Scientific Meetings

University Computing Laboratories

A conference entitled "The Computing Laboratory in the University" was held at the University of Wisconsin 17–19 Aug. to focus attention on how computing laboratories fit into university programs and to obtain current opinions on trends.

Attendance was about 300 persons, representing higher educational institutions throughout the country. The effort to reach institutions not now active in the field was particularly successful.

In the keynote address, C. A. Elvehjem (University of Wisconsin) emphasized the universality of the use of digital computing equipment in the various branches of learning, including the social sciences. Universities, he said, should justifiably receive help for computing programs not only from federal grants but from foundations supporting research in the social sciences and humanities. Elvehjem noted that growth of numerical analysis and computing programs often can be achieved only through support by external sources of funds.

J. H. Curtiss (executive director, American Mathematical Society) gave a general address entitled "The role of computing in human affairs." J. W. Forrester (Massachusetts Institute of Technology) said that digital calculators serve educational institutions best and that analog equipment "should be acquired only when special reasons justify the upkeep and attention required." Forrester discussed how computing laboratories can be started and financed and the place that they should achieve in the university.

Short talks on applications of computing equipment were given by P. S. Dwyer (University of Michigan), H. R. J. Grosch (General Electric Company), J. O. Hirschfelder (University of Wisconsin), L. W. Kirchmayer (General Electric Company), H. G. Kolsky (Los Alamos Scientific Laboratory), H. W. Wolanski (Convair), and Marshall Rosenbluth (Los Alamos Scientific Laboratory). Two short addresses entitled "Computing in meteorology" and "Computing in astronomy" were given, respectively, by Philip Thompson (U.S. Air Force) and W. J. Eckert (International Business Machines Corporation).

The revolutionary effects of high-speed calculators, digital and analog, in scientific, engineering, industrial, and commercial and economic sciences were emphasized. The need for more basic research in the mathematics and applications was repeatedly stressed. Estimates of the demands for trained personnel in the future were somewhat staggering and will undoubtedly not be met.

The general addresses and talks on applications were followed by four panel discussions. The panel, "Future demands for trained personnel," was led by E. K. Ritter (Georgia Institute of Technology). Other panel members were Forman S. Acton (Princeton University), R. E. Gaskell (Boeing Aircraft), and Eldred Nelson (Ramo-Wooldridge Corporation). Future requirements for persons with training in numerical methods and machine computation were indicated. Gaskell said he was not in accord with the suggested need for a tremendous increase in trained people but that a much more moderate increase would be useful.

C. W. Adams (M.I.T. and Westinghouse Electric Corporation) led the panel discussion on curriculum needs. This panel was comprised of George R. Forsythe (University of California, Los Angeles), Vincent Rideout (University of Wisconsin), and David M. Young, Jr. (University of Maryland). Perhaps the principal lesson to be derived from this panel discussion was the lack of systematically developed course systems and the need for undergraduate instruction in numerical methods. Forsythe emphasized the need for thorough training in mathematics for doctoral candidates but said that no Ph.D. theses in numerical analysis have been written at UCLA! Numerical analysis has evidently not achieved respectability in the eyes of many mathematicians, despite its wealth of unsolved and meritorious problems.

John W. Carr, III (University of Michigan), led the panel, "Equipping a laboratory." Panel members were C. C. Gotlieb (University of Toronto), H. O. Hartley (Iowa State College), R. E. Meagher (University of Illinois), and Alan Perlis (Purdue University). Many interesting comparisons concerned the merits of building machines within the university, purchasing, and renting. It was pointed out that fully automatic high-speed calculators are needed to serve large universities, but that more modest equipment can serve the needs of undergraduate education.

The final panel, "Organization and financing," was led by J. P. Nash (University of Illinois). Members of the panel were H. H. Aiken (Harvard University), Arvid W. Jacobson (Wayne University), C. F. Kossack (Purdue University), R. J. Walker (Cornell University). Nash described the operation of the Illinois Digital Computing Laboratory. Aiken pointed out the need for recognition of the computing laboratory within the university organization to permit staff members the same scope permitted other professors. Aiken also suggested that industrial support of computing was likely to allow more freedom than government support.

Kossack described the organization and financial structure of the Statistical Research Laboratory at Purdue, giving explicitly costs and budget distribution. Walker described how Cornell has made a start recently with industrial support. In general, it was felt that education and research should be budgeted the same as other university departments and not made dependent on outside support. On the other hand, outside support is now solicited by all organizations represented on the panel and evidently yields about 50 percent of their total budgets.

The banquet address, "Dangerous gulfs," was given by J. H. Van Vleck (dean of the Applied Science Division at Harvard). In a unique approach to the evaluation of contributions to mankind's cultural attainments, Van Vleck vigorously upheld the importance of the role played by scientists and technologists.

The conference was sponsored by the Graduate Research Committee of the University of Wisconsin. Expenses were defrayed by Wisconsin Alumni Research Foundation funds. The University of Wisconsin Press is expected to publish the proceedings of the conference in book form.

PRESTON C. HAMMER
University of Wisconsin Numerical Analysis Laboratory, Madison

Meeting Notes

■ Recent progress in the study of aging and in understanding problems of the aged will be considered at the annual meeting of the Gerontological Society to be held at the Hotel Sheraton-Belvedere in Baltimore, Md., 27–29 Oct. Some 500

physicians, physiologists, biologists, chemists, sociologists, psychologists, social workers, and nurses are expected to attend the conference, at which more than 80 technical reports and other papers will be presented. All of the sessions will be open to the public.

The first of two general sessions is scheduled for the morning of 27 Oct. With Frederick D. Zeman of New York as chairman, it will be concerned with basic considerations on medical and social problems of aging and the aged. The second general session, on 28 Oct., will be chaired by Edward L. Bortz of Philadelphia and will be devoted to current research needs in the field. The four sections of the society—clinical medicine, biological sciences, psychological and social sciences, and social work and administration—will meet in simultaneous sessions each day of the meeting.

■ The Nuclear Engineering and Science Congress and the Atomic Exposition are to be held in Cleveland, Ohio, 12–16 Dec. The exposition, which will display everything from models of the atom to operating nuclear reactors, will open 10 Dec.

The congress, coordinated by the Engineers Joint Council, is being undertaken by the combined engineering and scientific societies of the nation, more than 25 of which are cooperating in the effort. Private firms and the Government are also actively supporting the congress. Nearly 300 papers describing the latest developments in nuclear engineering and science will be presented in technical sessions to the more than 2000 persons expected to attend.

Nuclear energy and its products are already used by more than 3000 industrial firms in the United States. This is but a small part of the potential application, as is demonstrated by the range of interest of participants in the congress. The sponsoring groups involve half a million engineers and scientists, representing such apparently diverse fields as mining, metallurgy, sanitation, water supply, radio, electronics, chemical, petroleum, steel, nonferrous metals, aviation, automobile manufacture, rockets, architecture, ships, road construction, and city planning.

Thorndike Saville, president of Engineers Joint Council and dean of engineering at New York University, summed up the primary purposes of the conference as follows: "The horizons for the peaceful application of atomic developments are, as yet, not even imagined. This highly interrelated family of developments is, as yet, very much in the 'idea for application' stage. Therefore, it is of enormous importance to present to those interested a panoramic view with detail as a proper measure of current opportunity and the vastness of potential. Progress for the conference already indicates that it will be the largest gathering of engineers and scientists ever held in the United States to discuss nuclear energy. As such, it will be a major opportunity for the communication of ideas and developments among the many thousands of persons in industry, business, agriculture and medicine, for whom the technology of the atom is increasingly important."

Basic objective of the congress is to launch a continuing program of interchange of information on the developing applications of nuclear science by the engineer and scientist for national benefits involving industry, agriculture, medicine, and the public welfare.

Announcement of the congress was made in January 1955 jointly by Saville; John R. Dunning, chairman of the Engineers Joint Council's general committee on nuclear engineering and science and dean of engineering at Columbia University; Donald L. Katz, chairman of the nuclear congress program committee and chairman of the chemical and metallurgical engineering departments of the

University of Michigan. The exposition to be held in connection with the congress was announced by Barnett F. Dodge of Yale University, president of the American Institute of Chemical Engineers, direct sponsor of the exposition.

■ The North Central Conference on Biology Teaching, held 19–30 Aug. at the University of Michigan Biological Station, Cheboygan, was sponsored by the National Association of Biology Teachers on a $15,000 grant from the National Science Foundation. Some 75 delegates from ten north central states considered teacher education and certification, teaching methods, and course content for improving biology teaching in colleges and secondary schools.

Important concepts were presented by the following: Robert Bowman of the University of Michigan, "Health and disease"; Samuel T. Dane, also of Michigan, "Conservation"; Harry Fuller of the University of Illinois, "Food supply of man"; Harold O. Goodman of Michigan State University, "Human genetics"; and John S. Karling of Purdue University, "Plants and man."

Published digests of these talks will supplement those of the five areas discussed at a similar meeting, the Southeastern Conference, that was held last year at the University of Florida; the latter covered taxonomy, physiology, genetics, ecology, and morphology. A report of the Florida conference was published as the January issue of the *American Biology Teacher*. A report of the Michigan conference will appear as the January 1956 issue of the same journal, which will be available from Paul V. Webster, Secretary-Treasurer of the NABT, Bryan High School, Bryan, Ohio.

The conference was directed by Richard L. Weaver of the University of Michigan, and a staff consisting of John Breukelman, Kansas State Teachers College; Paul Klinge, Howe High School, Indianapolis, Ind.; Richard Armacost, Purdue University; and Alfred Stockard, director of the University of Michigan Biological Station.

■ Many of the nation's encephalographers met 30 Sept. at the National Institutes of Health in Bethesda, Md., for the opening scientific session of a joint meeting of the Eastern Association of Electroencephalographers and the Southern Electroencephalographic Society. More than 100 members of these organizations assembled in the auditorium of the Clinical Center, where they were greeted by Cosimo Ajmone-Marsan, chief of the Electroencephalography Branch of the National Institute of Neurological Diseases and Blindness.

Presentation of a number of scientific papers was followed by lunch and a tour of the institute laboratories. In the afternoon, the members left for Skyland, Va., for the final 2 days of the meeting.

■ During the week of 29 Aug.–2 Sept. 1955, 44 persons from 17 different states and two foreign countries met at Fisk University, Nashville, Tenn., to participate in the university's 6th annual Infrared Spectroscopy Institute. The participants included 28 chemists, physicists, microbiologists, and biochemists; seven instrument engineers; and nine faculty and staff members.

Two lectures were given each morning, a laboratory session each afternoon, and a lecture each evening. The two introductory lectures were presented by Ernest A. Jones of Vanderbilt University, who discussed special techniques in infrared spectroscopy and applications to the study of the structure of simple molecules. James R. Lawson of Tennessee A and I State University lectured on qualitative analysis and on pressed potassium bromide disks for solid sampling. Alvin H. Nielsen of the University of Tennessee discussed the theoretical basis for molecular spectroscopy and recent ad-

vances in the field. Robert C. Gore of the American Cyanamid Co. placed infrared spectroscopy in its setting as an important technique for solving industrial problems. He also outlined the future of infrared spectroscopy in industrial research.

A. Lee Smith of the Dow-Corning Co. described the application of the potassium bromide pellet technique to the determination of metalorganic complexes and the use of infrared spectroscopy generally in the solution of problems in silicone chemistry. Nelson Fuson of Fisk University presented the results of research at Fisk on the infrared spectra of the methyl benzanthracenes, some of which are highly potent cancer-producing agents.

On the opening evening of the institute, Fuson reported on the 1955 meeting of European Molecular Spectroscopists at Oxford, England, from which he had just returned, and Nielsen showed colored slides and described the rigors of high-altitude infrared studies of the earth's atmosphere that used the sun as a source; he had conducted research on top of the Jung Frau Joch in Switzerland.

A standard and an advanced program were available during the afternoon laboratory sessions. Participants in the former program, besides receiving training in basic techniques, were introduced to five different types of commercial infrared spectrometers available for the laboratory sessions while they were on display at the institute. The advanced group was free to devote its time to particular fields.

Many participants brought compounds in order to make up potassium bromide pellet samples. A commercial infrared microscope attachment for a spectrometer was also of interest. In addition to the Fisk spectrometer, instruments were made available to the institute by the Perkin-Elmer Corp., Beckman Instruments, Inc., and the Will Corp. Participants also were permitted to use the double-beam spectrometers at Tennessee A and I State University and at Vanderbilt University.

■ The centennial of engineering instruction at the University of Pennsylvania will be marked by a symposium on Modern Engineering that is to be held on 11 Nov. 1955 in the auditorium of the University Museum. The program includes the following speakers: Charles H. Weaver of the Westinghouse Electric Corporation; Granville M. Read of E. I. du Pont de Nemours and Company, Inc.; Elmer W. Engstrom of the Radio Corporation of America; Jay W. Forrester of Massachusetts Institute of Technology; and Ellis A. Johnson of the Army's Operations Research Office at Johns Hopkins University.

Gaylord P. Harnwell, president of the university, and a nuclear physicist, will greet those present. Cosponsoring the symposium are the Philadelphia sections of several national technical societies. All engineers are invited to attend.

■ The International Union of Crystallography has accepted an invitation from the Consejo Superior de Investigaciones Científicas to hold a symposium next spring in Madrid. This symposium, which will take place 2–7 Apr. 1956, will be devoted to a consideration of "Solids exhibiting structure in the region between atomic and optical microscopic dimensions." It is intended to provide the opportunity for comparative discussions of results obtained by such different techniques as x-ray and electron diffraction, and electron microscopy.

The union's commissions on crystallographic apparatus and the teaching of crystallography will meet at the same time. They propose to have open sessions at which papers may be presented dealing with these two subjects. Particu-

lar emphasis will be laid on new techniques bearing on the topic of the symposium.

Papers will be welcomed from persons who are not members of the commissions, and the attendance of all interested crystallographers and electron microscopists is invited. A special effort will be made to include papers and discussions that will appeal to the nonspecialist.

Titles of proposed communications, together with a brief summary of approximately 10 typewritten lines, should be sent to the president of the program committee, Prof. A. Guinier, Conservatoire National des Arts et Métiers, 292 Rue St. Martin, Paris (3), France, *before 1 Jan. 1956*. Those interested in the symposium and wishing to receive subsequent information about it should send their names and addresses as soon as possible to the Secretario del Comité del Symposium de la U. I. Cr., Serrano 118, Madrid, Spain.

Society Elections

■ Society for Social Responsibility in Science: pres., William T. Scott; v. pres., Edward G. Ramberg; sec., Elmer Goetz, Jr., 1319 Wakeling St., Philadelphia 24, Pa.; treas., Walter Gormly.

■ Botanical Society of America, Central States Section: chairman, Robert F. Thorne; v. chairman, Harriette Bartoo; sec.-treas., Howard R. Youse, DePauw University.

■ Society of Protozoologists: pres., L. R. Cleveland, Harvard University; v. pres., Willis H. Johnson, Wabash College; sec., Norman D. Levine, University of Illinois. Representative to the AAAS council is R. F. Nigrelli, New York Zoological Society.

■ Genetics Society of Canada: chairman, S. G. Smith, Forest Insect Laboratory, Sault Ste. Marie, Ontario; v. chairman, J. Unrau, University of Alberta; sec.-treas., L. P. V. Johnston, University of Alberta; eastern director, L. Chouinard, Laval University; western director, T. J. Arnason, University of Saskatchewan.

■ Phycological Society of America: pres., H. C. Bold, Vanderbilt University; v. pres., R. H. Thompson, University of Kansas; sec., P. C. Silva, University of Illinois; treas., R. C. Starr, Indiana University.

■ American Society of Plant Physiologists: pres., Harry A. Borthwick, U.S. Bureau of Plant Industry, Beltsville, Md.; v. pres., Aubrey W. Naylor, Duke University; sec., Arthur W. Galston, Yale University.

■ Astronomical League: pres., Grace C. Scholz, Alexandria, Va.; v. pres., Russell C. Maag, Sedalia, Mo.; sec., Joseph A. Anderer, Chicago; treas., Chandler H. Holton, Atlanta, Ga.; exec, sec., Wilma A. Cherup, 4 Klopfer St., Millvale, Pittsburgh 9, Pa.

Forthcoming Events

November

22–23. National Council of Geography Teachers, Indianapolis, Ind. (I. C. Robertson, State Teachers College, Valley City, N.D.)

22–25. International Cong. on Documentation of Applied Chemistry, 1st, London, Eng. (Cong. Committee, 56 Victoria St., London, S.W.1.)

25–26. American Mathematical Soc., Milwaukee, Wis. (E. G. Begle, Yale Univ., New Haven 11, Conn.)

25–26. American Physical Soc., Chicago, Ill. (K. K. Darrow, Columbia Univ., New York 27.)

25–26. American Soc. of Animal Production, annual, Chicago, Ill. (W. M. Beeson, Animal Husbandry Dept., Cornell Univ., Ithaca, N.Y.)

27–30. American Inst. of Chemical Engineers, Detroit, Mich. (F. J. Van Antwerpen, AIChE, 25 W. 45 St., New York 36.)

28–1. White House Conf. on Education, Washington, D.C. (C. Pace, Director; Comm. for White House Conf. on Education; South Health, Education and Welfare Bldg.; Washington 25.)

29–2. American Medical Assoc., clinical, Boston, Mass. (G. F. Lull, AMA, 535 N. Dearborn St., Chicago 10, Ill.)

29–2. Entomological Soc. of America, Cincinnati, Ohio. (R. H. Nelson, 1530 P St., NW, Washington 5.)

December

2. American Alpine Club, annual, New York, N.Y. (J. C. Oberlin, 900 Leader Bldg., Cleveland 14, Ohio.)

2–3. American Federation for Clinical Research, Eastern, Philadelphia, Pa. (C. R. Shuman, Temple Univ. Hospital, Broad and Ontario Sts., Philadelphia 40, Pa.)

2–3. Oklahoma Acad. of Science, Norman. (D. E. Howell, Dept. of Entomology, Oklahoma A. & M. College, Stillwater.)

2–4. American Psychoanalytic Assoc., New York, N.Y. (J. N. McVeigh, 36 W. 44 St., New York 36.)

4. American Acad. of Dental Medicine, 10th mid-annual, New York, N.Y. (G. J. Witkin, 45 South Broadway, Yonkers 2, N.Y.)

8–10. Florida Acad. of Sciences, Miami. (R. A. Edwards, Geology Dept., Univ. of Florida, Gainesville.)

9–10. Assoc. for Research in Nervous and Mental Disease, 35th annual, New York, N.Y. (C. C. Hare, 710 W. 168 St., New York 32.)

9–10. Texas Acad. of Science, annual, Waco. (G. P. Parker, P.O. Box 7488, College Station, Texas.)

9–13. American Acad. of Optometry, Chicago, Ill. (C. C. Koch, 1502 Foshay Tower, Minneapolis 2, Minn.)

10–16. Nuclear Cong. and Atomic Exposition, Cleveland, Ohio. (A. F. Denham, 931 Book Bldg., Detroit 26, Mich.)

10–16. Radiological Soc. of North America, Inc., Chicago, Ill. (D. S. Childs, Sr., 713 E. Genesee St., Syracuse 2, N.Y.)

11–14. American Soc. of Agricultural Engineers, Chicago, Ill. (F. B. Lanham, ASAE, St. Joseph, Mich.)

11–14. American Soc. of Refrigerating Engineers, New York, N.Y. (R. C. Cross, ASRE, 234 Fifth Ave., New York 1.)

15–17. Acoustical Soc. of America, Providence, R.I. (W. Waterfall, ASA, 57 E. 55 St., New York 22.)

15–17. International Union of Scientific Radio, U.S. national, Gainesville, Fla. (J. P. Hagen, Code 7100, URSI, Naval Research Lab., Washington 25.)

16–21. Interamerican Cong. of Psychology, 3rd, Austin, Tex. (W. Holtzman, Univ. of Texas, Austin.)

26–29. Biometric Soc., Eastern N. American Region, New York, N.Y. (A. M. Dutton, Box 287, Station 3, Rochester 20, N.Y.)

26–31. American Assoc. for the Advancement of Science, Atlanta, Ga. (R. L. Taylor, AAAS, 1025 Connecticut Ave., NW, Washington 6.)

The following 32 meetings will be held in conjunction with the AAAS annual meeting.

26–27. American Assoc. of Clinical Chemists, Atlanta, Ga. (A. E. Sobel, Dept. of Biochemistry, Jewish Hospital of Brooklyn, 555 Prospect Pl., Brooklyn 16, N.Y.)

26–30. American Nature Study Soc., Atlanta, Ga. (M. Trussell, School of Education, Florida State Univ., Tallahassee.)

26–30. National Assoc. of Biology Teachers, Atlanta, Ga. (J. P. Harrold, 110 E. Hines St., Midland, Mich.)

27. National Assoc. of Science Writers, Atlanta, Ga. (O. Fanning, Midwest Research Inst., Kansas City, Mo.)

27. National Speleological Soc., Atlanta, Ga. (Bro. G. Nicholas, F.S.C., 114 Hanover St., Cumberland, Md.)

27. Soc. for Research in Child Development, Atlanta, Ga. (W. C. Rhodes, Georgia Dept. of Public Health, Atlanta.)

27–28. American Psychiatric Assoc., Atlanta, Ga. (H. E. Himwich, Research Div., Galesburg State Research Hospital, Galesburg, Ill.)

27–28. Soc. for the Advancement of General Systems Theory, Atlanta, Ga. (L. von Bertalanffy, Center for Advanced Study in the Behavioral Sciences, Menlo Park, Calif.)

27–29. American Geophysical Union, Atlanta, Ga. (W. Smith, 1530 P St., NW, Washington 5.)

27–29. American Meteorological Soc., Atlanta, Ga. (K. Spengler, 3 Joy St., Boston, Mass.)

27–29. Assoc. of Southeastern Biologists, Atlanta, Ga. (M. E. Gaulden, Biology Div., Oak Ridge National Lab., Oak Ridge, Tenn.)

27–29. International Geophysical Year, Atlanta, Ga. (H. Odishaw, National Research Council, Washington 25.)

27–29. Oak Ridge Inst. of Nuclear Studies, Atlanta, Ga. (C. L. Comar, ORINS, Oak Ridge, Tenn.)

27, 29. Soc. of the Sigma Xi, Atlanta, Ga. (T. T. Holme, 56 Hillhouse Ave., New Haven, Conn.)

27–30. American Phytopathological Soc., Atlanta, Ga. (G. S. Pound, Dept. of Plant Pathology, Univ. of Wisconsin, Madison.)

27–30. American Soc. of Parasitologists, Atlanta, Ga. (A. C. Walton, Dept. of Biology, Knox College, Galesburg, Ill.)

27–30. Botanical Soc. of America, Southeastern Section, Atlanta, Ga. (F. T. Wolf, Dept. of Biology, Vanderbilt Univ., Nashville 5, Tenn.)

27–30. Ecological Soc. of America, Atlanta, Ga. (R. B. Platt, Dept. of Biology, Emory Univ., Emory University, Ga.)

27–30. National Science Teachers Assoc., Atlanta, Ga. (R. H. Carleton, NSTA, 1201 16 St., NW, Washington 6.)

27–30. Soc. of Systematic Zoology, Atlanta, Ga. (D. C. Scott, Dept. of Zoology, Univ. of Georgia, Athens.)

28. Alpha Epsilon Delta, Atlanta, Ga. (M. L. Moore, 7 Brookside Circle, Bronxville, N.Y.)

28. National Assoc. for Research in Science Teaching, Atlanta, Ga. (G. G. Mallinson, Western Michigan College of Education, Kalamazoo.)

28. Sigma Pi Sigma, Atlanta, Ga. (M. W. White, Physics Dept., Pennsylvania State Univ., University Park.)

28. Soc. of General Physiologists, Atlanta, Ga. (J. Buck, National Institutes of Health, Bethesda 14, Md.)

28–29. American Soc. of Naturalists, Atlanta, Ga. (W. P. Spencer, Dept. of Genetics, Univ. of Texas, Austin 12.)

28–29. Herpetologists League, Atlanta, Ga. (J. A. Fowler, Acad. of Natural Sciences, 19th and Parkway, Philadelphia 3, Pa.)

29. American Assoc. of Hospital Consultants, Atlanta, Ga. (J. Masur, Asst. Surgeon-General, USPHS, Washington 25.)

29. National Acad. of Economics and Political Science, Atlanta, Ga. (D. P. Ray, Hall of Government, George Washington Univ., Washington, D.C.)

29. National Geographic Soc., Atlanta, Ga. (W. R. Gray, NGS, 16 and M Sts., NW, Washington 6.)

29. Scientific Research Soc. of America, Atlanta, Ga. (D. B. Prentice, 54 Hillhouse Ave., New Haven, Conn.)

30. American Soc. of Plant Physiologists, Southern Section, Atlanta, Ga. (A. W. Naylor, Duke Univ., Durham, N.C.)

30. United Chapters of Phi Beta Kappa, Atlanta, Ga. (C. Billman, 1811 Q St., NW, Washington, D.C.)

27–29. American Mathematical Soc., 62nd annual, Houston, Tex. (J. H. Curtiss, AMS, 80 Waterman St., Providence 6, R.I.)

27–29. Archaeological Inst. of America, Chicago, Ill. (C. Boulter, 608, Univ. of Cincinnati Library, Cincinnati 21, Ohio.)

27–29. Assoc. for Symbolic Logic, Rochester, N.Y. (J. Barlaz, Rutgers Univ., New Brunswick, N.J.)

27–29. Linguistic Soc. of America, Chicago, Ill. (A. A. Hill, 1719 Massachusetts Ave., NW, Washington 6.)

27–29. Western Soc. of Naturalists, Davis, Calif. (D. Davenport, Univ. of California, Santa Barbara.)

27–30. American Statistical Assoc., New York, N.Y. (E. M. Bisgyer, 1757 K St., NW, Washington 6.)

27–30. Inst. of Mathematical Statistics, New York, N.Y. (K. J. Arnold, Dept. of Mathematics, Michigan State Univ., East Lansing.)

27–1. Phi Delta Kappa, 50th anniversary, Bloomington, Ind. (J. C. Whinnery, 324 N. Greenwood Ave., Montebello, Calif.)

28–29. Northwest Scientific Assoc., Spokane, Wash. (F. J. Schadegg, Eastern Washington College of Education, Cheney.)

28–30. American Economic Assoc., New York, N.Y. (J. W. Bell, Northwestern Univ., Evanston, Ill.)

28–30. American Historical Assoc., Washington, D.C. (B. C. Shafer, Study Room 274, Library of Congress Annex, Washington 25.)

28–30. American Philological Assoc., Chicago, Ill. (J. P. MacKendrick, Bascom Hall, Univ. of Wisconsin, Madison 6.)

28–30. American Philosophical Assoc., Eastern Div., Boston, Mass. (W. H. Hay, Dept. of Philosophy, Univ. of Wisconsin, Madison.)

28–30. American Physical Soc., winter meeting, Los Angeles, Calif. (K. K. Darrow, Columbia Univ., New York 27.)

28–30. Econometric Soc., New York, N.Y. (R. Ruggles, Box 1264, Yale Station, Yale Univ., New Haven, Conn.)

29. Metric Assoc., Inc., annual, Washington, D.C. (V. G. Shinkle, 1916 Eye St., NW, Washington 6.)

29–30. American Folklore Soc., Washington, D.C. (M. Leach, Bennett Hall, Univ. of Pennsylvania, Philadelphia 4.)

29–30. History of Science Soc., Washington, D.C. (T. S. Kuhn, 74 Buckingham St., Cambridge 38, Mass.)

30. Mathematical Assoc. of America, 39th annual, Houston, Tex. (H. M. Gehman, Univ. of Buffalo, Buffalo 14, N.Y.)

January

9–10. Operations Research Soc. of America, 8th national, Ottawa, Ont., Canada. (J. Abrams, Dept. of National Defense, Ottawa.)

9–14. Pan American Cong. of Ophthalmology, 5th, Santiago, Chile. (T. D. Allen, 575 Lincoln St., Winnetka, Ill.)

10. American Ethnological Soc., New York, N. Y. (A. G. James, 695 Park Ave., New York 21.)

12. American Genetic Assoc., Washington, D.C. (S. L. Emsweller, Plant Industry Sta., Beltsville, Md.)

12–14. Use of Isotopes in Agriculture, East Lansing, Mich. (E. W. Phelan, Argonne National Lab., Box 299, Lemont, Ill.)

16–18. Documentation Conf., Cleveland, Ohio. (J. H. Shera, School of Library Science, Western Reserve Univ., Cleveland 6.)

17–20. American Pomological Soc., Rochester, N.Y. (R. B. Tukey, Horticulture Dept., Purdue Univ., Lafayette, Ind.)

20–27. Pan American Cong. of Gastro-Enterology, 5th, Havana, Cuba. (N. M. Stapler, 1267 J. E. Uriburu, Buenos Aires, Argentina.)

23–26. American Soc. of Heating and Air-Conditioning Engineers, Cincinnati, Ohio. (A. V. Hutchinson, ASHAE, 62 Worth St., New York 13.)

23–27. Inst. of Aeronautical Sciences, New York, N.Y. (S. P. Johnston, IAS, 2 E. 64 St., New York 21.)

30–3. American Inst. of Electrical Engineers, New York, N.Y. (N. S. Hibshman, AIEE, 33 W. 39 St., New York 18.)

31–4. American Physical Soc., New York, N.Y. (K. K. Darrow, Columbia Univ., New York 27.)

February

5–8. National Citizens' Planning Conf., Washington, D.C. (Miss H. James, 901 Union Trust Bldg., Washington 5.)

9–10. Soc. of American Military Engineers, annual, Chicago, Ill. (D. A. Sullivan, 72 W. Adams St., Chicago 90.)

19–23. American Inst. of Mining and Metallurgical Engineers, New York, N.Y. (E. O. Kirkendall, AIME, 29 W. 39 St., New York 18.)

Equipment News

■ GAS DENSITY BALANCE measures the density of a sample gas by a null balance principle. A small dumbbell is supported on a horizontal quartz fiber. One ball of the dumbbell is punctured so that it will not experience buoyancy effects. The other ball tends to change position as the density of the gas changes, creating a rotational force about the quartz fiber that is proportional to the density of the gas. The dumbbell is metal coated and is held in place by an electrostatic force that is established by adjacent electrodes. When the dumbbell rotates, it is restored to its null position by the application of a balancing potential to the electrodes. The balancing potential, which is also proportional to the density of the gas, may be used to operate a meter or recorder. Sensitivity and accuracy are each 0.5 percent of full scale; a 95-percent response is obtained in less than 1 min. Bulletin 118. (Arnold O. Beckman, Inc., Dept. Sci., 1020 Mission St., South Pasadena, Calif.)

■ GEIGER COUNTER Halotron "15" is a portable 15-tube unit that is designed for use in detecting uranium ore and for general survey work. According to the manufacturer, the unit's sensitivity is greater than that of many geiger counters and its performance is comparable to that of some scintillation counters. The unit, which is waterproof and shockproof, is powered by two standard "D" flashlight cells and three miniature "B" batteries; its dimensions are 3¼ by 8 by 7⅞ in. and its weight is approximately 5 lb. Cover and case are made of drawn aluminum; interior metal parts are cadmium plated. (Nuclear Measurements Corp., Dept. Sci., 2460 N. Arlington Ave., Indianapolis 18, Ind.)

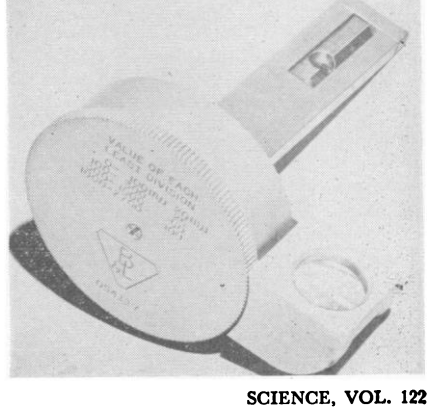
■ DIRECT-CURRENT AMPLIFIER has push-pull input and output circuits with input impedance of 100 Mohm and grid current of 10^{-2} μa, band pass flat to 50 kcy/sec, and four bandwidths that may be selected from the front panel. Sensitivity may be varied by means of a calibrated attenuator with a maximum gain of 100 db. Drift obtainable is 5 μv/min or less. In-phase signal rejection is adjustable to 50,000 to 1. Noise level is 10 μv root-mean-square at full bandwidth. (American Electronic Laboratories, Inc., Dept. Sci., 641 Arch St., Philadelphia 6, Pa.)

■ DIRECTIONAL SCINTILLATION COUNTER, heavily shielded for maximum directionality, is supplied with a 1- by 1-in. sodium iodide crystal. When the removable forward shield is in place, a ratio of at least 50 to 1 is obtained between count rates from an I^{131} source within the acceptance cone and one outside the cone at the same distance from the crystal. The angle of sensitivity may be varied by changing the threaded lead collimator in the nose of the shield. The new counter includes a photomultiplier that has been chosen for good signal-to-noise characteristics. It is supplied with cable for connection to any scaler or rate meter. (NRD Instrument Co., Dept. Sci., 6429 Etzel Ave., St. Louis 14, Mo.)

■ PORTABLE REFRIGERATION SYSTEM provides means for cooling a vessel or cabinet from ambient temperature to 0°F. The unit has a mobile 5 by 8-in. copper cooling coil, adjustable thermostatic control, 8-ft insulated hose, air-cooled compressor, and Freon 12 refrigerant. It operates on 115-v alternating current. Cooling capacity is 790 Btu/hr. (A. Daigger and Co., Dept. Sci., Kinzie at Wells, Chicago 10, Ill.)

■ LIQUID SCINTILLATION SPECTROMETER is designed for precise counting of beta samples in solution with liquid phosphors. Isotopes with low beta energies, such as tritium, carbon-14, sulfur-35, and calcium-45, can be counted either individually or in mixtures. The photomultipliers are shielded from room light at all times, and it is not necessary to manipulate samples in the dark. (Packard Instrument Co., Dept. Sci., P.O. Box 428, Lagrange, Ill.)

■ ACCESSORY SLOT COMPENSATOR that can be attached to most standard microscopes is intended to aid in the identification of minerals and chemicals. Compensator is used to measure birefringence; readings are then obtained from determination charts. Determinations correct to ± 2 percent without calibration are read directly in millimicrons from a scale engraved on a rotatable drum; computations and conversion tables are not necessary. The instrument performs with greatest efficiency when light of wavelength 5890 A is used; an interference filter is available for use with tungsten illuminators. Retardations from 0 to 2700 mμ can be measured. (Bausch and Lomb Optical Co., Dept. Sci., Rochester, N.Y.)



■ FLAME PHOTOMETER model 146, which has been announced by Perkin-Elmer, has a stainless steel burner and a simplified atomizer. The unit will operate on natural, city, propane, or acetylene gas. The new atomizer uses a straight-through capillary. There is a ground glass joint between the atomizer and the atomizer chamber. Excess solution in the stream is drained through a fitted glass filter. The funnel has a flow rate of 4 to 6 ml/min. As little as 2 ml of sample is required to obtain a reading. Accuracy of ± 2 percent is possible on routine sodium and potassium analysis; accuracy is ± 1 percent by internal-standard measurements. Alkaline earths may be analyzed. The dimensions of the metal cabinet are 21⅜ by 13¼ by 18¼ in. The sloping front panel is made of Fiberglas. (Perkin-Elmer Corp., Dept. Sci., Norwalk, Conn.)

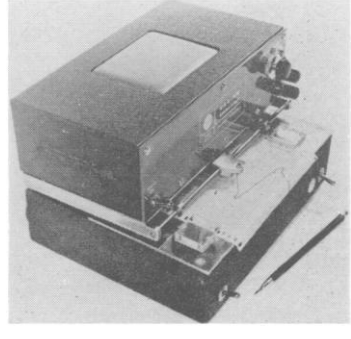
■ FRACTION COLLECTOR for chromatography makes collections automatically by either the timed-flow or the volumetric method. Since support is furnished at the bottom of the tubes, both culture and lipped tubes may be used for collection. Three interchangeable receiver tables, which are equipped with mounting holes for an indexer, are available. An electronic timer-controller that is capable of indexing each tube to receive fractions on a timed-flow basis from 18 sec to 2 hr is also available. The instrument is designed so that neither mercury, chemicals, nor electric current come into contact with the sample. (Schaar and Co., Dept. Sci., 754 W. Lexington St., Chicago 7, Ill.)

■ OPTICAL DESIGN KIT for engineers has 19 components, including a prism; cylindrical and spherical lenses; and flat, cylindrical, and spherical mirrors suitable for use in optical systems and devices. (Houston Technical Laboratories, Dept. Sci., 2424 Branard, Houston 6, Tex.)

■ INFRARED DETECTORS have sensitive elements made of 10-μ-thick rectangular flakes of thermistor material. Dimensions of each element can be varied from 0.1 to 10.0 mm. A shielded compensating element minimizes the effects of ambient temperature changes. Housings are hermetically sealed and do not require a vacuum. (Barnes Engineering Co., Dept. Sci., 30 Commerce Rd., Stamford, Conn.)

■ AUTOMATIC SEPARATORY FUNNEL, the VirTis Extracto-Matic, consists of a stainless-steel box-type stand that houses a heavy-duty electric motor. Motor drives a rocker arm to which eight specially designed Pyrex separatory funnels are clamped. Rocker arm swings up and down through a 90° arc at a rate of 20 oscillations per minute. The separatory funnels do not require stoppers, for the fluid openings always remain above the solution level. Solution is inserted when the separatory funnels are in the horizontal position; fluid can be drained through a precision-ground stopcock when the funnels are in the vertical position. (E. Machlett and Son, Dept. Sci., 220 E. 23 St., New York 10)

■ GRAPHIC RECORDER model G-10, a portable unit that measures 10 by 7⅛ by 8 in., has been announced by Varian Associates. The instrument is of the self-balancing potentiometer type. Full-scale response is 2.5 sec; sensitivity is 100 mv full-scale; accuracy is 1 percent; maximum allowable signal source resistance



is 0.5 Mohm. The recorder is designed to be used directly as a recording millivoltmeter or, with appropriate transducers, as a means for recording pressure, light intensity, and temperature (Varian Associates, Dept. Sci., 611 Hansen Way, Palo Alto, Calif.)

■ DISPERSION MILL, a laboratory model of the Kady industrial dispersion mill, has been made available. The capacity of the new model is 1/3 to ½ gal, and all working parts are made of stainless steel. The mill occupies 25½ by 15¼ in. of bench space and requires less than 30 in. of head room, including space for the operation of the hydraulic lift. It is driven by a 1-hp, three-phase, 220- or 440-v motor. (Kinetic Dispersion Corp., Dept. Sci., 95 Botsford Pl., Buffalo 16, N.Y.)

■ RESISTANCE THERMOMETER measures the change, with temperature, in the electric resistance of 50 in. of 0.002-in. diameter, spun-glass-insulated, high-purity nickel wire. The scale, which is graduated from −100°C to +276°C in 0.5°C and 1.0°F divisions, is printed on an 89-in. roll of Cronar film. Accuracy from −100°C to +250°C is ±0.5°C; above 250°C it is ±1.0°C. (Fisher Scientific Co., Dept. Sci., 717 Forbes St., Pittsburgh 19, Pa.)

■ MICROMANIPULATOR designed and developed by H. H. Hillemann of Oregon State College can be used to produce rapid or slow movement in a straight line as well as a movement of up to 2 in. in each of the mutually vertical planes. Instrument can be attached to either side of any microscope. Adjustment of the stage of the micromanipulator may be required. (Custom Scientific Instruments, Inc., 541 Devon St., Dept. Sci., Kearny, N.J.)

■ VISCOSIMETER designed to satisfy the equation $V_s = 0.04t - 8/t$ consists of a metal stand that supports an orifice cup over a receiver cup. Both cups are disposable. Orifice cup is marked with a fill line; receiver cup is also marked with a line; time required to fill the receiver cup to the line must be measured with a separate stop watch. Errors resulting from cup variation are less than ±5 percent. (Gardner Laboratory, Inc., Dept. Sci., Bethesda 14, Md.)

■ INVERTED SPECTROGRAPH designed so that the x-ray beam strikes specimens from the bottom may be used for analysis of metals, powders, and liquids. Three specimen holders fit into a horizontal disk that rotates inside a leaded-bronze housing. Disk shaft extends through the top of the housing to a control knob. Specimen holders have ¼-mil thick

Mylar windows that are held in place with retaining rings. A nickel-foil collimator with ⅛-in. spacing is built into the instrument. (Research and Control Instruments Div., North American Philips Co., Inc., Dept. Sci., 750 S. Fulton Ave., Mount Vernon, N.Y.)

■ COLD CATHODE COUNTING TUBE type GS12D has 12 cathodes brought out to pins on the 13-pin base. Positive voltage is available on the glowing cathode. Counting rate is 0 to 4000 pulses/sec. Tube is 3.49 in. long, bulb diameter is 1.3 in., and base diameter is 1.39 in. Anode current is 0.35 ma maximum; supply voltage is 350 v; and maximum voltage between electrodes, other than anode, is 140 v. (Atomic Instrument Co., Dept. Sci., 84 Massachusetts Ave., Cambridge 39, Mass.)

■ PRECISION RESISTANCE METER type RGV has an over-all range of 0.01 ohm to 100 Mohm broken down into seven individual ranges. Accuracy is ± 0.1 percent ± 1 mohm in the ranges from 0.01 ohm to 10 Mohm and ± 0.5 percent in the range from 10 to 100 Mohm. Load on the unknown is less than 10 mw. (Instrument Div., Federal Telephone and Radio Co., Dept. Sci., 100 Kingsland Rd., Clifton, N.J.)

■ VARIABLE-SPEED ROTATOR for serological tests operates at constant speed for any setting within its range of 100 to 220 rev/min. Operating speed, which is maintained by an electric governor, is reproducible. Timed operation from 0 to 30 min is provided. Slides are held by a sponge-rubber pad cemented to a 13-by 13-in. platform. Every point on the surface of the platform rotates through a uniform ¾-in. diameter circle. Bulletin 210. (Eberbach Corp., Dept. Sci., Ann Arbor, Mich.)

■ CONSTANT-TEMPERATURE BATH for storage and processing of bottled solutions at temperatures up to 60°C has a built-in centrifugal pump circulator that provides temperature control of ± 0.1°C. Bath, which measures 5 by 5 by 3 ft, holds bottles in 16 individual wire baskets. The two-piece cover is counterbalanced. Bulletin SK-109. (Labline, Inc., Special Products Div., Dept. Sci., 3070-82 W. Grand Ave., Chicago 22, Ill.)

■ MICROWAVE FREQUENCY STANDARD accurate to ± 0.001 percent for the frequency range of 2400 to 40,000 Mcy/sec consists of a temperature-stabilized crystal oscillator followed by a multiplier-amplifier chain with outputs at 100, 500, and 1500 Mcy/sec. The standard is supplied with sweep circuits for use with reflex klystron local oscillators. Wave guide units for specified frequency ranges include a harmonic mixer that has been designed specifically for multiplying a crystal-controlled signal, frequency meter, directional coupler, two variable pads, termination, detector, and coaxial adapter. (Narda Corp., Dept. Sci., Mineola, N.Y.)

■ RESEARCH DEMINERALIZER or ion-exchange kit consists of two Lucite ion-exchange columns, five jars of cation resins, seven jars of anion resins, a 100-page manual of technical data on the resins, and instructions for operating the device as a mixed- or two-bed ion exchanger. (Barnstead Still and Sterilizer Co., Dept. Sci., 256 Lanesville Terr., Forest Hills, Boston 31, Mass.)

■ GLASSWORKING EQUIPMENT CATALOG describes Lab-Lathe, a general-purpose glassworking machine, and its accessories, together with other glassworking equipment. Section 2 of the catalog is devoted to mercury, mercury cleaning apparatus, and a mercury vapor detector. Technical articles on the Lab-Lathe and on mercury are included. Catalog 54. (Bethlehem Apparatus Co., Inc., Dept. Sci., Hellertown, Pa.)