SCIENCE

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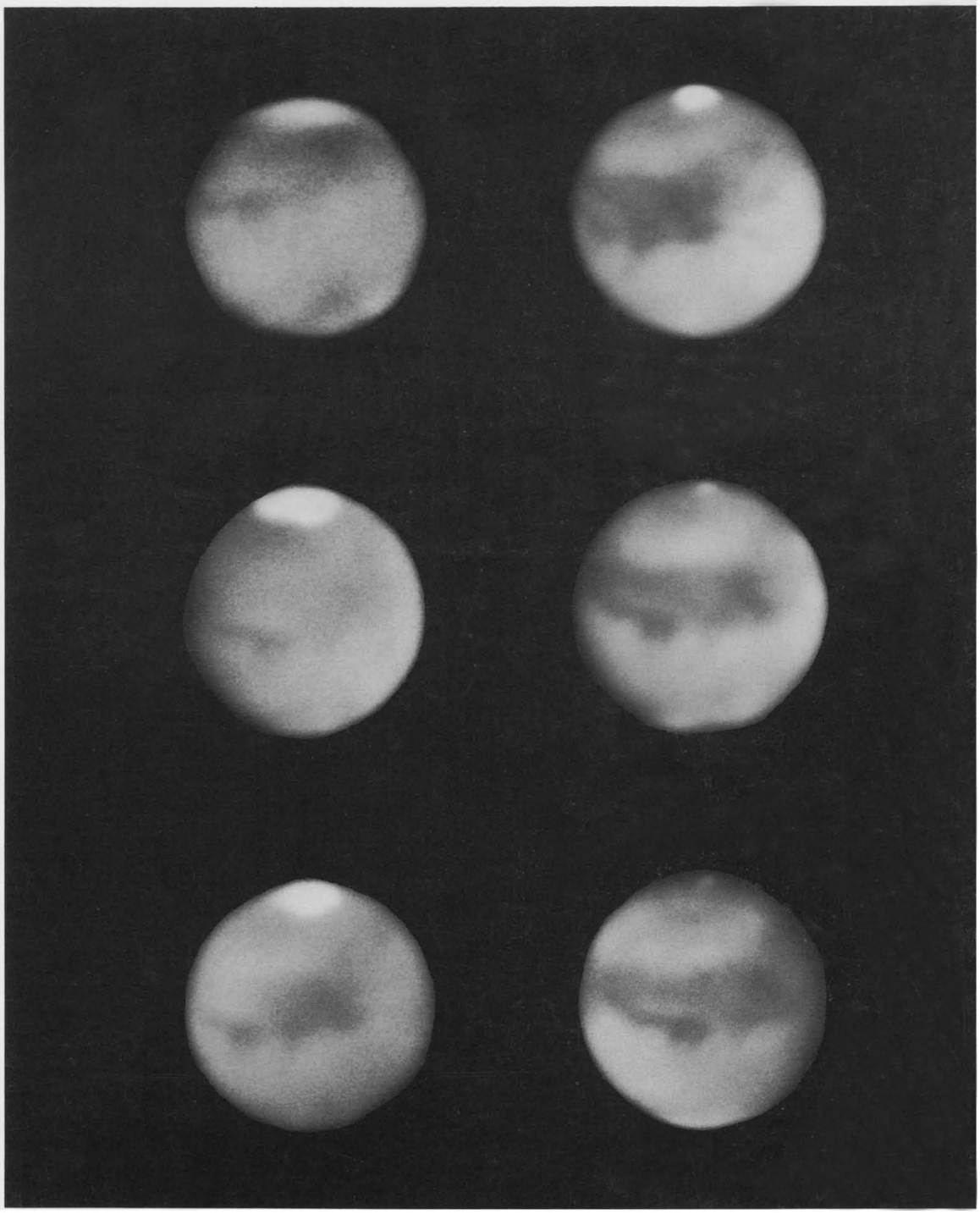

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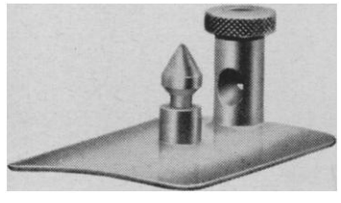

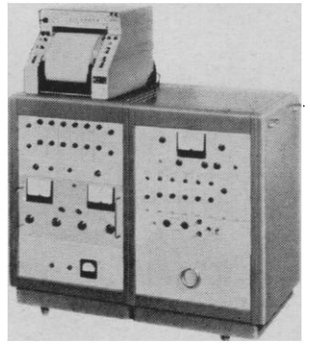

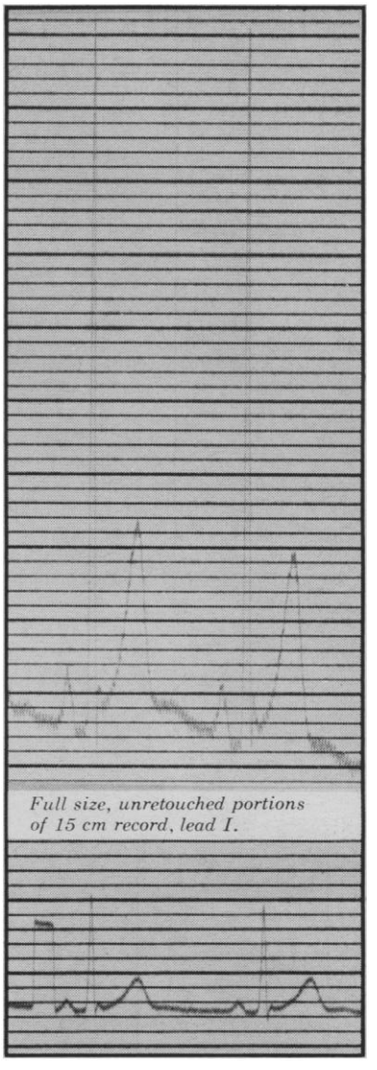

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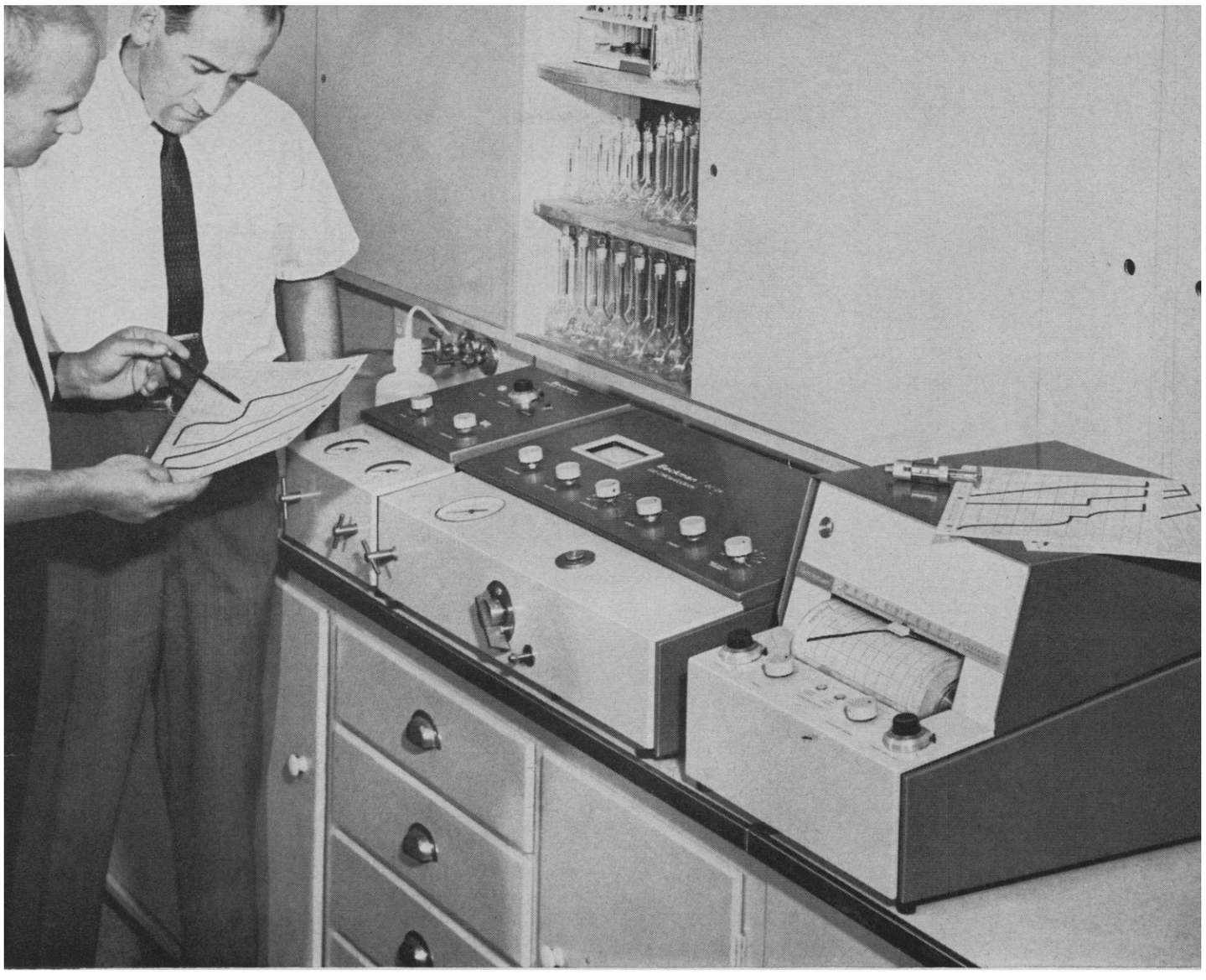

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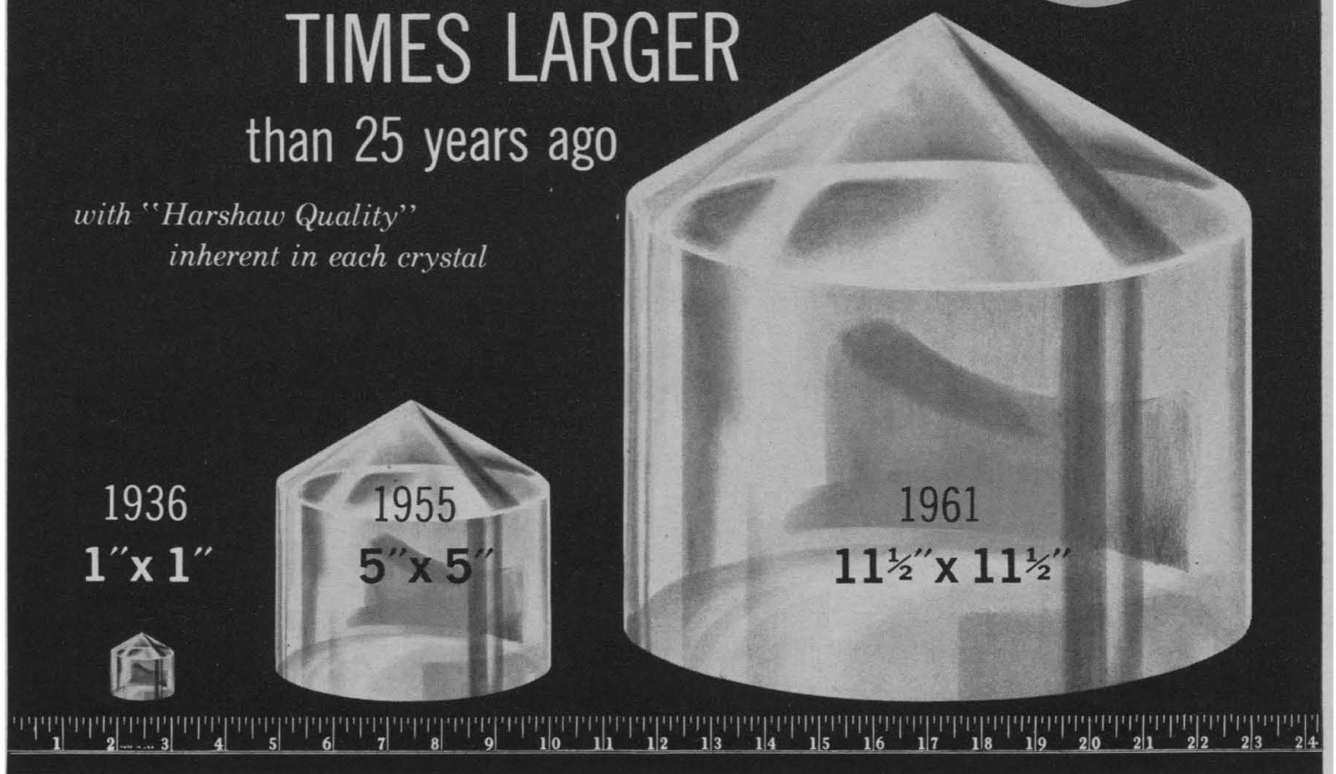

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Letters

Professional Education in Russia

If the summary in "Science and the news" is correct [*Science* **135**, 204 (19 Jan. 1962)], Nicholas DeWitt seems to misinterpret Russian scientific and professional education in at least two respects.

1) Charitably, or perhaps optimistically, we include undergraduate colleges among our "institutions of higher education" (*ibid.* Table 1, p. 205). The graduates of Soviet secondary schools, like graduates of the French lycée or German gymnasium, at the age of 18 have reached approximately the same educational level as the American student who enters his junior year in college. Accordingly, 30 percent of Soviet students (Table 1, line 4) had completed what amounts to about 2 years of our college, whereas it appears that only 23 percent of our eligible students *entered the freshman year* (Table 1, line 5).

2) It is probably true that "*no* higher educational establishment in the U.S.S.R. offers non-specialized professional instruction such as the general studies or liberal arts programs common in American colleges and universities." However, I think it is wrong to conclude from this that our Soviet colleagues "lack . . . humanistic education and disregard . . . cultural, ethical and social values cherished by the West." The Russians I have met over the years seem to be less well educated in painting and sculpture than many of my colleagues in France or Britain or this country. However, they are perhaps more broadly educated than are most of us in literature and the performing arts. I can cite a Russian neurologist, an illiterate shepherd boy before the Revolution, who could discourse on modern French literature, or a neurosurgeon who could quote Shakespeare as well as Pushkin extensively—though both in Russian. These are older people, but I have met a few young scientists who also seemed to be at least as well cultivated as our own graduate students or young Ph.D.'s—which may not be saying very much, of course.

A significant and perhaps even a more objective measure of the comparative cultural levels of our own and of Soviet students could be provided by figures on attendance at theatres, concerts, and so on, and by an analysis of the reading material, type and number of literary journals, their circulation, and the use of library facilities. From the few data I have seen on this score, it appears that the cultural level in the U.S.S.R. is not lower than the level in our own country.

It would be much more significant and healthier for our education if we compared commensurable quantities, though this may be difficult and sometimes, perhaps, even unpleasant. Furthermore, it is deplorable to say, as DeWitt does, that Russians show "disregard for the cultural, ethical and social values cherished by the West." The Russians seem to have the same Greco-Judeo-Christian cultural and ethical (though not religious) values that dominate the West. Their social values, undoubtedly, differ from ours, but so do those of many other civilized countries.

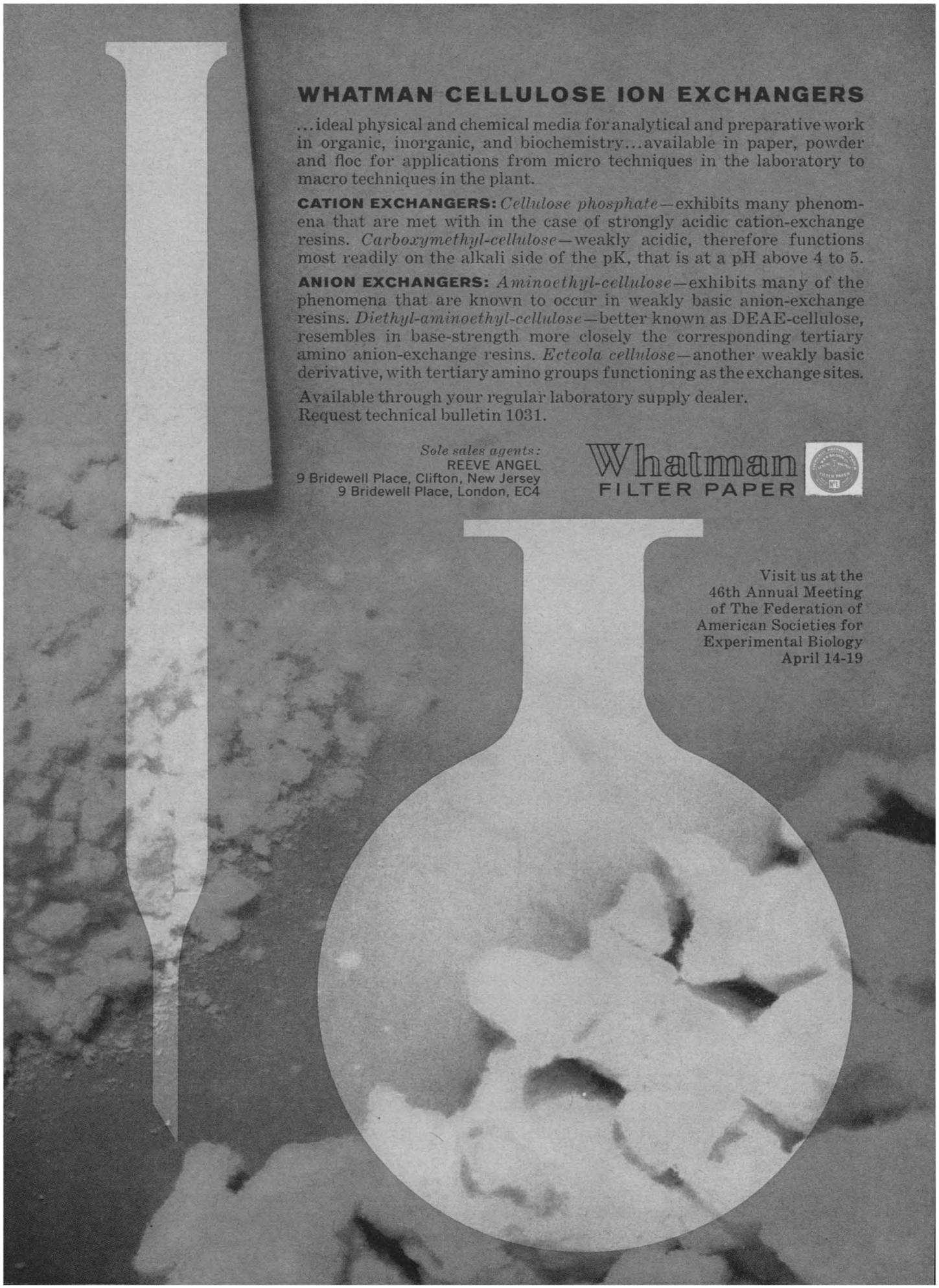
HARRY GRUNDFEST
College of Physicians and Surgeons, Columbia University, New York, New York

Space Research

I was interested as well as intrigued to read Howard Margolis's note "Money for space: The program's managers fear the public does not understand the issue" [*Science* **134**, 1602 (1961)]. The case of the public's not understanding the issue on the reasons why the Administration should spend $20 billion on space research and extraterrestrial projects does require serious attention. While research in general science and technology is an accepted part of the work of present civilized society, we of the underdeveloped countries fail to fathom and to conceive clearly why such a staggering amount should be spent on space research only. This amount could well-nigh feed, clothe, and shelter Asia's teeming millions. I wonder whether it is really necessary to spend such a large amount *at this stage* on such projects. Could not this amount be more profitably utilized in other fields of research which directly affect humanity on earth?

We of the underdeveloped countries place a high value on research, for it is this very characteristic that has enabled some of the Asian countries to industrialize themselves much more rapidly than would have been possible otherwise. The practical benefits are clearly visible here. However, when it comes to spending staggering amounts to send

(*Continued on page 48*)



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A Distinction with a Difference

Responses have differed to the recommendation by a group of mathematicians that the thesis requirement for the mathematics Ph.D. be broadened. The new requirement would permit not only, as at present, theses that offer new mathematical proofs, but also theses that are expository or critical in character. Dartmouth College responded to the recommendation by incorporating it in its new Ph.D. program in mathematics, while the mathematics department of the University of Chicago responded by vowing that it, at least, would have no part of any effort to relax present standards.

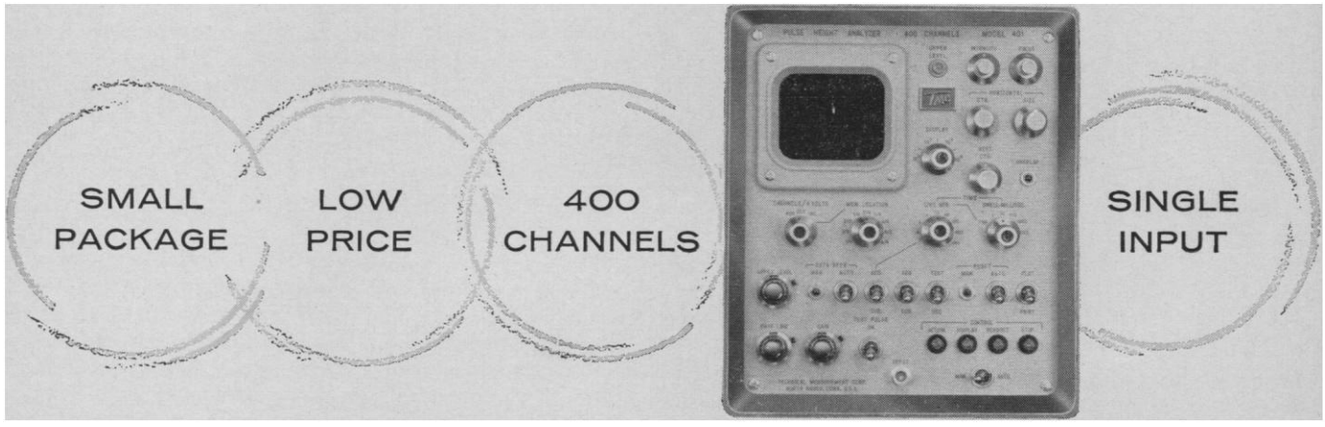
The recommendation was the outcome of a conference held at Yale University last October under the auspices of a joint committee of the American Mathematical Society and the Mathematical Association of America. The conference was called because of the mathematical community's concern with the growing shortage of college teachers of mathematics. Although more Ph.D.'s in mathematics are now being turned out than ever before, they are not rushing into college teaching.

The Dartmouth program will permit a thesis which offers new mathematical proofs or which is expository or critical in character or which is some combination of these different kinds of study. The course work will also be different from that offered in traditional preparation in that there will be greater emphasis on mathematical breadth. The principal aim of the program is preparation for an academic career, and, with alternate routes open to the student, the idea in this preparation is to make embarkation on a thesis something less of a gamble. This is the first time Dartmouth has offered a doctorate in mathematics, and the department reports that it is encouraged by the good number of highly qualified students who have applied for admission.

Opponents of the effort to broaden requirements for the doctorate have granted that there is a need to increase the supply of college teachers of mathematics, but have argued that the M.A. could be regarded as a mark of sufficient attainment for this purpose. The difficulties here are that the M.A. stands for a variety of attainments, from 1 or 2 years' work to work just short of a Ph.D. More important is the practical difficulty, given our present system of values, of getting this degree accepted as a form of certification for college teachers.

In an earlier stage of thinking about increasing the supply of teachers, there was a proposal that the broader thesis be honored by a new degree, something to be called a "Doctor of Arts." But the proposal was rejected because it also poses practical difficulties. A university faces administrative and legal problems if it decides to grant such a degree. And there is again the problem of acceptance of the degree once granted. Rejection of the proposal to establish a new degree was also based on the feeling that if the work really qualifies as an alternate, but equally effective, preparation for teaching, then it also qualifies for a Ph.D. In any event, differences in preparation will not be any great secret. One need merely ask a person whether he got his degree at Dartmouth or at the University of Chicago.

The number of additional teachers that the use of broader requirements at Dartmouth and other interested universities will eventually provide is not known, but the idea, we think, is worth pursuing. Requirements will be lower, of course, in that more people will be able to get the degree. But the whole idea is precisely to get more teachers. The basic argument for the broader requirements is that, while you have to know harmony to be Leonard Bernstein, you do not have to be Bernstein to teach harmony. And no one is going to be upset if you, again like Bernstein, have interests and abilities that include composing, conducting, *and* popular exposition.—J.T.



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Letters

(*Continued from page 12*)

a man to the moon or Mars, our intellectual capacity gets stratified in trying to conceive the final implications. I submit that, in all fairness, the vast intellectual, scientific, and technical talent possessed by the American nation should be channelized to carry out practical and down-to-earth research of a kind that would alleviate human suffering and misery and make life on earth—rather than on the moon or Mars—more pleasant and happy, not only for the people of the Western nations but for the world at large. The basic object of research would only then be fully justified.

S. K. GHASWALA
97 Queen's Road, Bombay, India

Applied Anthropology

While the review of my book *Toward a Science of Mankind* (*1*) by Richard B. Woodbury which appeared in *Science* (*2*) is friendly and sincere, it so misrepresents both the aims and the thesis of the book as to prejudice the reader not only against it but also against what seems to me to be a very promising recent development in the scientific study of man. I would therefore like to correct some misunderstandings which emerge from the review and at the same time to present very briefly an idea of the purpose of the book.

In the first place, *Toward a Science of Mankind* was written partly to try to dispel the notion, widely current among both laymen and social scientists, including anthropologists, that applied anthropology, or indeed applied social science in general, need necessarily involve the manipulation of human beings or groups toward preconceived goals superimposed by administrative agents (not the anthropologist himself as naively stated in the review) from without the group, whether such agents be governors, business executives, or military dictators. Although the role of the human-relations engineer, who commonly places his administrator-employer in a position of "arbiter of mankind's goals," is discussed at some length (*1*, pp. 17–22), one of the main contributions of the book, I believe, is the fact that in it an alternative role for the anthropologist concerned with applica-

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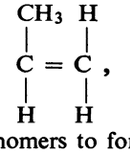
a mysterious dance that might not interest everybody... a prospective second-best-seller... progress for ascetics... a contribution from the axoplasm of squid nerves

The polyallomeric state

It now appears that an asymmetric molecule like propylene,



can link with other monomers to form high polymers that are quite distinct, quite crystalline, quite stereoregular, and yet show scant respect for Dalton's Law of Definite Proportions, the old law which made an orderly science out of chemistry.

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Scientifically interesting though all this may be, we would have found something else to write about here were not this new class of plastics ready to take its place in industry alongside *Tenite* polypropylene, polyethylene, polyester, butyrate, propionate, and acetate.

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Will everybody who has been using Kodak Spectrum Analysis No. 2 plates or Kodak 33 plates for spectrochemical analysis please get in touch with Eastman Kodak Company, Special Sensitized Products Division, Rochester 4, N. Y.? Thank you.

Nothing bad has happened. In fact, something good has happened. Nevertheless, in spectrography something good can be bad if it comes without warning. Here is warning.

We are thinking very seriously of discontinuing "SA-2" and Kodak 33 plates. Also "SA-2" film, but if you have been using the film this would amount to little more than a change of name except for one thing. The new *Kodak Spectrum Analysis No. 3* film differs from "SA-2" film in that its properties change more slowly during storage before use.

The same improvement will be found in the new *Kodak Spectrum Analysis No. 3* plates; but, in addition, the *plates* are several times as fast as the now obsolescent "SA-2" plates. How many times as fast, we don't say here. To say twice, thrice, or more would tend to lend sanction to the unsound assumption that spectrographers should use numbers supplied by the manufacturer. In spectrographic sensitometry the only correct numbers are the numbers you determine for yourself under your own conditions.

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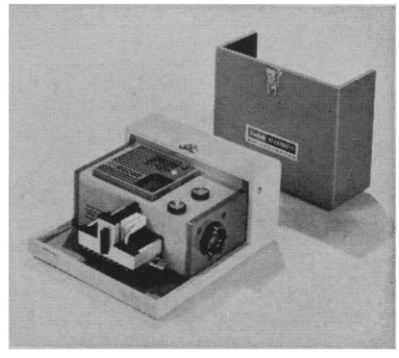
It projects slides!



Though this simple device *is* our latest in slide projectors, owners may find it difficult to convince their friends of that fact. Those who prefer to talk of other things and want to pay less than $70 for a 500-watt 2 x 2 projector, complete with case and 4-inch lens, from a manufacturer of wide reputation who claims only that the low price sacrifices neither optical performance nor ease of slide-changing nor ruggedness of construction—those ascetics will ask to see a *Kodak Readymatic 500* projector at a camera shop.

An ion for the élite

Research seems at times more fashion-prone than millinery. It is not for us to judge whether this is good or bad. Rather it is up to us to keep fashionable merchandise on hand.

We have been advised by volunteers scouting for us in the fashionable circles of physiology that the thing to do this season is to substitute bulky anions for Cl^- in physiological salt solutions. The smart set recognizes, for example, that since frog muscle cell membranes are highly permeable to chloride ions, not just Na^+ and K^+, one can't count on measurements of currents carried through the cell membranes of muscles by the cations without allowing for the chloride conductance of the membrane. This they avoid by replacing Cl^- with some anion that is too big to get through, has a sodium salt soluble enough to permit at least 0.15M solutions, doesn't complex with Ca^{++} or Mg^{++}, and is stable and non-toxic at pH 7 to 8.

Many of them use the methylsulfate ion for the purpose, and we are now in a position to supply them with *Methylsulfuric Acid Sodium Salt* (Eastman P809) if they want it. Our scouts, who are very smart, point out, however, that even Beilstein, way back in Volume 1, is gloomy about the stability of organic sulfate esters. They have reported to us that the really clever ones are going to the isethionate ion, $(HOCH_2CH_2SO_3)^-$, which is a normal constituent of the axoplasm of squid nerves.

We hope we are not spoiling it for anybody by making this anion readily available as Isethionic Acid Sodium Salt (Eastman 8541). $3.30 buys 100 grams, from Distillation Products Industries, Rochester 3, N. Y. (Division of Eastman Kodak Company).

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tions is described—namely, multidiscipline community analysis and social-action research (*1*, pp. 52–71, 223–229). This alternative role aims, one might say, to foster a group situation wherein the wisdom of the community's unconscious and conscious energy may be harnessed by its human components for the benefit of the local community, the nation, and the world. The main relevant point about "social-action research" in this context is that the community or group engaging in this type of social-planning endeavor defines its own practical problems and "arbitrates" its own goals, and the group also solicits and hires the anthropologist. The latter's main role becomes that of aiding the group to solve its practical problem by means of all its available resources, including his own professional and technical skills and know-how. In no way does the social-action researcher determine on or "arbitrate" goals for his employers—namely, the group with a problem.

Here should be mentioned another misstatement in the review, illustrating a belief commonly held by laymen and even anthropologists: "In general, the proposals [of applied anthropologists] have met with skepticism from administrators." While such a statement might have been partially correct 25 years ago when applied anthropology was in its infancy in the United States, it is most misleading today. The fact that there are many more well-paid jobs in applied anthropology than there are qualified, first-class anthropologists to fill them may be noted in this connection. The basic reason applied anthropology has burgeoned in recent years is, I believe, this: Due to the built-in clinical test which all findings undergo as soon as they are applied, the failures as well as the successes of the scientist concerned with applications are highlighted. This situation has given impetus to the development by anthropologists of a clinical method of predicting group behavior under certain circumstances—a method whereby such predictions, necessary in helping to resolve practical problems in a given situation, may be immediately tested for degree and kind of accuracy. Thus, applied anthropology has become the testing ground for anthropological theory and generalizations, a relatively recent and exceedingly significant development for all the disciplines that deal with man.

Limitations of space permit only one final point. The basic purpose of *Toward a Science of Mankind* was to

formulate a heuristic, unified theory of mankind, adequate to the needs of a mature science of mankind, which might be applied successfully toward the solution of practical community problems, and to outline a multidiscipline methodology whereby, through fundamental research, anthropologists might test the theory. The book attempts throughout to dispel another stereotype regarding applied anthropology, also voiced in the review—that successful applied anthropology can be and is pursued at the expense of fundamental research. On the contrary, successful applied anthropology requires far greater theoretical and methodological sophistication on the part of its practitioners than academic or "pure" research ever has. Hence, this field of specialization, like medicine, is not for amateurs.

LAURA THOMPSON
Department of Anthropology,
Southern Illinois University,
Carbondale

References

1. L. Thompson, *Toward a Science of Mankind* (McGraw Hill, New York, 1961).
2. R. B. Woodbury, *Science* **134**, 1516 (1961).

Laura Thompson's letter is a helpful supplement to her book, expressing more concisely and clearly some of her viewpoints.

The question of the degree to which administrators have accepted applied anthropology or "social-action research" is, of course, difficult to define. My impression of their skepticism was strongly reinforced by some of the comments at the closing plenary session of the American Anthropological Association's 60th annual meeting in Philadelphia, in November 1961. It was made embarrassingly clear that anthropologists have frequently failed to win the confidence or respect of administrators of overseas programs. There have also been notable successes, of which Thompson unfortunately discusses very few. Those who are interested can find numerous case histories candidly evaluated in recent issues of *Human Organization*. For anyone hopeful that applied anthropology will avoid excessive claims and will apply rigorous tests to each new approach, in order to merit increasing support and gain wider applications, Laura Thompson's book will remain disappointing.

RICHARD B. WOODBURY
Department of Anthropology,
University of Arizona, Tucson

Meetings

Forthcoming Events

April

10–12. American Industrial Health Conf., Chicago, Ill. (M. E. Fairbank, Eastman Kodak Co., Rochester 4, N.Y.)

10–13. European Symp. on Size Reduction, European Federation of Chemical Engineering–Processing Technology Soc., Frankfurt am Main, Germany. (Verfahrentechnische Gesellschaft im V.D.I., Rheingau-Allee 25, Frankfurt am Main 7)

10–14. International Conf. on Stress Analysis, Paris, France. (Secretary, 10, rue Vauquelin, Paris 5e)

11–13. Institute of Environmental Sciences, annual meeting and equipment exposition, Chicago, Ill. (J. P. Monroe, Lear, Inc., Grand Rapids, Mich.)

11–13. Institute of Radio Engineers, southwest conf. and electronic show, Houston, Tex. (IRE, 1 E. 79 St., New York 21)

12. Symposium on Non-Conventional Nuclear-Engineering Lubricants and Bearing Materials, symp., London, England. (Institution of Mechanical Engineers, 1 Birdcage Walk, London, S.W.1)

12–13. Histochemical Soc., annual, Atlantic City, N.J. (M. Wachstein, St. Catherine's Hospital, Bushwick Ave., Brooklyn 6, N.Y.)

12–13. International Assoc. for Dental Research, British Div., annual, Sheffield, England. (C. H. Tonge, c/o Dept. of Anatomy, King's College Medical School, Newcastle-upon-Tyne, England)

12–14. Association of Southeastern Biologists, Winston-Salem, N.C. (H. J. Bennett, Dept. of Zoology, Louisiana State Univ., Baton Rouge 3)

12–14. Experimental Arithmetic, symp., American Mathematical Soc., Chicago, Ill. (N. C. Metropolis, Inst. for Computer Research, Univ. of Chicago, Chicago)

13–14. American Soc. for Artificial Internal Organs, annual, Atlantic City, N.J. (E. C. Peirce, II, ASAIO, 514 W. Church Ave., Knoxville 1, Tenn.)

13–14. Iowa Acad. of Science, Waverly. (P. F. Romberg, Iowa State Univ., Ames)

13–14. Nebraska Acad. of Sciences, Lincoln. (C. B. Schultz, Univ. of Nebraska, Lincoln 8)

13–15. Alabama Acad. of Science, Inc., Troy. (W. B. DeVall, Forestry Dept., Auburn Univ., Auburn, Ala.)

13–15. American Assoc. for Cancer Research, annual, Atlantic City, N.J. (H. J. Creech, Inst. for Cancer Research, Fox Chase, Philadelphia 11, Pa.)

14–16. Kinetics, Equilibria, and Performance of High Temperature Systems, 2nd conf., Los Angeles, Calif. (G. S. Bahn, 16902 Bollinger Dr., Pacific Palisades, Calif.)

14–18. Federation of American Societies for Experimental Biology, Atlantic City, N.J. (M. O. Lee, 9650 Wisconsin Ave., Washington 14)

14–19. American Inst. of Nutrition, Atlantic City, N.J. (A. E. Schaefer, Bldg. 16-A, Natl. Institutes of Health, Bethesda 14, Md.)

14–19. American Soc. of Biological Chemists, Inc., Atlantic City, N.J. (F. W. Putnam, Dept. of Biochemistry, Univ. of Florida College of Medicine, Gainesville)

15–18. American College Personnel Assoc., Chicago, Ill. (B. A. Kirk, Counseling Center, Univ. of California, Berkeley)

15–18. National Education Assoc., Council of Mathematics Teachers, San Francisco, Calif. (Chief of Information, Dept. of the Army, Washington 25)

16–18. Flight Test Instrument Symp., intern., Cranfield, England. (College of Aeronautics, Cranfield)

16–18. Spins and Phonons, conf., Bristol, England. (P. M. Llewellyn, H. H. Sills Physics Laboratory, Royal Fort, Bristol 8)

16–19. American Personnel and Guidance Assoc., annual, Chicago, Ill. (J. Fishbein, Science Research Associates, 259 E. Erie St., Chicago 11)

16–19. Interactions between Mathematical Research and High-Speed Computing, symp., American Mathematical Soc.–Assoc. for Computing Machinery, Atlantic City, N.J. (E. Pitcher, AMS, 190 Hope St., Providence 6, R.I.)

16–19. Paleoclimatology and Paleopedology, symp., International Soc. for Plant Geography and Ecology, Stolzenau, Germany. [R. Tüxen, Intern. Vereinigung für Vegetationskunde, Stolzenau (Weser)]

16–19. Vacuum Ultraviolet Radiation Physics, intern. conf., Los Angeles, Calif. (G. L. Weissler, Univ. of Southern California, Los Angeles 7)

16–20. American Physiological Soc., Atlantic City, N.J. (R. G. Daggs, APS, 9650 Wisconsin Ave., Washington 14)

16–20. American Soc. for Pharmacology and Experimental Therapeutics, Atlantic City, N.J. (H. G. Mandel, George Washington Univ. School of Medicine, 1337 H St., NW, Washington 5)

16–20. Reactor Safety and Hazards Evaluation Techniques, symp., Vienna, Austria. (Intern. Atomic Energy Agency, 11 Kaerntnerring, Vienna 1)

17–18. Conference on Permafrost, Ottawa, Ont., Canada. (R. J. E. Brown, Div. of Building Research, Natl. Research Council, Ottawa 2)

17–20. International Mineralogical Assoc., Washington, D.C. (D. J. Fisher, Dept. of Geology, Univ. of Chicago, Chicago 37, Ill.)

17–20. Sector-Focused Cyclotrons, conf., Los Angeles, Calif. (B. T. Wright, Dept. of Physics, Univ. of California, Los Angeles 24)

18–20. American Inst. of Electrical Engineers, Fort Wayne, Ind. (R. S. Gardner, AIEE, 33 W. 39 St., New York 18)

18–20. Information Retrieval in Action, conf., Cleveland, Ohio. (Center for Documentation and Communication, Western Reserve Univ., 10831 Magnolia Dr., Cleveland 6)

18–28. World Seed Congr., Rome, Italy. (Intern. Agency Liaison Branch, Office of the Director General, Food and Agriculture Organization of the U.N., Viale delle Terme di Caracalla, Rome)

19. Southern California Acad. of Sciences, Los Angeles. (G. Sibley, Los Angeles County Museum, 900 Exposition Blvd., Los Angeles 7)

19–20. Southern Municipal and Industrial Waste Conf., Chapel Hill, N.C. (Dept. of Sanitary Engineering, Univ. of North Carolina, Box 899, Chapel Hill)

19–21. Southern Soc. for Philosophy and Psychology, Memphis, Tenn. (D. R. Kenshalo, Dept. of Psychology, Florida State Univ., Tallahassee)

20–22. Czechoslovak Soc. of Arts and Sciences in America, 1st natl. congr., Washington, D.C. (M. Rechcigl, Jr., 1703 Mark Lane, Rockville, Md.)

21. Pennsylvania Acad. of Science, Pittsburgh. (K. B. Hoover, Messiah College, Grantham, Pa.)

21–21 Oct. World's Fair of Science, Century 21 Exposition, Seattle, Wash. (J. Rockey, c/o Seattle World's Fair, Seattle)

22–26. Association of American Geographers, Miami Beach, Fla. (M. F. Burrill, AAG, 1785 Massachusetts Ave., NW, Washington, D.C.)

23–25. Canadian Inst. of Mining and Metallurgy, annual, Ottawa, Ont. (C. Gerow, CIMM, 1117 St. Catherine St., W. Montreal 2, Quebec, Canada)

23–25. Meteorological Uses of Rockets and Satellites, symp., Washington, D.C. (World Meteorological Organization, 41, Avenue Giuseppe Motta, Geneva, Switzerland)

23–25. Pan American Congr. of Gastroenterology, New York, N.Y. (C. A. Flood, 180 Fort Washington Ave., New York 32)

23–26. American Physical Soc., Washington, D.C. (K. K. Darrow, APS, Columbia Univ., New York 27)

23–27. International Conf. on Palynology, Tucson, Ariz. (G. O. W. Kremp. Geochronology Laboratories, Univ. of Arizona, Tucson)

23–27. Problems in Education and Research in Tropical Biology, conf., San Jose, Costa Rica. (J. M. Savage, Dept. of Biology, Univ. of Southern Calif., Los Angeles 7)

23–5. Television Arts and Sciences, intern. symp. and festival, Montreux, Switzerland. (Intern. Television Symp., 8, Grand-Rue, Montreux)

24–25. Building Research Inst., spring conf., Washington, D.C. (M. C. Coon, Jr., BRI, 2101 Constitution Ave., NW, Washington 25)

24–25. Managing Petroleum and Petrochemical Operations, conf., San Antonio, Tex. (J. Harmon, Southwest Research Inst., 8500 Culebra Rd., San Antonio 6)

24–26. Mathematical Theory of Automata, intern. symp., New York, N.Y. (Symposium Committee, Polytechnic Inst. of Brooklyn, 55 Johnson St., Brooklyn 1, N. Y.)

25. Rocket Propulsion, symp., Cranfield, Bletchley, England. (Secretary, British Interplanetary Soc., 12 Bessborough Gardens, London, S.W.1, England)

25–27. International Federation of Associations of Textile Chemists and Colorists, annual, Amsterdam, Netherlands. (J. Boulton, Dean House, 19, Piccadilly, Bradford 1, Yorks, England)

25–27. Present Status and Future Prospects of Television and Motion Pictures as Media for Medical Education, intern. conf., Milan, Italy. (L. L. Leveridge, Medical Television Unit, New York Univ. Medical Center, 550 First Ave., New York 16)

25–27. Pulp and Paper Instrumentation

Symp, natl., Jacksonville, Fla. (L. G. Good, Systems Service Corp., P.O. Box 952, Charlotte, N.C.)

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

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

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

28. Mississippi Acad. of Sciences, Inc., Jackson. (C. Q. Sheely, Mississippi State Univ., State College)

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

29–2. National Workshop on Aging, American Home Economics Assoc., Lafayette, Ind. (A. J. Bricker, AHEA, 1600 20th St., NW, Washington 9)

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

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

30–1. International Acad. of Pathology, annual, Montreal, Canada. (M. Davis, Intersociety Committee on Pathology Information, 1785 Massachusetts Ave., NW, Washington 6)

30–1. International Acetylene Assoc., annual, Toronto, Canada. (L. Matthews, 30 E. 42 St., New York 17)

30–2. American Soc. of Mechanical Engineers, Design Engineering Div., Philadelphia, Pa. (A. B. Conlin, Jr., ASME, 29 W. 39 St., New York 18)

30–2. Association of Iron and Steel Engineers, Detroit, Mich. (T. J. Ess, AISE, 1010 Empire Bldg., Pittsburgh 22, Pa.)

30–2. Instrumental Methods of Analysis, natl. symp., Instrument Soc. of America, Pittsburgh, Pa. (E. E. Buckston, Works Engineering Dept., Union Carbide Chemicals Co., P.O. Box 8004, S. Charleston 3, W.Va.)

30–2. Role of Food in World Peace, intern. symp., Columbus, Ohio. (R. M. Kottman, College of Agriculture, Ohio State Univ., Columbus 10)

30–3. Mid-America Spectroscopy, annual symp., Soc. for Applied Spectroscopy, Chicago, Ill. (J. R. Ferraro, Argonne, Natl. Laboratory, 9700 S. Cass Ave., Argonne, Ill.)

30–4. Compressed Air and Hydraulics, intern. conf. and exhibition, London, England. (W. G. H. Chesher, c/o John Trundell and Partners Ltd., St. Richard's House, Eversholt St., London, N.W.1)

30–5. Automobile Technical Congr., intern., London, England. (Automobile Div., Institution of Mechanical Engineers, 1 Birdcage Walk, London, S.W.1)

May

1–3. Biologistics for Space Systems, symp. and workshop, Dayton, Ohio. (Col. A. I. Karstens, Aerospace Medical Research Laboratories, Aeronautical Systems Div., Wright-Patterson AFB, Ohio)