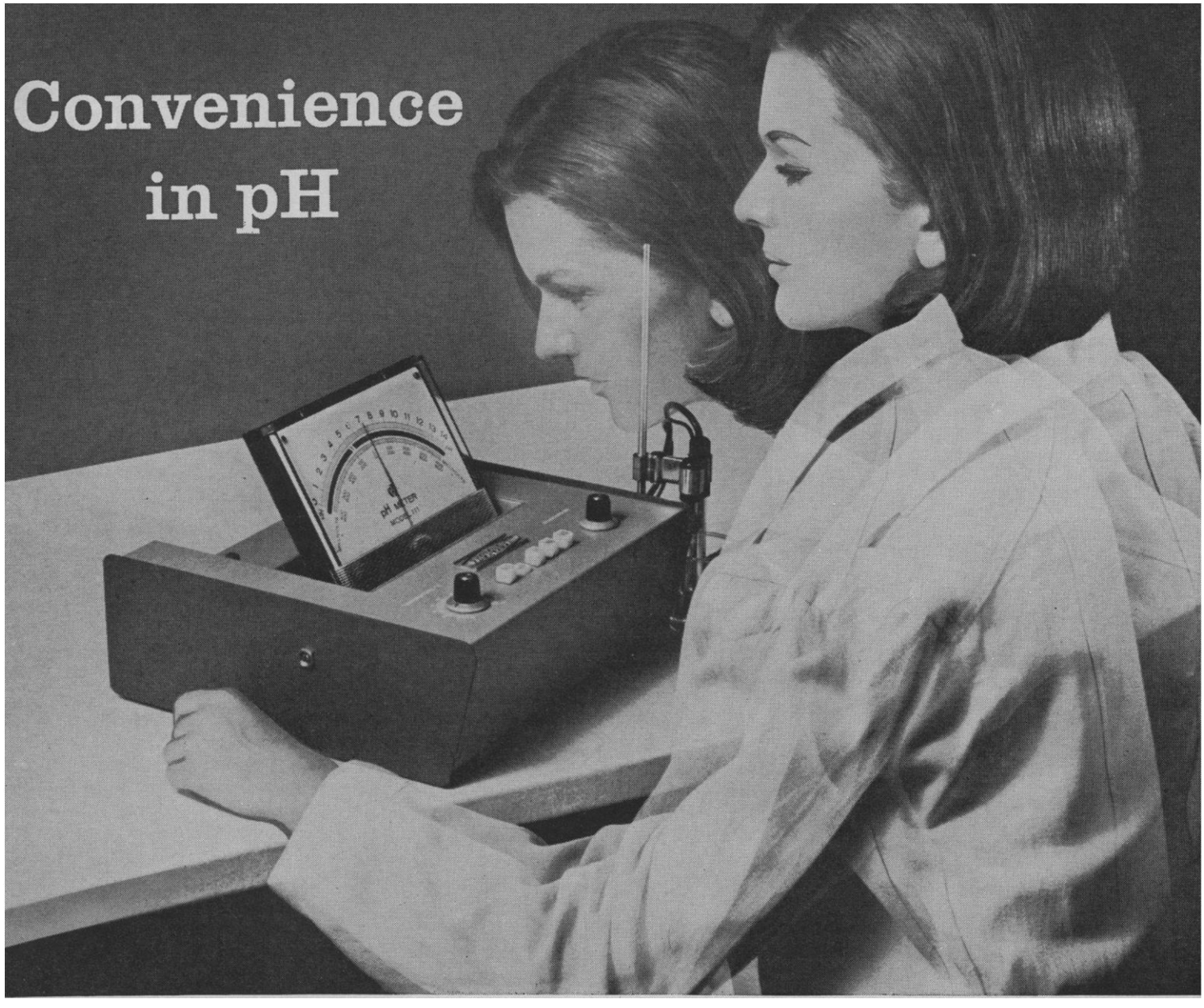
The microbiologists were less fortunate. Confusion reigned. Papers were not on schedule. There was a shortage of interpreters. No central directory was maintained. In addition, a commissar called on all scientists to "unite in condemning U.S. aggression in Vietnam."

The psychologists were also greeted by a commissar. He said that he welcomed scientists attending the congress, including those from the United States, in the belief that all scientists were "working to end U.S. aggression in Vietnam." Subsequently the International Union of Psychological Science adopted the following bylaw:

> The host society or association shall take all reasonable steps to ensure that political matters are not introduced into the ceremonial and social occasions which form part of a Congress.

During the mathematicians' congress the behavior of the Russians seemed correct. However, that of many others was not (*Science*, 7 October). Much of the energy of participants went into discussion of politically oriented resolutions.

Just recently there have arisen two grounds for hope that the trend toward excessive cold-war political activity can be arrested (News and Comment, *Science*, this issue). Implementation of the resolution adopted by the Council of the National Academy of Sciences would be helpful. In addition the International Council of Scientific Unions has emphasized the need of avoiding political activity at meetings under its sponsorship. The total direct and indirect costs of international congresses amount to tens of millions of dollars a year. The congresses are too costly and too potentially valuable to be allowed to be marred by mediocre arrangements or cold-war political activity.—PHILIP H. ABELSON



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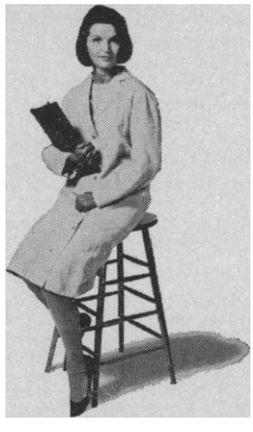

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1–4. **Human Factors** Soc., natl. conv., Anaheim, Calif. (K. S. Teel, Autonetics, P.O. Box 4173, Anaheim 92803)

1–5. American Soc. of **Parasitologists**, 41st annual mtg., and American Soc. of **Tropical Medicine and Hygiene**, mtg., San Juan, Puerto Rico. (Secretary-Treasurer, P.O. Box 295, Kensington, Md. 20795)

1–5. International Bureau of **Rock Mechanics**, 8th intern. conf., Leipzig, Germany. (Internationales Büro für Gebirgsmechanik, Inselstr. 12, Berlin C2, Germany)

2. **American Inst. of the City of New York**, New York. (Mrs. G. E. Peterson, American Inst. of the City of New York, 2 E. 63 St., New York 10021)

2–3. **Acoustical** Soc. of America, fall mtg., Los Angeles, Calif. (The Society, 335 E. 45 St., New York 10017)

2–3. **Gastric Cancer**, intern. conf., Nagoya, Japan. (R. Kinosita, City of Hope Medical Center, Duarte, Calif. 91010)

2–4. **Automation in Analytical Chemistry**, 1st European Technicon symp., Paris, France. (Compagnie Technicon, Route Nationale no. 1, Domont, Seine-et-Oise, France)

2–4. **Electronics Research and Engineering**, northeastern mtg. (NEREM), Boston, Mass. (T. A. Longo, 31 Channing St., Newton, Mass. 02158)

2–4. **Parenteral Drug** Assoc., annual conv., New York, N.Y. (The Association, Western Saving Fund Bldg., Broad and Chestnut St., Philadelphia, Pa. 19107)

3–4. **Entomological** Soc. of America, eastern branch, 38th annual mtg., New York, N.Y. (G. K. Schumaker, Connecticut Agricultural Experiment Center, Box 1106, New Haven 06504)

3–5. Leukocyte Chemistry and Morphology Correlated with **Chromosome Anomalies**, conf., New York, N.Y. (New York Acad. of Sciences, 2 E. 63 St., New York 10021)

3–5. **Gerontological** Soc., 19th annual scientific mtg., New York, N.Y. (The Society, 660 S. Euclid St., St. Louis, Mo. 63110)

3–5. **Machine Methods in Libraries**, 4th symp., Washington Univ., St. Louis, Mo. (E. Brodman, Library, Washington Univ. School of Medicine, 4580 Scott Ave., St. Louis 63110)

4–5. **Tumor Chemotherapy**, intern. conf., Osaka, Japan. (R. Kinosita, City of Hope Medical Center, Duarte, Calif. 91010)

6–10. Society of **Exploration Geophysicists**, 26th annual intern. mtg., Houston, Tex. (R. B. Baum, Seismograph Service Corp., 1229 Capital Natl. Bank Bldg., Houston 77002)

6–12. **Medical Journalists**, world mtg., Manila, Philippines. (S. S. B. Gilder, 1850 Taft Ave., Manila)

6–14. World **Medical** Assoc., 20th general assembly, Manila, Philippines. (A. Z. Romualdez, 10 Columbus Circle, New York 10019)

7–8. Modern Trends in **Cardiac Management**, scientific session conf., Bombay, India. (I. J. Pinto, Esperance, Colaba Causeway, Bombay 1)

7–9. Society for **Experimental Stress Analysis**, fall mtg., Pittsburgh, Pa. (Executive Secretary, 21 Bridge Square, Westport, Conn. 06882)

7–10. **Displays for Command and Control Centers**, symp., Munich, Germany.

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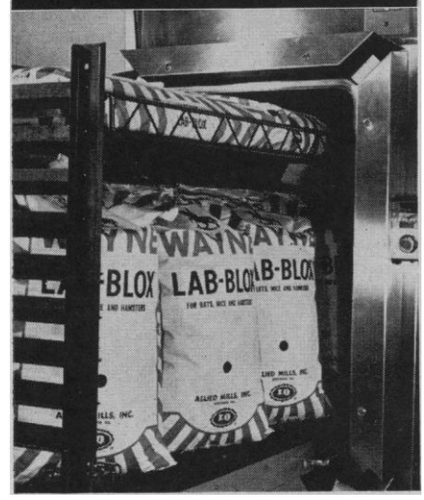

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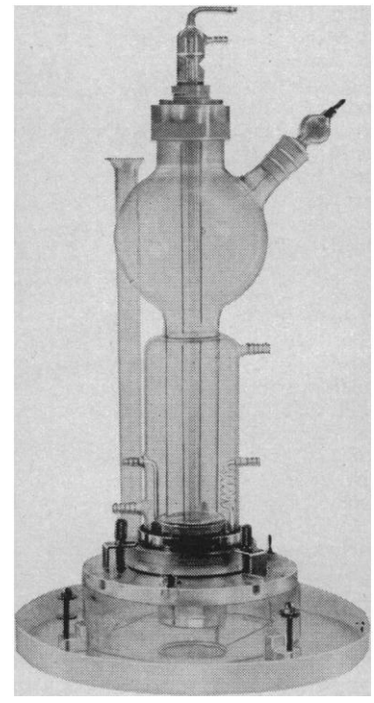

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Reference: Analytical Biochemistry, Vol. 9, No. 3, November, 1964

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8–10. **Computers,** fall joint conf., American Federation of Information Processing Socs., San Francisco, Calif. (W. H. Davidow, P.O. Box 2208, Menlo Park, Calif. 94025)

9–11. Society of **Aerospace Material and Process Engineers,** 10th natl. symp., "Advanced Fibrous Reinforced Composites," San Diego, Calif. (The Society, P.O. Box 613, Azusa, Calif.)

9–11. Pittsburgh **Diffraction** conf., Pittsburgh, Pa. (P. R. Swann, U.S. Steel Corp., Fundamental Research Lab., Monroeville, Pa. 15146)

10–11. **Mind as a Tissue,** 5th Lankenau intern. research conf., Lankenau Hospital, Philadelphia, Pa. (Div. of Research, Lankenau Hospital, Lancaster and City Line Ave., Philadelphia 19151)

10–11. **Thiamine,** mtg., Ciba Foundation study group, London, England. (Ciba, 41 Portland Pl., London, W.1)

10–12. American Soc. of **Cytology,** 14th annual scientific mtg., Milwaukee, Wis. (W. R. Lang, 1025 Walnut St., Philadelphia, Pa. 19107)

10–12. **Newtonian Studies,** intern. conf., Univ. of Texas, Austin. (R. Palter, Philosophy Dept., Univ. of Texas, Austin)

11. Joint Commission on Applied **Radioactivity,** annual mtg., Budapest, Hungary. (C. Fisher, Commissariat à l'Energie Atomique, Centre d'Etudes de Saclay, Boite Postale 2, Gif-sur-Yvett, France)

11–12. New England **Psychological** Assoc., annual mtg., Boston, Mass. (M. M. Riggs, New Hampshire Child Guidance Clinics, 121 S. Fruit St., Concord, N.H.)

11–12. **Psychosomatic Disorders,** 10th annual conf., London, England. (A. H. Crisp, Academic Psychiatric Unit, Middlesex Hospital, London, W.1)

11–13. Association of **Clinical Scientists,** annual mtg., Washington, D.C. (The Association, 300 N. State Street, No. 5322, Chicago, Ill. 60610)

12. **Petroleum,** 6th Arab congr., Baghdad. (League of Arab States, Midan Al Tahrir, Cairo, UAR)

13–16. **Education in the Neurological Sciences,** conf., White Sulphur Springs, W.Va. (J. L. O'Leary, Dept. of Neurology, Washington Univ. School of Medicine, St. Louis, Mo. 63110)

13–16. **Otorhinolaryngology,** 6th Latin American congr., Mexico, D.F. (F. Hernandez Orozco, Amsterdam 295, Mexico, D.F., Mexico)

14. **Organic Solid State,** 4th annual symp., Franklin Inst. Research Laboratories, Philadelphia, Pa. 19103)

14–15. Association for the Study of **Nerve Adjustments,** annual conf., East Berlin. (K. Hecht, Wiltbergstr. 50, 1115 Berlin-Buch, East Germany)

14–16. **Geological** Soc. of America, 79th conv., San Francisco, Calif. (Executive Secretary, 231 E. 46 St., New York, N.Y. 10017)

14–16. American **Petroleum** Inst., 46th annual mtg., New York, N.Y. (The Institute, 1271 Sixth Ave., New York 10020)

14–16. Belfer Graduate School of Science, Yeshiva Univ., 5th annual science conf., **Physics, Chemistry, and Mathematics,** New York, N.Y. (A. Gelbart, Belfer

Graduate School of Science, Yeshiva Univ., Amsterdam Ave. and 186 St., New York 10033)

14–17. **Engineering in Medicine and Biology**, conf., San Francisco. (D. Le Croisette, Jet Propulsion Laboratory, California Inst. of Technology, Pasadena)

14–17. **Gulf and Caribbean Fisheries** Inst., 19th annual mtg., New Orleans, La. (The Institute, 1 Rickenbacker Causeway, Miami, Fla. 33149)

14–18. Use of **Isotopes in Hydrology**, symp., Vienna, Austria. (J. H. Kane, Conferences Branch, Div. of Technical Information, U.S. Atomic Energy Commission, Washington, D.C. 20545)

15–17. Technical and Electronic **Ceramic Manufacturers** exhibit and seminar, New York, N.Y. (Exhibition Management, Inc., 37 W. 39 St., New York 10018)

15–17. Physics of **Failure in Electronics**, 5th annual symp., Columbus, Ohio. (T. S. Shilliday, Battelle Memorial Inst., Columbus Laboratories, 505 King Ave., Columbus, Ohio 43201)

15–17. American Soc. of **Tool and Manufacturing Engineers**, Mid-Atlantic Engineering conf. and tool exposition, Baltimore, Md. (Director of Engineering Conferences, ASTME, 20501 Ford Rd., Dearborn, Mich. 48128)

15–18. **Magnetism and Magnetic Materials**, conf., Washington, D.C. (V. J. Folen, Code 6452, U.S. Naval Research Laboratory, Washington 20390)

16. Physics of Newer Forms of **Carbon**, mtg., Inst. of Physics and the Physical Soc., carbon and graphite group, London, England. (Inst. of Physics and the Physical Soc., 47 Belgrave Sq., London S.W.1)

16–17. **Medical Library** Assoc., New England Regional mtg., Dartmouth College, Hanover, N.H. (MLA, 919 N. Michigan Ave., Chicago, Ill.)

16–18. Management of **Aerospace Programs**, natl. conf., Univ. of Missouri, Columbia. (W. J. Haas, Space Sciences Research Center, Univ. of Missouri, Columbia)

16–18. Eastern **Analytical** symp., New York, N.Y. (I. L. Simmons, M&T Chemicals, Inc., P.O. Box 471, Rahway, N.J.)

16–18. **Characterization of Materials**, conf., Pennsylvania State Univ., University Park. (R. Roy, Materials Research Laboratory, Pennsylvania State Univ., University Park 16802)

16–19. **Physiology of Reproduction**, intern. colloquium, Paris, France. (National Center for Scientific Research, 15, quai Anatole France, Paris 7)

17. **Salmonella** in Food Supplies, mtg., Geneva, N.Y. (F. E. Weber, R. T. French Co., 1 Mustard St., Rochester, N.Y. 14609)

17–18. **Small-Angle Scattering of Electrons and X-Rays**, conf., London, England. (Meetings Officer, Inst. of Physics and the Physical Soc., 47 Belgrave Sq., London S.W.1)

17–19. American Soc for **Cell Biology**, 6th annual mtg., Houston, Tex. (M. J. Moses, Box 2982 Duke Univ. Medical Center, Durham, N.C. 27706)

17–19. American College of **Physicians**, 6th annual Far East session, Tokyo, Japan. (J. L. Pitcher, 106th General Hospital, APO San Francisco, Calif. 96503)

17–19. **Work Evaluation Units**, 3rd natl. conf., Washington, D.C. (J. E. Acker, Jr., Cardiac Work Evaluation Clinic, Knoxville, Tenn.)

17–20. American **Anthropological** Assoc., 65th annual mtg., Pittsburgh, Pa. (A. Spoehr, Dept. of Anthropology, Univ. of Pittsburgh, Pittsburgh 15213)

17–20. **Audiology**, 8th intern. congr., Mexico, D.F. (P. Berruecos Tellez, Av. Progresso 141 A, Mexico 18, D.F.)

18. Properties of **Anodized Metals and Semiconductors**, symp., Northern Electric Laboratories, Ottawa, Ont., Canada. (J. A. McDonald, Solid State Development, Northern Electric Co., R&D Labs., Box 3511, Station C, Ottawa)

18–19. **Dyslexia**, natl. conf., Philadelphia, Pa., (V. T. Keeney, 1601 Spring Garden St., Philadelphia 19130)

19. Stabilization of **Engineering and Scientific Employment in Industry**, natl. symp., San Jose State College, San Jose, Calif. (Manpower Research Group, Center for Interdisciplinary Studies, San Jose State College, San Jose, Calif.)

20–22. **Water Resources**, 2nd annual conf., Univ. of Chicago, Chicago, Ill. (American Water Resources Assoc., P.O. Box 434, Urbana, Ill. 61801)

21–23. American Physical Soc., Div. of **Fluid Dynamics**, mtg., Stanford Univ., Palo Alto, Calif. (R. J. Emrich, Dept. of Physics, Lehigh Univ., Bethlehem, Pa.)

21–24. Communications in Science: **Documentation and Automation**, Ciba Foundation symp., London, England. (Ciba, 41 Portland Pl., London, W.1)

21–24. Central American **Geologists**, 2nd conf., Guatemala City, Guatemala. (G. Dengo, Central American Inst. of Research and Industrial Technology, Apt. Postal 1552, Guatemala City)

21–25. **Radioisotope Tracers** in Industry and Geophysics, symp., Prague, Czechoslovakia. (J. H. Kane, Conferences Branch, Div. of Technical Information, U.S. Atomic Energy Commission, Washington, D.C. 20545)

22. **Manufacturing Chemists** Assoc., 16th semiannual mtg. and midyear conf., New York, N.Y. (The Association, 1825 Connecticut Ave., NW, Washington, D.C.)

23. Chemical Economics Div., Chemical Inst. of Canada, mtg. on **Internationalization of the Chemistry Industry** and Its Effect on Canada, Montreal, Quebec. (H. A. Bowler, Central Development Dept., Dotmar, 1155 Dorchester Blvd. W., Montreal 2)

26–4. **Pharmacy and Biochemistry**, 7th Pan American congr., Buenos Aires, Argentina. (Z. M. Lugones, Univ. of Buenos Aires, Calle Viamonte 444, Buenos Aires)

28–29. **Parkinson's Disease** Information and Research Center, 3rd research conf., College of Physicians and Surgeons, New York, N.Y. (M. D. Yahr, New York Neurological Inst., 710 W. 168 St., New York 10032)

28–30. American Soc. of **Hospital Pharmacists**, 1st annual midyear mtg., Washington, D.C. (J. A. Oddis, The Society, 4630 Montgomery Ave., NW, Washington, 20014)

28–1. **Aerospace Medicine**, intern. mtg., Sydney, Australia. (Secretariat, Aviation Medical Soc. of Australia, G.P.O. Box 1207, Sydney)

NEW BOOKS

(Continued from page 376)

Elementary Practical Organic Chemistry. Pt. 1, *Small Scale Preparations.* Arthur I. Vogel. Wiley, New York, ed. 2, 1966. 455 pp. Illus. $5.75.

Elements of the Theory of Functions. R. S. Guter, L. D. Kudryavtsev, and B. M. Levitan. Translated from the Russian edition (Moscow, 1963) by H. F. Cleaves. I. N. Sneddon, Translation Ed. Pergamon, New York, 1966. 231 pp. Illus. $8.50. International Series of Monographs on Pure and Applied Mathematics, vol. 90.

Engineering Materials Science: Structure and Mechanical Behavior of Solids. Stephen M. Edelglass. Ronald, New York, 1966. 510 pp. Illus. $11.

Essentials of Astronomy. Lloyd Motz and Anneta Duveen. Wadsworth, Belmont, Calif., 1966. 719 pp. Illus. $11.95.

Fundamentals of Abstract Analysis. Andrew M. Gleason. Addison-Wesley, Reading, Mass., 1966. 416 pp. Illus. $13.75.

Geology Illustrated. John S. Shelton. Freeman, San Francisco, Calif., 1966. 446 pp. Illus. $10.

Industrial Gas Cleaning. The principles and practice of the control of gaseous and particulate emissions. W. Strauss. Pergamon, New York, 1966. 491 pp. Illus. $15. International Series of Monographs in Chemical Engineering, vol. 8.

Introduction to Contemporary Mathematics. Sze-Tsen Hu. Holden-Day, San Francisco, 1966. 212 pp. Illus. $7.75. Holden-Day Series in Mathematics.

Introduction to Non-Equilibrium Quantum Statistical Mechanics. Shigeji Fujita. Saunders, Philadelphia, 1966. 177 pp. Illus. $5. Studies in Physics and Chemistry Series.

Introduction to Nonlinear Automatic Control Systems. Rajko Tomović. Translated from the Yugoslavian edition by Paul Pignon. Wiley, New York, 1966. 180 pp. Illus. $7.50.

Introduction to Strong Interactions. A lecture-note volume. David Park. Benjamin, New York, 1966. 267 pp. Illus. Paper, $4.95; cloth, $9.

Introduction to the Mechanics of Solids. Alfred M. Freudenthal. Wiley, New York, 1966. 508 pp. Illus. $14.95.

Low-Grade and Nonconventional Sources of Manganese. David B. Brooks. Published for Resources for the Future. Johns Hopkins Press, Baltimore, 1966. 135 pp. Illus. Paper, $3.50.

Machine Devices and Instrumentation: Mechanical, Electromechanical, Hydraulic, Thermal, Pneumatic, Pyrotechnic, Photoelectric, and Optical. Nicholas P. Chronis, Ed. McGraw-Hill, New York, 1966. 367 pp. Illus. $10. Based on material from *Product Engineering.*

Macromolecular Syntheses. vol. 2. J. R. Elliott Ed. Wiley, New York, 1966. 134 pp. Illus. $6.50. A periodic publication of methods for the preparation of macromolecules. There are 30 papers.

Material Properties and Manufacturing Processes. Joseph Datsko. Wiley, New York, 1966. 559 pp. Illus. $11.95.

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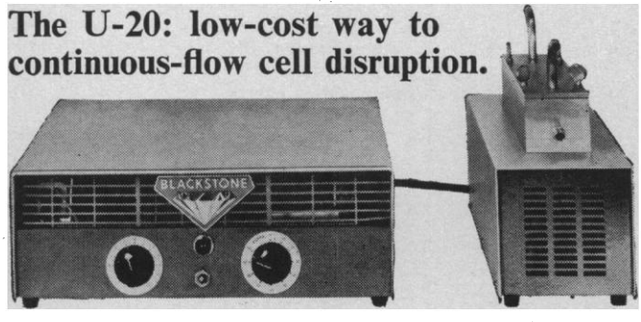

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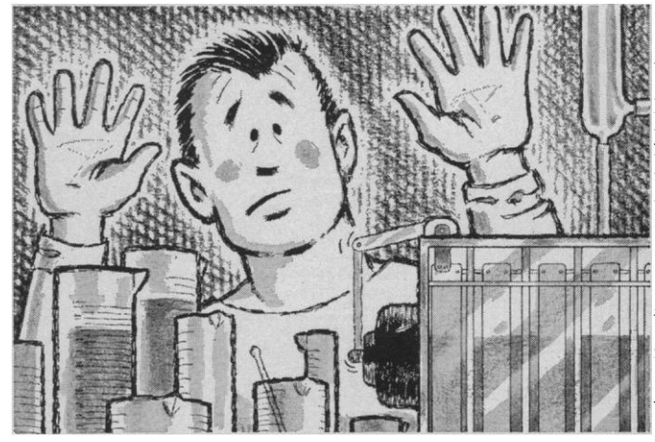

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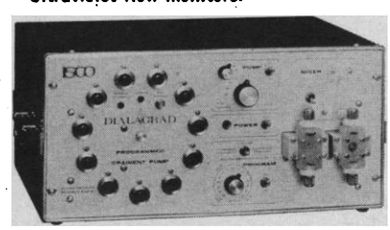

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