(P. H. Robbins, NSPE, 309 Bancroft Bldg., Univ. of Nebraska, Lincoln.)

16-17. Association of Midwest College Biology Teachers, conf., Notre Dame, Ind. (G. R. Bernard, Dept. of Biology, Univ. of Notre Dame, Notre Dame, Ind.)

17-18. American Acad. of Psychotherapists, 4th annual conf., New York, N.Y. (AAP, 30 Fifth Ave., New York 11.)

17-25. Plastics Industry, intern. fair, Düsseldorf, Germany. (Nordwestdeutsche Ausstellungs Gesellschaft (NOWEA), Ehrenhof 4, Düsseldorf.)

18-22. Electrochemical Soc., Columbus, Ohio. (R. K. Shannon, ES Inc., 216 W. 102 St., New York 25.)

18-23. American School Health Assoc., Atlantic City, N.J. (A. O. DeWeese, 515 E. Main St., Kent, Ohio.)

18-23. American Soc. of Plastic and Reconstructive Surgery, Miami Beach, Fla. (T. R. Broadbent, 508 E. South Temple, Salt Lake City, Utah.)

19-21. High Polymer, 9th Canadian, Toronto, Ontario, Canada. (K. E. Russell, Dept. of Chemistry, Queen's Univ., Kingston, Ontario.)

19-22. Semiconductor Symp. (Electrochemical Soc.), Columbus, Ohio. (A. C. Beer, Battelle Memorial Inst., 505 King Ave., Columbus 1, Ohio.)

19-23. American Public Health Assoc., 87th annual, Atlantic City, N.J. (B. F. Mattison, 1790 Broadway, New York 19.)

19-23. American Soc. of Civil Engineers, annual conv., Washington, D.C. (W. H. Wisley, ASCE, 33 W. 39 St., New York 18.)

19-23. Radioisotopes in the Biosphere, symp., Minneapolis, Minn. (R. B. Caldecott, Center for Continuation Study, Univ. of Minnesota, Minneapolis 14.)

19-31. International Cong. of Therapeutics, Strasbourg, France. (Prof. Fontaine, Dayen de la Faulte de Strasbourg, France.)

19-31. Pan American Medical Assoc., 10th conf., Mexico, D.F., Mexico. (J. Eller, PAMCA, 745 Fifth Ave., New York 22.)

20-21. Reprocessing of Nuclear Fuels, AEC symp., Richland, Wash. (J. T. Christy, Hanford Operations Office, U.S. Atomic Energy Commission, Richland, Wash.)

20-22. Standards, 10th natl. conf., Detroit, Mich. (K. G. Ellsworth, American Standards Assoc., 70 E. 45 St., New York 17.)

20-23. Clean Air, intern. conf., London, England. (National Soc. for Clean Air, Palace Chambers, Bridge St. London, S.W.1, England.)

22–24. Acoustical Soc. of America, fall meeting, Cleveland, Ohio. (W. Waterfall, ASA, 335 E. 45 St., New York 17.)

22-24. American Documentation Inst., annual, Bethlehem, Pa. (C. G. LaHood, Jr., Library of Congress, Washington 25.)

22–25. British Medical Assoc., annual clinical, Norwich, England. (W. Hedgcock, BMA House, Tavistock Sq., London, W.C.1, England.)

23-24. Canadian Soc. for the Study of Fertility, Montreal, Canada. (J. F. Campbell, 238 Queen's Ave., London, Ont., Canada.)

23-25. American College of Cardiology, 8th annual, Philadelphia, Pa. (P. 11 SEPTEMBER 1959

Reichert, ACC, Empire State Bldg., New York 1.)

23–27. American Heart Assoc., annual, Philadelphia, Pa. (W. F. McGlone, AHA, 44 E. 23 St., New York 10.)

24–29. Darwin Centennial, intern. celebration, Chicago, Ill. (Office of Public Relations, Univ. of Chicago, Ill.)

24-29. First All-India Cong. of Zoology, Jabalpur. (B. S. Chauhan, Zoological Survey of India, 34 Chittaranjan Ave., Calcutta 12.)

26-27. American Cancer Soc., New York, N.Y. (ACS, 521 W. 57 St., New York 19.)

26-27. Griseofulvin and Dermatomy-

coses, intern. symp., Miami, Fla. (H. Blank, Dept. of Dermatology, Univ. of Miami School of Medicine, Miami 36.)

26-28. Aeronautical and Navigation Electronics, IRE conf., Baltimore, Md. (L. G. Cumming, IRE, 1 E. 79 St., New York 21.)

26-28. Analytical Chemistry in Nuclear Reactor Technology, 3rd conf., Gatlinburg, Tenn. (C. D. Susano, Oak Ridge Natl. Lab., Box Y, Oak Ridge, Tenn.)

26-28. Gas Lubricated Bearings, 1st intern. symp., Washington, D.C. (S. W. Doroff, Power Branch, Office of Naval Research, Washington 25.)

(See issue of 21 August for comprehensive list)



Two New Mettler Analytical Balances

TOP WEIGHING SPEED AND ACCURACY AT NEW LOW PRICES

- Increased Optical Range
- Priced Below Comparable Analytical Balances
- Full Sensitivity Under All Loads
- Patented Ring-Weights Exceed NBS Class S Tolerances
- Patented Air-Damping Unaffected by Pressure Changes
- Plastic Housing Insulates Against Temperature Variations

Two high-speed analytical balances have been added to the versatile Mettler "Multi-Purpose" line. They have the speed and accuracy of Mettler's other world-famous analytical balances . . . at prices \$100 and more below any comparable balance.

The H-15 Macro Balance has a capacity of 160 grams and an accuracy of ± 0.05 mg in differential weighings on the optical scale. It is \$125 less than the older Mettler B-5. The H-16 Semi-Micro model takes loads up to 80 grams and has ± 0.02 -mg accuracy in the optical range. It is \$100 less than the comparable Model B-6.

Both balances have an optical range of 200 mg... almost double that of the "B" balances. This means that more weighings can be made entirely on the optical scale, at maximum accuracy and speed. Ten to twenty seconds is ample; loads up to the full capacity of the balance can be "dialed" in thirty seconds.

Like all Mettler balances, the H-15 and H-16 are designed for substitution weighing under constant load . . . hence, at constant sensitivity. Their single beam-arm eliminates the inherent lever error of double-pan balances. Two sapphire knife-edges, instead of the usual three, reduce bearing errors. Patented ring-weights and air-damping reduce other sources of weighing errors. The molded plastic housing insulates against temperature changes.

There is now a Mettler Type H balance for nearly every laboratory application, priced in proportion to their increasing accuracy. Write today for a booklet describing the design and performance of all five balances in this versatile series: 139 Fisher Building, Pittsburgh 19, Pennsylvania.

B-108b





Order custom ware from our catalog ... get it fast ...get it right

The easiest, most dependable way to get your special glassware is to order it from Corning.

Look in our Catalog LG-1 and Supple-ment-there you will find 7308 special designs, ranging from tiny 5 ml micro flasks to giant 20 gallon reaction vessels.

Select what you need. Notify us-or your regular dealer - of the catalog number. Corning's master glassworkers will quickly turn out your ware to precise specifica-tions. It's then carefully packed and shipped to you in ample time to meet your deadline.

The ware you get is made from our well-known glass No. 7740-the same as that used in your regular PYREX labware -so you get the resistance to thermal shock and corrosion you're used to.

What if it's not in the catalog? Whenever you cannot find exactly what you want in the catalog, send us a rough sketch and description of what you want. We'll quickly tell you

how much the item will cost and how long it will take for delivery.

If you don't have LG-1 or Supple-ment No. 3, just send us a card and we'll mail you copies by return mail



Special Apparatus Section



The information reported here is obtained

from manufacturers and from other sources con-sidered to be reliable, and it reflects the claims of the manufacturer or other source. Neither Science nor the writer assumes responsibility for the accuracy of the information. A coupon for use in mak-ing inquiries concerning the items listed appears on page 646.

New Products

CLOSED-CIRCUIT TELEVISION CAMERA is designed to be inserted into tubes 3 in. or more in diameter for inspection of inside surfaces. The television monitor and the camera-control-power unit, which complete the closed circuit system, are mounted on a cart. (Diamond Power Specialty Corp., Dept. 37)

■ INFRARED ABSORPTION CELL CONSISTS OF a single block of rock salt in which a cavity has been produced by ultrasonic machining. Faces of the cell are cleaved. Thicknesses range from 0.1 to 5 mm. The cavities are filled and cleaned by hypodermic syringe and are stoppered with polyethylene. Adapters are available for use with any commercial infrared spectrometer. (Connecticut Instrument Corp., Dept. 38)

SPECTROPHOTOMETER ACCESSORIES for the manufacturer's ultraviolet-visiblenear-infrared spectrophotometer include a specular-reflectance attachment and a diffuse-reflectance-sphere attachment. The specular-reflectance attachment, suitable for measuring flat surfaces, provides a sample beam that strikes the sample at incident angle of 20 deg. The diffuse-reflectance sphere permits measurements of solid samples as well as liquid or solid scattering samples. Beam size at the sample is 25 by 32 mm. The specular component can be retained or rejected. (Perkin-Elmer Corp., Dept. 39)

TELEMETERING SIGNAL GENERATOR has radio-frequency of range 195 to 270 Mcy/sec. Three frequency-deviation ranges, 0 to 24, 0 to 80, and 0 to 240 kcy/sec, are each continuously adjustable. Internal amplitude modulation from 0 to 50 percent is available. Overall FM distortion at 75 kcy/sec is less than 2 percent; at 240 kcy/sec it is less than 1 percent. Maximum open-circuit output voltage is 0.4 v. Accuracy is ± 0.5 percent after warm-up. (Boonton Radio Corp., Dept. 42)

TAPE PERFORATOR has punching speed of 40 columns per second. As the drive shaft of the device completes half of the revolution required to punch each column, the perforator will accept the signal from the next column. Tape up to 1-in. wide is accepted with code column up to eight channels. Models with up to 30 channels are available on special order. (Telecomputing Corp., Dept. 44)

Carcinogenesis by Ultraviolet

An Essay in Ouantitative Biology by Harold F. Blum

Explores the process by which ultraviolet light induces cancer, discusses some practical aspects regarding skin cancer in man, and offers a new viewpoint on this disease. After describing the course of carcinogenesis, based on experimental data, Dr. Blum does not hesitate to speculate boldly-always being careful to remain within the limits set by experimental evidence. He bases his challenging speculations on the bedrock of quantitative data, and presents his arguments in readable, non-mathematical form. Investigations in the Biological Sciences, No. 2. \$6.50

At your bookstore, or







Designed and sturdily built for educational or industrial use, UNITRON Model MSL has the same optical and mechanical features found in higher priced instruments. · Erect, three-dimensional image Coated optics and prisms Achromatic 2X paired objectives, paired wide field eyepieces Working distance 75mm. Vertical binocular body with inter-pupillary and diopter adjustments Total focusing excursion 70mm Heavy base, removable glass stage plate, stage clips Choice of one magnification 10X, 20) or 30X, extra eyepieces available Complete in fitted hardwood cabinet FREE 10 DAY TRIAL ALSO AVAILABLE Model MSL-A with magnificatio 5X or 10X or 15X \$120.00 Pair \$19.50 5X or 10X o Extra eyepiec Model LS Ste INSTRUMENT DIVISION of UNITED SCIENTIFIC CO. 204-206 MILK STREET . BOSTON 9, MASS. Please rush to me, UNITRON's Microscope Catalog. 40-2 Name Company Street_ City. State

SCIENCE, VOL. 130

640

• SEQUENCE TIMER, operated by battery, is reported to have a very low power requirement. The unit is of cam-operated microswitch type. It is driven by a motor with speed regulation accurate within ± 1 percent for voltage drops up to 50 percent. Switch capacity may be 5 or 20 amp. (Brailsford & Co., Dept. 41)

■ PRESSURE-RATIO COMPUTER measures compressor inlet and outlet pressures, indicates pressure ratio on an integral scale, and generates a pneumatic signal proportional to the ratio. Pressure. elements are available for use over a continuous range from 0 absolute to 500 lb/in.² gage. Ratios of 1 to 5 can be measured throughout a pressure-turndown range of 20 to 1. (Hagan Chemicals & Controls, Inc., Dept. 45)

■ METERING PUMP features volume-perstroke adjustability while running. Pump bodies are made of ceramic, tempered glass, or Teflon. Plungers are ceramic. Stroke rate is 95 per minute; stroke length is adjustable from 0 to 19/32 in. The pump will operate against back pressure of 28.5 lb/in². (C. H. Stoelting Co., Dept. 49)

• ULTRASONIC FLAW DETECTOR is a portable instrument offering choice of any frequency of operation between 0.4 and 10 Mcy/sec, depending on the transducer selected. Adjustment to any frequency within the range is automatic. An optional flaw alarm signals that test limits have been exceeded. (Branson Instruments, Inc., Dept. 50)

CLOSED-CIRCUIT TELEVISION SYSTEM provides 1000-line horizontal resolution and 700-line vertical resolution. Bandwidth for the complete system is 20 Mcy/sec. The system is available with preset line rates of 675, 875, or 1035 lines per frame at 60 fields, 30 frames per second. Aspect ratio is variable between 1:1 and 3:4 (height to width). Variations of line voltage \pm 10 percent of nominal 117 v do not cause picture deterioration. (General Precision Laboratories, Inc., Dept. 51)

IMPEDANCE BRIDGE measures inductance and Q of inductors, capacitance and dissipation factor of capacitors, and a-c and d-c resistance. Resistance range is 1 milliohm to 10 megohm; capacitance 1 pf to 1000 μ f; inductance 1 μ h to 1000 h. Dissipation factor D of capacitors is measured from 0.001 to 50 at 1 kcy/sec. Q of inductors is measured from 0.02 to 1000 at 1 kcy/sec. Accuracies of \pm 1 percent for R, C, and Land \pm 5 percent for Q and D are claimed. (General Radio Co., Dept. 54) JOSHUA STERN

National Bureau of Standards, Washington, D.C.

11 SEPTEMBER 1959



Tritium labeled compounds have become increasingly significant in biological research. Tritium, with its lowenergy beta-emission, allows precise localization by the radioautographic technique. Now, direct evidence on cell nuclear processes is available, where formerly only inferences could be made. Tritiated compounds are ideal for investigating cell formation and turnover, genetic patterns, effect of intra-cellular radiation and growth inhibitions in neoplasms.

Schwarz Laboratories, Inc., first to supply tritiated thymidine, offers many new tritium labeled compounds as research tools for tracing cell metabolism. Extensive use of ultraviolet absorption, chromatography and isotope dilution assays guarantee that Schwarz Tritiated Compounds are Radiochemically Pure. You can depend on Schwarz Quality Radiochemicals.

Properties of all Tritiated Compounds Stable Radioactive Label—Half-Life 12½ years
Pure Beta Emitter at 0.018 MEV (Max)
High Resolution in Radioautographs

Thymidine

New high specific activity 3.0 curies/mM., also available at 0.36, 1.88 curie/mM. Rapid incorporation into DNA. The stability of Tritiated Thymidine over a six month period has been established by continuing Storage Stability Tests.

Cytidine

Specific activities 0.36, 1.0 Curie/mM. Useful for localizing active sites of RNA synthesis within the cell.

Adenosine

Specific Activity: 1.0 curie/mM.

Uridine Specific Activity: 0.6 curie/mM.

2-Deoxy-D-Ribose

Specific Activity: 27 mc./mM.

Cytidine 5' - Monophosphate

Specific Activity: 0.3 curie/mM.

Schwarz Tritiated Compounds are supplied in Sterile Standardized Vials.



Write today giving your requirements for these or other tritiated compounds. Further information and complete price list will be sent on request.

SCHWARZ LABORATORIES, INC. 230B Washington Street, Mount Vernon, N. Y.

The Sigma Cooperative Allowance

What it is:

Non-profit laboratories Anywhere in the World that need Sigma reagents, but do not have the necessary dollars for their purchase, may request an allowance of up to 100% of the invoice. Such requests will be carefully considered for approval.

If they are in a hurry, the request should be by Long Distance *Collect* Telephone. It is a Pleasure to pay such a bill!

In other words:

If you have plenty of money, purchase your reagents *Anywhere*. If you are pressed to meet your other obligations, Call Sigma! No Obligation.

P.S. Even if you don't need our financial assistance at this time, we really hope you will always insist on Sigma Reagents! If purity is essential, we don't think we have an equal.

Inquiries Invited

LET US KNOW

if you did not receive our April 1959 Catalog.

KEEP US ADVISED

of Address Changes (Always include your Old Address).

TELEPHONE COLLECT from anywhere in the world Day, Station to Station, PRospect 1-5750 Night, Person to Person, Dan Broida, WYdown 3-6418





MANUFACTURERS OF THE FINEST BIOCHEMICALS AVAILABLE





AAAS SYMPOSIUM VOLUMES

6" x 9", illustrated, clothbound

Grasslands, 424 pp., 1959	\$ 9.00	
Evolution of Nervous Control, 240 pp., 1959	5.57	
Zoogeography, 510 pp., 1958	12.00	
The Species Problem, 404 pp., 1957	8.75	
Atomic Energy and Agriculture, 460 pp., 1957	9.50	
The Beginnings of Embryonic Development, 408		
pp., 1957	8.75	
Alcoholism, 220 pp., 1957	5.75	
Tranquilizing Drugs, 205 pp., 1957	5.00	
Venoms, 480 pp., 1956	9.50	
The Future of Arid Lands, 464 pp., 1956	6.75	
Water for Industry, 140 pp., 1956	3.75	
Psychopharmacology, 175 pp., 1956	3.50	
Luminescence of Biological Systems, 466 pp., 1955		
Advances in Experimental Caries Research, 246		
pp., 1955	6.75	
Antimetabolites and Cancer, 318 pp., 1955	5.75	
Monomolecular Layers, 215 pp., 1954	4.25	
Fluoridation as a Public Health Measure, 240 pp.,		
1954	4.50	

Members enjoy reduced prices for prepaid orders

AAAS, 1515 Mass. Ave., NW, Washington 5, D.C.

ENGINEERS . SCIENTISTS

An Unprecedented Opportunity to Enter the Field of

ARGE SYSTEMS with

GENERAL ELECTRIC

Yesterday's systems must today be considered only "subsystems" to be integrated into a larger entity. The growing demand of the defense establishment for super-systems offers challenges of unprecedented scope to the engineering profession.

Now HMED offers able engineers an opportunity to get full exposure to this field of the future - to learn, grow and develop their capacities for systems thinking, by working with men who have been in-at-thebeginning of major systems design and integration programs.

Facts and Figures Behind Growth Opportunities Here:

At HMED you are joining an organization providing professional people with an outstanding combination of CAREER STABILITY plus INDIVIDUAL PROGRESS. In the last few years this G. E. department has doubled its dollar business volume; tripled its engineering laboratory and office space; *quadrupled* the number of its supervisors and managers, from 26 to 101, with 90% promoted from within; quintupled its professional engineering staff.

COMMUNICATIONS ENGINEERS – To work with Propagation consultant in frequency choice versus sight configuration, and design of optimum communication and sight configu-ration. (BS in EE and 3 years' experience necessary)

RADAR SYSTEMS ENGINEERS-To integrate Ly varied data acquisition equipment into com-plex electronic control systems. (Advanced EE degree preferred with minimum 3 years' experience)

TELECOMMUNICATIONS ENGINEERS – To design and develop advanced communica-tions subsystems of ground electronic control system complex. (EE degree and 5 years' experience)

PROPAGATION CONSULTANTS-To assist in the design, development and management of radar and communications subsystems as applicable to an air defense system. (Advanced degree in EE or Physics with 5 years' experience)

RADAR RECEIVER & VIDEO PROCESSING ENGINEERS – To establish receiver design criteria for optimum system performance in varied environments, particularly ECM. (Advanced EE degree or equivalent and mini-mum 5 years' experience)

ECM SPECIALISTS — To provide threat models and consultation to design and management engineers. (Advanced degree in EE and 3-5 years' experience)

ANTENNA AND MICROWAVE ENGINEERS – To establish antenna design and sighting philosophies for optimised detection system performance. (Advanced EE degree and 5 years' experience)

experience)

RADAR DESIGN ENGINEERS – To work on advanced designs and development of receivers utilizing parametric amplifiers. (BSEE and 2-4 years' experience)

PERSONNEL SELECTION AND TRAINING SPECIALISTS – To prepare job evaluations, manning structures for complex military systems, and forecast training aid needs. (PhD or EdD required)

Follipment Evaluation Specialists To

EQUIPMENT EVALUATION SPECIALISTS—To solve man-machine problems, evaluate alternative components, displays, or techniques and devise simulators. (PhD in Experimental Psychology)

CABLING ENGINEERS – To resolve varied problems in grounding and associated shielding problems of complex electronics equip-ments. (EE degree with minimum 2 years" experience)

LOGIC DESIGNERS – To organize and perform logic designs of a high speed digi-tal computer. (Degree in EE, Math or Physics with minimum 4 years' experience)

CIRCUIT DESIGN ENGINEERS (DISPLAY) – To analyze equipment and circuit design requirements in data utilization and display subsystems. (Electrical Engineering degree with minimum 5 years' experience required)

SYSTEMS ANALYSTS – To conduct system analysis programs and feasibility studies which lead to the conception and development of new systems, subsystems, and equipments of advanced design and function. (Advanced degree in EE, Math or Physics preferred with 3 years' previous experience)

☐ TECHNICAL WRITERS – To organize, write and publish progress and planning reports. (Engineering degree preferred with previous technical writing and editing experience in advanced electronics)

GENERAL

Dear Mr. Callender: Please send me an application form and additional information on the positions I have checked off above.

I am a graduate engineer with ____ ____ degree (s) and years experience.

NAME_

1

LINE

DOTTED

Z

UPON

00

1

1

1

CUT 1

> ADDRESS_ CITY_

STATE

Mr. George B. Callender, Div. 74-WK HEAVY MILITARY ELECTRONICS DEPT.

ZONE

ELECTRIC

Court Street, Syracuse, New York



Now you can meet the rapidly growing requirements of fluorescence microscopy with AO's New FLUORESTAR Microscope and Accessories

A complete FLUORESTAR outfit consists, essentially, of an AO Spencer Microstar equipped with a special dark field stop in the condenser and a barrier filter over the compensating lens in the body; plus an AO Merc-Arc, Osram HBO-200, Illuminator with exciter filter for selective transmission of light rich in ultra-violet. This new AO FLUORESTAR outfit meets the most exacting requirements for dark field fluorescent antibody tests for pathogenic and non-pathogenic organisms.

There are many FLUORESTAR models you can choose from ... each will give you unequalled convenience and versatility. FLUORESTAR Series 12 and 14 can be used for dark field fluorescence and ordinary bright field microscopy; Series 16 and L16 can be used for dark field fluorescence, phase and ordinary bright field microscopy. In addition to complete FLUORESTAR outfits, AO offers fluorescence accessories to equip your present AO Spencer bright field or phase microscope for dark field fluorescence.

You can use your present microscope for rapid scanning of exfoliative cytology and related techniques by the simple addition of proper filters and the AO Spencer 390B Illuminator (with AH4 Mercury Arc Lamp).

For complete information on the new FLUOR-ESTAR and complete accessories for fluorescence microscopy write for our new Brochure SB12, or contact your AO Sales Representative. He is thoroughly trained in the techniques of fluorescence microscopy. Help with your specific problems is yours for the asking.

	American Optical	Dept. U-2 Please forward the new FLUORESTAR Microscope Brochure SB12
	Company	Name
SPENCER	Gompany	Address
ı	L d' Instrument division, Buffalo 15, New York	CityZoneState