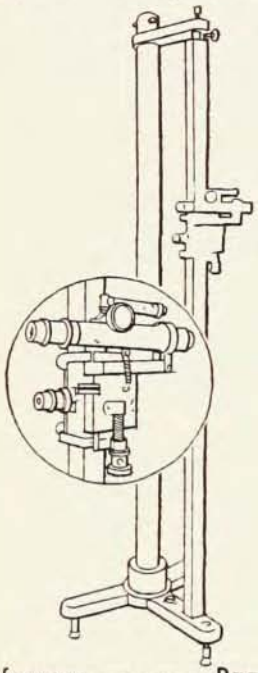
Range 100 cm — Reads to 0.01 mm. Scale engraved in 0.5 mm direct on solid 1⅛ inch cross section bar.

CATHETOMETER



Reference ..... Page 11 of the Ealing Catalog for complete description of this outstanding instrument. This is just one of the more than 300 instruments for the physical sciences offered exclusively by Ealing.

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Calendar

Material for inclusion in the calendar and meeting sections should be received 6 weeks prior to the date of the issue in which it is to appear. Further information can be obtained by writing to the addresses indicated in parentheses.

February

16–18 Nondestructive Testing of Aircraft & Missile Components, 1st nat'l symp. spons'd by SW Sect. of Soc. for Nondestructive Testing & Southwest Research Inst. at Hilton Hotel, San Antonio (*W. E. Cory, SRI, Box 2296, San Antonio 6, Tex.*)

18–19 Engineering Aspects of Magnetohydrodynamics Symp. spons'd by AIEE Basic Sciences Comm. at U. of Pa. (*C. Mannal, GE Missile & Space Vehicle Dept., 3750 D St., Philadelphia 24, Pa.*)

24–26 The Biophysical Soc., ann. mtg., Sheraton Hotel, Philadelphia, Pa. (*O. H. Schmitt, U. of Minnesota, Minneapolis 14, Minn.*)

25–26 7th Scintillation Counter Symp. spons'd by AIEE, AEC, IRE, NBS at Hotel Shoreham, Washington, D. C. (*G. A. Morton, RCA Labs, Princeton, N. J.*)

29–4 Pittsburgh Conf. on Analytical Chem. & Applied Spectroscopy in Pittsburgh (*L. P. Melnick, US Steel Corp., Monroeville, Pa.*)

March

2–4 Low- and Medium-Energy Nuclear Physics, Soc. Française de Physique colloq., Grenoble (*F. Netter, BP No. 2, Gif-sur-Yvette, Saclay, France*)

4–5 **American Physical Society,** Warwick & Shamrock-Hilton Hotels, Houston, Tex. (*K. K. Darrow, 538 W. 120 St., New York 27, N. Y.*)

7–8 Heat Transfer Symp., U. of Fla. (*J. C. Reed, U. of Fla., Gainesville, Fla.*)

8 Physics Club of Chicago (The Argonne Zero Gradient Synchrotron by A. Crew) Hamilton Hotel, Chicago (*E. L. Bussell, W. M. Welch Mfg. Co., 1515 Sedgwick St., Chicago 10, Ill.*)

9 Physics Club of the Lehigh Valley, Lehigh U., Bethlehem (*A. E. Blakeslee, Bell Telephone Labs, Allentown, Pa.*)

9–11 Mechanical Properties of Engineering Ceramics spons'd by N. C. State Col. School of Eng., OOR, US Army at N. C. State Col. (*W. W. Kriegel, N. C. State Col., Raleigh, N. C.*)

9–11 ISA Temperature Measurement Symp., Deshler Hilton Hotel, Columbus, Ohio (*Instrument Soc. of Am., 313 Sixth Ave., Pittsburgh 22, Pa.*)

21–22 Classical & Quantum Turbulence, British Phys. Soc. Conf., Oxford (*Miss A. C. Stickland, 1 Lowther Gardens, London, S. W. 7, England*)

21–24 **American Physical Society,** Hotel Sheraton-Cadillac, Detroit, Mich. (*K. K. Darrow, 538 W. 120 St., New York 27, N. Y.*)

21–24 **APS Div. of Solid-State Physics,** Hotel Sheraton-Cadillac, Detroit, Mich. (*E. Burstein, U. of Pa., Philadelphia 4, Pa.*)

21–24 IRE Internat'l Convention, Waldorf-Astoria Hotel & NY Coliseum, NYC (*Inst. of Radio Eng., 1 E. 79 St., New York 21, N. Y.*)

23–25 Optical Spectrometric Measurements of High Temperatures Symp., U. of Chicago (*F. Brech, Labs for Applied Science, U. of Chicago, Chicago 37, Ill.*)

24–25 IRE Human Factors in Electronics Symp., *attendance limited,* NYC (*J. E. Karlin, Bell Telephone Labs, Murray Hill, N. J.*)

24–26 Nat'l Academy of Sciences—Nat'l Research Council, ann. mtg., Washington, D. C. (*NAS-NRC, 2101 Constitution Ave., Washington 25, D. C.*)

26 **AAPT Northern Calif. & Southern Calif. Sections** joint mtg., Calif. State Polytechnic Col., San Luis Obispo (*Barbara F. Canty, Sacramento State Col., Sacramento 19, Calif.*)

29–2 Nat'l Science Teachers Assoc., ann. conv., Kansas City, Mo. (*Beatrice M. Gudridge, Nat'l Education Assoc., 1201 16th St., N. W., Washington 6, D. C.*)

30–31 Polymeric Progress, internat'l conf., Wm. Beveridge Hall, London U. (*The Plastics Inst., 6 Mandeville Pl., London, W. 1, England*)

April

4–8 6th Nuclear Congress, NY Coliseum, NYC (*F. M. Howell, 29 W. 39 St., New York 18, N. Y.*)

5–7 Naval Structural Mechanics, symp. spons'd by ONR & Brown U. at Brown U. (*P. S. Symonds, Brown U., Providence 12, R. I.*)

6–8 Solid-State Microwave Amplifiers Conf. spons'd by Radio Spectroscopy Group & British Inst. of Physics at U. of Nottingham (*Sec'y, The Inst. of Physics, 47 Belgrave Sq., London, S. W. 1, England*)

6–8 Inst. of Environmental Sciences mtg. on Hyper-Environments—Space Frontier, Biltmore Hotel, Los Angeles (*M. S. Christensen, 6251 Marita St., Long Beach 15, Calif.*)

7–9 **Optical Society of America,** Hotel Statler, Washington, D. C. (*Mary Warga, 1155 16th St., N.W., Washington 6, D. C.*)

7–9 **APS Southeastern Sect.,** ORNL host, Gatlinburg, Tenn. (*H. Carr, Ala. Polytechnic Inst., Auburn, Ala.*)

11–12 Inter-Society Color Council, ann. mtg., Philadelphia Museum Col. of Art, Philadelphia, Pa. (*R. M. Evans, Eastman Kodak Co., Bldg. 65, Rochester 4, N. Y.*)

19–21 Active Networks & Feedback Systems, internat'l symp., Engineering Societies Bldg., NYC (*H. J. Carlin, Microwave Research Inst., 55 Johnson St., B'klyn 1, N. Y.*)

19–22 Metallurgy of Plutonium, internat'l symp. incl. session on nuclear fuels, Grenoble (*Soc. Française de Métallurgie, 25 rue de Clichy, Paris, France*)

20–22 Electronic Conductivity in Organic Solids, conf. spons'd by OOR & ONR at OOR, Duke U. (*M. Silver, OOR, Box CM, Duke Station, Durham, N. C.*)

PANORAMIC PHYSICS RESEARCH

ACOUSTICS
Shear waves in solids
Kilomegacycle ultrasonics
Non-linear magnetostriction
Sound velocity in liquid-gas mixture
Sound propagation and weather

CHEMICAL PHYSICS
Radiation induced polymerization
Structural effects in radiation chemistry
Radiation produced free radicals
Reactions in organic halogen compounds
Ionization cross sections

NUCLEAR PHYSICS
K-shell ionization by mesons
Neutron imaging detectors
Beta-excited x-ray sources
Gamma-ray backscattering
Low Temperature scintillations

OPTICS
Image structure and information theory
Fiber optics research
IR and UV backgrounds
Studies in frustrated total reflection
Ultraviolet photon counters

PLASMA PHYSICS
Stability of finite plasmas
Shock wave reactions
High resolution electron guns
Gas discharge neutron source
Luminescence in shocks

SOLID STATE PHYSICS
Excess noise in semiconductors
Organic semiconductors
High temperature thermoelectricity
Microwave absorption in solids
Radiation effects on solid surfaces

REACTOR PHYSICS
Dust fueled reactor concept (ADFR)
Radiation streaming
Critical facility safety
Radiation heating from nuclear devices
Boiling water reactor redesign

The single goal of a contract research laboratory is to be continuously engaged in significant research programs. Because the support for such research comes from industrial and government laboratories having diverse interests, the scope of activities is necessarily panoramic, as shown in this abbreviated list of research programs currently underway in the Physics Division of Armour Research Foundation.

More than half of all research programs in the Physics Division are initiated as a direct result of staff-generated research ideas which are of personal interest to the scientist. Such Project Suggestions are encouraged and even expected of our senior physicists since through them we are able to make our interests known to the many organizations that support external research.

In this very real sense, staff scientists are free to pursue research problems of their own choosing. If he wishes, a senior staff member may lead a small group of physicists in these programs, thus having the capability of effectively pursuing the technical aspects without acquiring severe administrative burdens. The opportunity to contribute to interdisciplinary research is greatly enhanced by the diversity of our interests and because the Division's 130-man staff is concentrated in a single modern laboratory building with excellent experimental and computational facilities. These advantages are coupled with significant fringe benefits including competitive salaries, four-week vacations and tuition-free graduate study.

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APPLY TO: Chairman, Science Department
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1960

20–22 Manned Space Stations Symp. spons'd by IAS, NASA, & Rand Corp. at Ambassador Hotel, Los Angeles (*J. H. Huth, Rand Corp., 1700 Main St., Santa Monica, Calif.*)

22–23 **APS New York State Section** mtg. on Radio Astronomy & Rocket Probe Studies, Colgate U., Hamilton (*O. E. Miller, Bldg. 65, 1669 Lake Ave., Rochester 4, N. Y.*)

22–23 **APS Ohio Section,** Antioch Col., Yellow Springs (*L. E. Smith, Denison U., Granville, Ohio*)

22–23 High-Temperature Resistance & Thermal Degradation of Polymers Symp., London (*Soc. of Chem. Industry, 14 Belgrave Sq., London, S. W. 1, England*)

25–27 Nat'l Academy of Sciences, ann. mtg., Washington, D. C. (*NAS, 2101 Constitution Ave., Washington 25, D. C.*)

25–28 **American Physical Society,** Willard, Raleigh, Sheraton Park, & Shoreham Hotels, Washington, D. C. (*K. K. Darrow, 538 W. 120 St., New York 27, N. Y.*)

29–30 Thermonuclear Processes Conv., London (*Institution of Electrical Eng., Savoy Pl., London, W. C. 2, England*)

Easter Nuclear Physics, British Physical Soc. Conf., Liverpool U. (*Miss A. C. Stickland, 1 Lowther Gardens, London, S. W. 7, England*)

? Celebration of Centenary of the Discovery of Applied Spectroscopy by Bunsen & Kirchhoff, Heidelberg (*G. Scheibe, Marsbruckstr. 186, Dortmund-Atlerbeck, Germany*)

May

2–3 Reactions between Complex Nuclei, **APS** a sponsor, Gatlinburg (*R. S. Livingston, Oak Ridge Nat'l Lab, Oak Ridge, Tenn.*)

3–6 Fuel Element Fabrication with Special Emphasis on Cladding Materials, Internat'l Atomic Energy Agency symp., Vienna (*IAEA, 11 Kärntner Ring, Vienna 1, Austria*)

9–12 Am. Rocket Soc., mtg. & astronautical exposition, Ambassador Hotel, Los Angeles, Calif. (*R. L. Hohl, ARS, 500 Fifth Ave., New York 36, N. Y.*)

17–18 Superconductive Techniques for Computing Systems Symp. spons'd by ONR Information Systems Branch in Dept. of Interior Auditorium, Washington, D. C. (*Miss J. Leno, Code 430A, Office of Naval Research, Washington 25, D. C.*)

25–26 Refractory Materials & Alloys, Metallurgical Soc. of AIME symp., McGregor Center, Wayne St. U. (*C. L. Corey, Wayne St. U., Detroit 2, Mich.*)

30–4 Reactivity of Solids, 4th Internat'l Symp. spons'd by IUPAP & IUPAC, Amsterdam (*G. van Gijn, Technische Hogeschool, Eindhoven, Netherlands*)

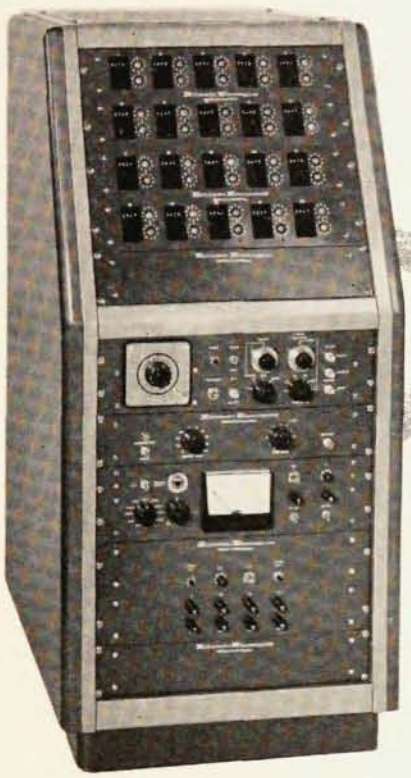
31–2 Frequency Control Symp. spons'd by US Army Signal Res. & Dev. Lab, Shelburne Hotel, Atlantic City (*E. A. Gerber, US Army Signal R&D Lab, Fort Monmouth, N. J.*)

June

8–11 Canadian Assoc. of Physicists, ann. cong., Kingston, Ont. (*G. D. Scott, U. of Toronto, Toronto, Ont., Canada*)

9–11 **Acoustical Society of America,** Brown U. (*R. B. Lindsay, Brown U., Providence 12, R. I.*)

Pulse Height Analysis



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KEY SPECIFICATIONS **Number of Channels,** 20. **Channel Width,** 1 volt, nominal. **Channel Width Stability,** Typically, better than 1% of a channel per week. **Zero Level Stability,** Better than 0.1% per week. **Window Width,** 20 volts, nominal. **Window Position Range,** 5 to 105 volts in 5 preset steps or continuous. **Channel Count Capacity,** 1,000,000. **Double Pulse Resolution Complete Analyzer,** 1.0 microsecond at window amplifier input. **Channel Scalers,** 10.0 microseconds.

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16

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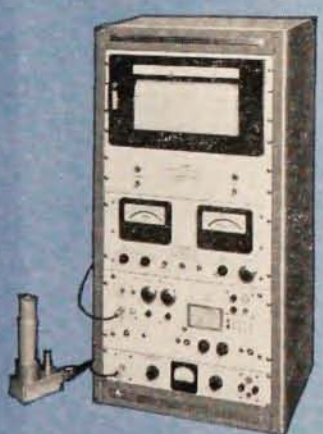

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1960

13–15 Nat'l Microscopy Symp. spons'd by McCrone Assoc., Del Prado Hotel, Chicago (*W. C. McCrone Associates, 501 E. 32 St., Chicago 16, Ill.*)

13–17 Molecular Structure & Spectroscopy Symp., Ohio State U. (*R. A. Oetjen, Ohio State U., Columbus 10, Ohio*)

13–18 Many Particle Problems, conf. spons'd by IUPAP & Dutch Physical Soc., *by invitation*, Utrecht (*Inst. for Theor. Physics, Maliesingel 23, Utrecht, Netherlands*)

14–18 Macromolecules, internat'l IUPAC symp., Moscow (*V. A. Kargin, I Akademitscheki Proyezd No. 18, Moscow V-134, USSR*)

15–17 **American Physical Society**, Sheraton-Mount Royal Hotel, Montreal, Canada (*K. K. Darrow, 538 W. 120 St., New York 27, N. Y.*)

15–17 1960 Heat Transfer & Fluid Mechanics Inst., Stanford U. (*K. Karamcheti, Stanford U., Stanford, Calif.*)

20–22 Atomic & Molecular Gas Beams Symp., *by invitation*, U. of Denver (*G. Miller, Denver Research Inst., U. of Denver, Denver 10, Colo.*)

21–30 Internat'l Nuclear Power Exhibition, Earls Court, London (*Nuclear Power Exhib. Ltd., Francis House, Francis St., London, S. W. 1, England*)

22–24 Electronic Standards & Measurements Conf. spons'd by NBS, IRE, AIEE, at NBS Labs, Boulder, Colo. (*H. Finke, Polytech. Res. & Dev. Co., 202 Tillary St., Brooklyn 1, N. Y.*)

26–1 Mass Spectrometry, ann. mtg. spons'd by ASTM Comm. E-14, Atlantic City, N. J. (*V. H. Dibeler, Nat'l Bureau of Standards, Washington 25, D. C.*)

? Radiation Dosimetry in Physical Sciences, Internat'l Atomic Energy Agency symp., Vienna (*IAEA, 11 Kärntner Ring, Vienna 1, Austria*)

July

11–12 Response of Materials to High-Velocity Deformation, Metallurgical Soc. of AIME conf., Estes Park, Colo. (*Metallurgical Soc. of AIME, 29 W. 39 St., New York 18, N. Y.*)

11–16 Creep in Structures, IUTAM symp., Stanford (*N. J. Hoff, Stanford U., Stanford, Calif.*)

21–27 Medical Electronics, internat'l conf. & exhibition, Olympia, London, England (*L. B. Lusted, U. of Rochester School of Medicine, Rochester 20, N. Y.*)

25–6 Internat'l Union of Geodesy & Geophysics, Helsinki, Finland (*W. E. Smith, Am. Geophys. Union, 1530 P St., N.W., Washington 5, D. C.*)

? Role of Science in the Advancement of New States, internat'l conf., Rehovoth (*Weizmann Inst. of Science, Rehovoth, Israel*)

? Diamond Physics, British Physical Soc. Conf., Reading U. (*Miss A. C. Stickland, 1 Lowther Gardens, London, S. W. 7, England*)

August

3–6 Rarefied Gas Dynamics, 2nd internat'l symp., *by invitation*, at U. of Calif., Berkeley (*Eng. & Sciences Ext., U. of Calif., 2451 Bancroft Way, Berkeley 4, Calif.*)

9–12 Inelastic Scattering of Neutrons in Solids & Liquids, Internat'l Atomic Energy Agency symp., Vienna (*IAEA, 11 Kärntner Ring, Vienna 1, Austria*)

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1960

15–20 Internat'l Astronautical Federation Cong., Stockholm (*IAF-60, Postbox 5045, Stockholm 5, Sweden*)

15–24 Internat'l Union of Crystallography at Cambridge, Eng.: 5th Gen. Assembly & Internat'l Cong. (*D. W. Smits, 10 Bloemsingel, Groningen, Netherlands*); Symposia on Aug. 23–24 (*W. H. Taylor, Cavendish Lab, Cambridge, England*)

18–31 Cosmical Gas Dynamics Symp. spons'd by IAU & IUTAM, *by invitation*, Varenna, Italy (*R. N. Thomas, Nat'l Bureau of Standards, Boulder, Colo.*)

22–24 Lattice Defects & the Mechanical Properties of Solids Symp. spons'd by IUPAP in assoc. with IUCr, Cambridge (*P. B. Hirsch, Cavendish Lab, Free School Lane, Cambridge, England*)

22 Inter-American Nuclear Energy Comm., Washington, D. C. (*Div. of Science Dev., Pan American Union, Washington 6, D. C.*)

25–3 High-Energy Nuclear Physics, IUPAP conf., *by invitation*, U. of Rochester (*W. A. Jamison, U. of Rochester, Rochester 20, N. Y.*)

28–3 Electron Microscopy, European Regional Conf. organized by Nederlandse Vereniging voor Electronenmicroscopie under auspices of Internat'l Fed. of Electron Microscope Soc's., Delft (*A. L. Houwink, Julianalaan 67A, Delft, Netherlands*)

29–2 8th Internat'l Symp. on Combustion, Calif. Inst. of Tech. (*S. S. Penner, Calif. Inst. of Tech., Pasadena, Calif.*)

29–2 Internat'l Conf. on Semiconductor Physics, IUPAP & Czech. Acad. of Sciences, Prague (*M. Matyas, Inst. of Technical Physics, Cukrovarnicka 10, Prague 5, Czechoslovakia*)

29–3 Nuclear Structure, IUPAP colloq., Queen's U., Kingston, Ont. (*L. G. Elliott, Atomic Energy of Canada, Chalk River, Ont., Canada*)

29–3 Low-Temperature Physics, internat'l conf., IUPAP, Toronto (*A. C. H. Hallett, U. of Toronto, Toronto 5, Ont., Canada*)

31–7 Internat'l Congress of Theoretical & Applied Mechanics, IUTAM, Stresa, Italy (*H. L. Dryden, 1512 H St., N. W., Washington 25, D. C.*)

September

5–15 Internat'l Scientific Radio Union, London, England (*URSI, 7 place Emile Danco, Brussels 18, Belgium*)

8–10 Internat'l Union of Pure & Applied Physics, general assem., Ottawa, Canada (*P. Fleury, Inst. d'Optique, 3 blvd. Pasteur, Paris 15, France*)

12–16 Atomic Masses, IUPAP colloq., *attendance limited*, McMaster U. (*H. E. Duckworth, McMaster U., Hamilton, Ont., Canada*)

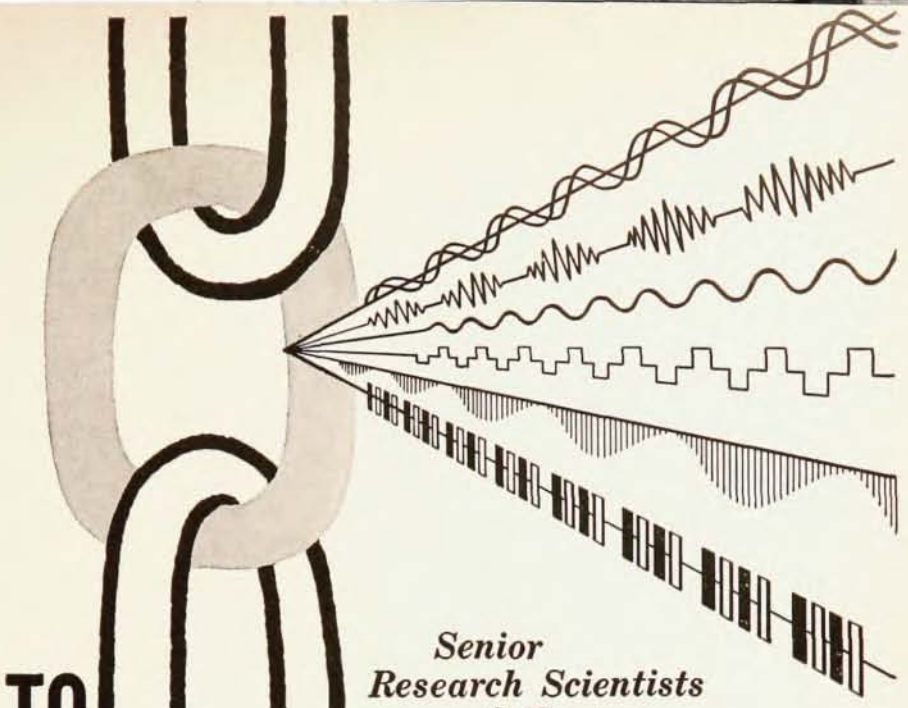
12–16 Internat'l Council of the Aeronautical Sciences Cong., Zurich, Switzerland (*Inst. of The Aeronautical Sciences, 2 E. 64 St., New York 21, N. Y.*)

22–23 High-Temperature Resistance & Thermal Degradation of Polymers Symp., London (*Soc. of Chem. Industry, 14 Belgrave Sq., London, S. W. 1, England*)

? AMPERE Conf., Pisa (*A. Gozzini, Inst. di Fisica, Piazza Torricelli, Pisa, Italy*)

October

4–22 Internat'l Comm. of Weights & Measures mtg. at Sèvres & gen. conf. in Paris (Oct. 11–19) (*Bur. Internat'l des Poids & Mesures, Pavillon de Breteuil, Sèvres, France*)



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12–14 Gaseous Electronics Conf. spons'd by **APS Div. of Electron Physics** & US Naval Postgraduate School at US Naval Postgraduate School (*N. L. Oleson, US Naval Postgraduate School, Monterey, Calif.*)

13–15 **Optical Society of America,** Somerset Hotel, Boston, Mass. (*Mary Warga, 1155 16th St., N. W., Washington 6, D. C.*)

20–22 **Acoustical Society of America,** Sheraton-Palace Hotel, San Francisco (*V. Salmon, Stanford Research Inst., Menlo Park, Calif.*)

24–27 Chemical Effects of Nuclear Transformation, Internat'l Atomic Energy Agency symp., Vienna (*IAEA, 11 Kärntner Ring, Vienna 1, Austria*)

31–2 **Society of Rheology,** Mellon Inst., Pittsburgh, Pa. (*W. R. Willets, Titanium Pigment Corp., 99 Hudson St., New York 13, N. Y.*)

November

25–26 **American Physical Society,** Chicago, Ill. (*K. K. Darrow, 538 W. 120 St., New York 27, N. Y.*)

December

12–15 Atomic Industrial Forum mtg. at Fairmont Hotel & exhibition at Calif. Masonic Memorial Temple, San Francisco, Calif. (*AIF, 3 E. 54 St., New York 22, N. Y.*)

? **American Physical Society,** Berkeley, Calif. (*W. A. Nierenberg, U. of Calif., Berkeley, Calif.*)

1961

January

31–4 **American Physical Society,** Hotel New Yorker, NYC (*K. K. Darrow, 538 W. 120 St., New York 27, N. Y.*)

March

22–24 **American Physical Society,** U. of Buffalo, Buffalo (*K. K. Darrow, 538 W. 120 St., New York 27, N. Y.*)

April

24–27 **American Physical Society,** Nat'l Bureau of Standards, Washington, D. C. (*K. K. Darrow, 538 W. 120 St., New York 27, N. Y.*)

June

22–24 **American Physical Society,** U. of Mexico, Mexico City (*K. K. Darrow, 538 W. 120 St., New York 27, N. Y.*)

July

? High-Energy Nuclear Physics, IUPAP conf., Geneva, Switzerland (*R. E. Marshak, U. of Rochester, Rochester, N. Y.*)

September

6–9 **American Physical Society,** U. of Seattle, Seattle, Wash. (*W. A. Nierenberg, U. of Calif., Berkeley 4, Calif.*)

? Magnetism, IUPAP colloq., Tokyo, Japan (*P. Fleury, 3 blvd. Pasteur, Paris 15, France*)

Theoretical Solid State Physicist

Battelle is currently in the process of expanding and augmenting its activities in the area of solid state physics. The initial phase of this expansion will be the addition of ten to twelve men to the existing theoretical group. This will be accompanied by expansion of associated experimental activities.

The personnel of the group will have several functions. At least half of each man's time will be devoted to fundamental research in his own field, supported in a large measure by Institute funds. The remainder of his time will be devoted to assistance to other divisions of the Institute in applied research programs in the area of his specialization.

It is planned to add as soon as possible two men whose qualifications include a Ph.D. degree in theoretical physics. One of these men should primarily be interested in imperfections in solids while the other should have research interests in the electronic structure of metals. These specific needs arise, of course, out of Battelle's extensive interests in the property and structure of metals. Future needs will be of the same general nature although as the group grows, other facets of solid state theory will be encompassed.

For additional information you are invited to write directly to:

Dr. Frederick J. Milford
Mathematical Physics Division
Battelle Memorial Institute
505 King Avenue
Columbus 1, Ohio