

TRI-R Electronic THERMOMETER

THERMISTOR TYPE

- **RAPID...**
Read temperature in seconds
- **ACCURATE...**
 $\pm 1/2\%$ of scale range
- **RANGES...**
From -35 to $+150^{\circ}\text{C}$.
- **DIRECT READING...**
In $^{\circ}\text{C}$. and $^{\circ}\text{F}$.
- **REMOTE READING...**
Leads to 1000 feet
- **LOW COST...**
- **STABLE...**
Mercury cell battery models, regulated line operated models
- **PROBES...**
Interchangeable and special for human, animal, laboratory use
For Thermometer bulletin write Dept. CE 77



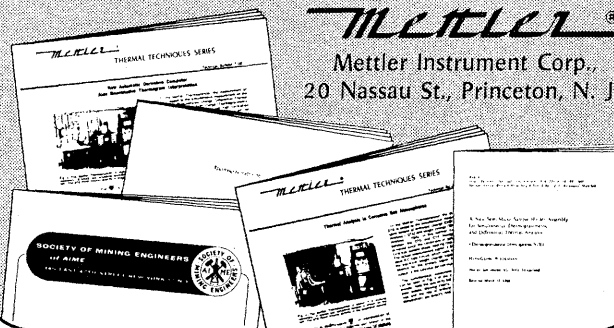
Write for individual bulletins or catalog to Dept. S127

TRI-R INSTRUMENTS, Inc.

Developers of Electronic and Mechanical Instruments for Scientific Research
48 MERRICK ROAD, ROCKVILLE CENTRE, NEW YORK 11570

Five new technical reports from Mettler on Simultaneous TGA/DTA/DTG

- 1) The Influence of Experimental Variables on the Thermogravimetric Determination of Activation Energies, H. G. Wiedemann, A. V. Tets, H. P. Vaughan
- 2) New Automatic Derivative Computer Aids Quantitative Thermogram Interpretation, Technical Bulletin T-102, Mettler Instrument Corporation
- 3) A New Semi-Micro Sample Holder Assembly for Simultaneous Thermogravimetric and Differential Thermal Analysis, Hans-Georg Wiedemann
- 4) Determination of Strain Energy in Muscovite by Simultaneous Measurement of Enthalpies and Weight Loss, William Lodding
- 5) Thermal Analysis in Corrosive Gas Atmospheres, Technical Bulletin T-103, Mettler Instrument Corporation



METTLER
Mettler Instrument Corp.
20 Nassau St., Princeton, N. J.

New Double Beam UV Monitor UVISCAN® III



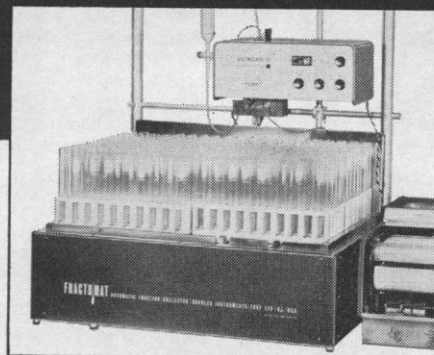
No other UV Monitor offers all these advantages...

- Optical bench, amplifier and power supply in a single housing—only 7 lbs.
- Sensitivity better than .01 O.D.
- Linear or logarithmic output
- Interchangeable interference filters for 240, 260 or 280 mμ range
- Solid state, modular construction

Uviscan III combines high sensitivity with a unique double flow cell design. Because of its light weight, it can be mounted directly on a fraction collector. It identifies compounds by comparing the intensity of light transmitted through an absorbing substance in one of its flow cells with that of a buffer solution flowing through a reference cell.

In the logarithmic mode, highly absorbent compounds remain on scale without a loss of sensitivity for low absorbent compounds. With the Uviscan III it is possible to monitor such compounds as nucleotides, proteins, hormones, steroids, enzymes, vitamins and many others.

For further information, write for Technical Bulletin #S3-5060



Uviscan III shown with Buchler linear fraction collector and recorder.

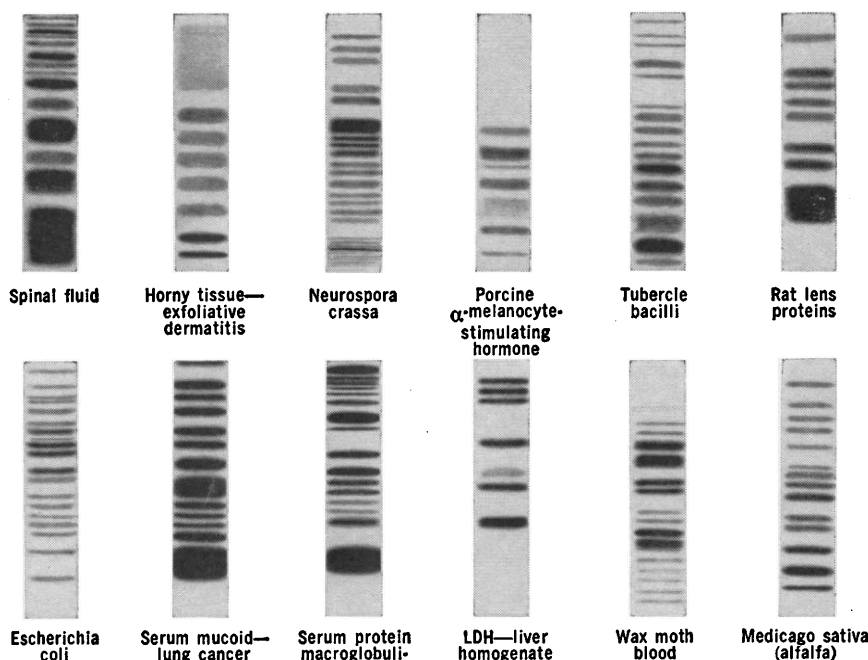


LABORATORY APPARATUS • PRECISION INSTRUMENTS
BUCHLER INSTRUMENTS, INC.
1327 16TH STREET, FORT LEE, NEW JERSEY 07024

Where the finest separation, analysis and purity evaluation of protein systems is being carried out...

DISC ELECTROPHORESIS

is in the act.



Copyright 1965 Canal Industrial Corp.

Now in use in more than 2000 laboratories, Disc Electrophoresis offers unequalled sensitivity (to 0.01 microgram), speed (separation in 10-30 minutes), simplicity and reproducibility. Disc Electrophoresis is applicable to almost every area of protein research and clinical investigation, improving over separations by other methods and giving new separations never before possible by any technique.

In Disc Electrophoresis, migration of sample substances through specially prepared columns of polyacrylamide gel produces exceptionally sharp bands of isolated fractions, "stacked" in disc-like zones as little as tens of microns thick. A random sample of the recent literature reporting uses of Disc Electrophoresis includes:

SOURCES: Amoebae, E. coli, flu virus, micobacteria, neurospora, polio virus, ribosomes, slime mould, staphylococci, tubercle bacilli; algae, cats, cattle, dogs, earthworms, fish, guinea pigs, hamsters, horses, humans, insects, lobsters, mice, pigs, plants, quail, rabbits, rats, sea urchins, sheep, snails, squid; tissue extracts of aorta, brain, horny tissue, kidney, lens, muscle, pancreas, parotid, pituitary, skin, thymus, thyroid; fluids such as axoplasm, blood, cerebrospinal fluid, milk, pancreatic juice, saliva, sperm, umbilical cord serum, urine and uterine fluid.

SUBSTANCES SEPARATED: Proteins, including C-reactive proteins, glycoproteins, mucoproteins, nucleic acids, nucleo-proteins and thyroxin-binding proteins; hemoglobins and haptoglobins; globulins, histones, human and bovine growth hormones, ovine follicle stimulating hormone, human chorionic gonadotropin, enterotoxins, Hageman factor, α -crystallin, collagen, diglyceride and prolactin; amylase, aminopeptidase, phosphatases; β -galactosidase, carbonic anhydrase, carboxypeptidase, dehydrolipamide dehydrogenase, glycogen phosphorylase, lipase, lactic and malic dehydrogenase, Phosphorylase, ribonuclease, sialidase, transaminase and transpeptidase.

DIAGNOSIS OF: Acute schizophrenia, cancer of the breast and lung, glomerulonephritis, liver pathology, lupus erythematosus, macroglobulinemia, milk allergy, myeloma, myocardial infarction, nephrosis, normal and abnormal pregnancy, pneumonia, primary tumor sites, rheumatic fever, sickle cell anemia, thalassemia, tuberculosis and uremic-hemolytic syndrome.

See how you can apply the benefits of Disc Electrophoresis to your own research. Send now for complete information, including bibliography, without cost or obligation. Write



CANAL INDUSTRIAL CORPORATION

5635 Fisher Lane

Dept. S-12D

Rockville, Maryland 20852/(301) 427-1515

Sales and Service Offices in
 • Los Angeles • Pittsburgh • Washington, D.C. • Cincinnati • St. Louis • Toronto
 • Cleveland • Minneapolis • San Francisco • Denver • Philadelphia • Ottawa

INDEX OF ADVERTISERS

15 December 1967

AAA Adding Machine Co.	1503
Abbott Laboratories	1511
Aero Vac Corp.	1508
Aloe Scientific	1507
American Optical Co.	1514
Bausch & Lomb ..	1396, 1403, 1505
Beckman Instruments, Inc.	1379
Blickman, S., Inc.	1390
Brinkmann	1402
Buchler Instruments, Inc.	1509
Canal Industrial Corp.	1391, 1510
Charles River	1400
Clay-Adams	1383
Digital Equipment Corp.	1399
Eon Corp.	1502
Extracorporeal Medical Specialties, Inc.	1401
Federal Pacific Electric Co.	1502
Fisher Scientific Co.	1386
Heath Co.	1384, 1385
Hewlett-Packard	1406
Hoffmann La Roche	1447
Instrumentation Associates	1504
Jeolco (U.S.A.), Inc.	1389
Klett Manufacturing Co., Inc.	1507
Labindustries	1394
Mercer Glass Works Inc.	1504
Mettler Instrument Corp.	1509
Millipore Corp.	1503
Nalge	1395
Nikon Inc., Instrument Div.	1404
Ohaus Scale Corp.	1398
Olympus Corp. of America	1387
Orion Research Inc.	1445
Perkin-Elmer Corp.	1382
Pharmacia Fine Chemicals, Inc. ...	1397
Princeton Applied Research Corp. ...	1392
Professional Tape Co., Inc.	1400
Ralston Purina Co.	1504
Revco Inc.	1503
Saunders, W. B., Co.	1379
Savant Instruments, Inc.	1402
Scientific Glass Apparatus Co. Inc. ...	1506
Scientific Products	1513
Tri-R Instruments, Inc.	1509
Wang Laboratories, Inc.	1388
Washington Science Center	1511
Winthrop Laboratories	1507

WASHINGTON SCIENCE CENTER

APPLIED SCIENCE DIVISION
LITTON SYSTEMS, INC.



OFFERS CAREER OPPORTUNITIES IN

MICROBIOLOGY	PHARMACOLOGY
VIROLOGY	TOXICOLOGY
CELL BIOLOGY	VETERINARY MEDICINE
ONCOLOGY	BIOINSTRUMENTATION
PATHOLOGY	LIFE SYSTEMS SUPPORT
IMMUNOLOGY	BIOENGINEERING
BIOCHEMISTRY	BIOELECTRONICS

Our representative will be attending the AAAS meeting in New York December 26-31. Please contact the USES desk for interview information and arrangements.

Excellent opportunities are available at both senior and junior professional levels. Applicants with Ph.D. or M.S. Degrees, prepared to participate in challenging, imaginative, mission-oriented research and development programs are desired. Highly competitive salaries, liberal company benefits, including stock purchase plan.

Send resume in confidence to:

Mr. D. R. Mullins, Personnel Manager
WASHINGTON SCIENCE CENTER
APPLIED SCIENCE DIVISION
7300 Pearl Street
Bethesda, Maryland 20014

Ph.D. BIOCHEMIST/ Team up with the "innovators."

Seventy per cent of all significant drugs now available to the physician were discovered in pharmaceutical laboratories—with Abbott a major contributor right from the start.

Today, a prime target of Abbott research is infectious diseases, an expanding program which now requires the addition of a Ph.D. to our Biochemical and Biophysical laboratory area of infectious disease research. Responsibilities: to concentrate and purify viruses and bacteria for the preparation of vaccines and to study the physical and chemical parameters of these agents.

It's exciting and professionally rewarding work, bringing with it a good starting salary, exceptional advancement potential and the opportunity to be individually recognized (our scientists had nearly 300 articles published last year).

A good knowledge of virology is required along with an adequate background in biochemistry, microbiology and cell physiology. Individual must be competent in the use of zonal ultra-centrifuges. Will consider recent college Ph.D. with proper training. Write in confidence to:

E. W. Weidenfeller, Professional Employment

 **ABBOTT LABORATORIES**
North Chicago, Illinois 60064

An Equal Opportunity Employer

* Where you share the rewards of discovery.

Personnel Placement

POSITIONS WANTED

M.D. Seeks Research Position. Experience in pathology, exfoliative cytology. Radioisotopes, autoradiography. Physiology of reproduction, animal surgery. Box 617, SCIENCE.

12/22, 29; 1/5, 12, 19, 26

Physical Biochemist. Associate professor, with active research group, substantial research support, numerous publication. Desires position at university with vigorous graduate program and research. Box 627, SCIENCE.

12/15, 22

Virologist. Ph.D. in Microbiology. Interested in academic position, teaching and research. Midwest preferred. Experienced in cell culture, immunology, tumors, viruses. Box 619, SCIENCE.

12/22

POSITIONS OPEN

Microbiologist or Bacteriologist

Teaching and research in Department of Biology with recently enlarged space and facilities. Rank and salary commensurate with qualifications and experience. Send resume and names of three referees to **Professor W. B. Stallworthy, Department of Biology, Mount Allison University, Sackville, New Brunswick, Canada.**

PLANT PHYSIOLOGIST: Seeking someone to undertake secondary screening and field development of fungicides and growth regulators. Candidates should have an M.S. or Ph.D. with a combination of studies in Agronomy and Plant Physiology. Liberal company benefits and starting salary. Please send complete resume and salary requirement to **Mr. J. Laud—Personnel Administrator, Merck & Co., Inc., Rahway, New Jersey.** An equal opportunity employer. M/F

Ph.D. DESIRED FOR EXPANDING MEDICAL LABORATORY IN BOSTON

Competent in analytical or clinical chemistry. Experience preferred, but will train qualified person in this rapidly developing field. Academic and research opportunities available for appropriate person. Write, **Confidential**, to **Dir., Leary Laboratory, 43 Bay State Road, Boston, Mass. 02215.**

PATHOLOGIST

Doctor of veterinary medicine or equivalent to participate in program on chemical carcinogenesis. Primarily interprets histo-pathology. Lab colony consists mainly of rodents. Excellent opportunity with expanding Medical Center to work in Dept. of Environmental Medicine, Sterling Forest, N.Y.

Contact Miss M. Kerans
Professional Placement Coordinator
PERSONNEL DEPARTMENT S-12

**N.Y.U.
MEDICAL CENTER**

568 1st Ave. (33rd St.) N.Y.C.

An Equal Opportunity Employer

CHEMIST with:

WRITING ABILITY
TEACHING SKILLS
APPLICATIONS EXP.

That's a mouthful, but Mettler Instrument Corporation in Princeton, N.J., has an excellent opportunity for such a man. There is application work waiting for him. As he solves applications problems, he must report them in writing (in English, not "technicalese") and then help instruct industrial and sales trainees on these applications.

If you think you fit this triangular mold, please send your resume to Mr. Paul Lepard,

Mettler Instrument Corporation
20 Nassau St., Princeton, N.J. 08540

UNIVERSITY OF MANITOBA
WINNIPEG, MANITOBA

Mammalogy: Assistant or Associate Professor in Zoology. Duties: portion of a junior course and a senior course in Mammalogy. Desired research interest: (1) taxonomy and speciation, (2) ecology and distribution. Salary—\$9,000-\$11,500. Ph.D. preferably with some experience in Wildlife Biology. Apply to: **H. E. Welch, Head, Department of Zoology, University of Manitoba, Winnipeg 19, Manitoba.**

MICROBIOLOGIST, Ph.D.

The expansion of our medical microbiological research program in microbial chemotherapy has created a senior opening for a microbiologist with a Ph.D. or equivalent.

This position involves basic research in the pathogenesis of infections, product development and supervision of professional and technical personnel.

Our laboratories are located in a small city in central New York State. We have an up-to-date salary schedule and fringe benefit program.

Interested candidates may send resume to **F. J. Benenati, Prof. Empl. Repr.**

**THE NORWICH PHARMACAL CO.
& EATON LABORATORIES DIV.**
NORWICH, NEW YORK 13815

PHARMACOLOGIST/PHYSIOLOGIST

● Reproductive Studies ●

Our expanding research program has created need for Ph.D. level scientist to head section with responsibilities for teratological investigations in rats & rabbits as well as routine toxicity studies. Prefer candidate with some experience.

Excellent environment for interdisciplinary exchange provided. Creative thinking & exploratory experimentation encouraged.

In confidence kindly send curriculum vitae to Personnel Manager, Research

Schering

SCHERING CORPORATION

Bloomfield, New Jersey 07003

A Plans for Progress Company

GRADUATE STUDY

GRADUATE STUDENT ASSISTANTSHIPS

The Department of Biology, University of Calgary, Calgary, Alberta, Canada, has Graduate Student Assistantships available in the areas of Comparative Animal Physiology, Developmental Animal and Plant Biology, Environmental Biology, Genetics, Microbiology, and Plant Taxonomy. Graduate Teaching Assistantships range from \$1,840-\$2,800 for eight months (September-April). Graduate Research Assistantships range from \$2,400-\$2,800 for twelve months. Fees are remitted and travel assistance to a maximum of \$250 is available. Students holding eight-month assistantships are eligible to compete for Inter-Session Bursaries (\$1,000) for the summer period.

Inquiries should be addressed to the Head of the Department well before 15 February 1968. Completed applications must be received by 1 March 1968.

Research Traineeship in investigative endocrinology—two-year program with special emphasis on development and application of radioimmunoassay procedures; current areas of research include physiology and immunology of insulin, growth hormone, oxytocin, vasopressin and calcitonin; funded by National Institutes of Health; one position available to M.D. or Ph.D., American citizen or foreign national with permanent residency status; stipend \$6-\$7,000 plus dependency allowance. Write: **Seymour M. Glick, M.D., Maimonides Medical Center, Coney Island Hospital, 2601 Ocean Parkway, Brooklyn, New York 11235.**

Predoctoral Fellowships in Physiology—Training leading to the Ph.D. with special orientation in physiological control systems, cardiovascular, temperature regulation, endocrinology and neurophysiology. Emphasis upon preparation for academic careers combining teaching and research. Stipends with tuition and dependency allowance available to qualified undergraduates in engineering, biology, chemistry, mathematics or physics. A maximum of five new students accepted each year, maintaining a low student-advisor ratio. Detailed information from: **The Department of Physiology, Loyola University, 706 S. Wolcott Ave., Chicago, Illinois 60612.**

COURSES

INTRODUCTION TO GENERAL PATHOLOGY

for graduate students and investigators who do not have a medical background

June 17 to July 5, 1968

HARVARD MEDICAL SCHOOL, Boston, Mass.

The course will be geared to graduate students and Ph.D.'s. It is intended to present the most important areas of General Pathology to investigators in the biological field who do not have a medical background, and wish to become acquainted with the basic mechanisms of disease at the level of cells and tissues. (Staff: Drs. G. Majno, M. J. Karnovsky, and members of the Pathology Department, Harvard Medical School) Experimental methods will be emphasized. The course will consist of lectures, laboratories, and demonstrations. The following areas will be covered:

DISEASE AT THE LEVEL OF CELLS — INFLAMMATION — CIRCULATORY DISTURBANCES — TUMORS — INFECTION — ALLERGY

No Tuition Fee. Information: Dr. G. Majno (Summer Course), Department of Pathology, Harvard Medical School, 25 Shattuck Street, Boston, Mass. 02115.

GRADUATE STUDY

N.I.H. sponsored postdoctoral research traineeship in cardiovascular, renal, and pulmonary physiology. Individual instruction and laboratory experience first year; independent project second year. Closely interrelated group; excellent recreational environment. U.S. citizenship or immigration visa required. Apply **Peter W. Rand, M.D., Research Dept., Maine Medical Center, Portland, Maine 04102.**

FELLOWSHIPS

Predoctoral Fellowships in Medical Physics

Opportunities are available to do graduate work in the basic medical sciences including radiation biology, radiation physics, bioastronautics, and the clinical use of radioisotopes. Fellowship support is offered for study programs leading to the M.S. or Ph.D. degree in medical physics. Stipends vary with training and dependents. Write to **Chairman, Department of Radiology, Center for the Health Sciences, University of California, Los Angeles, California 90024.**

Predoctoral Assistantships and Traineeships in Physiology

Excellent opportunities for graduate students leading to the Ph.D. Ample stipends and free tuition. Training and research in endocrinology, gastrointestinal, water and electrolyte metabolism, cardiovascular, sensory physiology, energy metabolism and bioengineering. Write for details to **Head, Department of Physiology, University of Illinois at the Medical Center, P.O. Box 6998, Chicago, Illinois 60680.**

GRADUATE STUDY IN PHARMACOLOGY. A program leading to the Ph.D. degree involving course work and research training which stresses research on fundamental mechanisms of drug action on neural, neuro-humoral, membrane transport, and endocrine systems using electrophysiological, biomedical and computer techniques. Full stipend and tuition available. Early application for September 1968 strongly advised. **Department of Pharmacology, Schools of Medicine and Dentistry, State Univ. of N.Y. at Buffalo, 122 Capen Hall, Buffalo, N.Y. 14214.**

COURSES

Research Assistant—with B.S. or M.S. in biochemistry, biophysics, or chemistry. To assist in purification and study of properties of various types of oxidative enzymes. Some experience in handling of subcellular respiratory particles and enzyme isolation helpful but not absolutely necessary. Send resume to **Dr. Richard W. Miller, New England Institute, Box 308, Ridgefield, Connecticut.**

The Market Place

BOOKS • SERVICES • SUPPLIES • EQUIPMENT

BOOKS AND MAGAZINES

N.Y. PUBLISHER WANTS MANUSCRIPTS

\$1600 BEST BOOK CONTEST

Want your book beautifully published, promoted, distributed by a New York leader in the field? Over 1,000 authors on our list. Attractive subsidy basis for fiction, non-fiction, poetry, scholarly, scientific or controversial books. Send manuscript for free editorial report, free Brochure SX and rules of \$1600 Best Book Contest open to Pageant authors.

PAGEANT PRESS

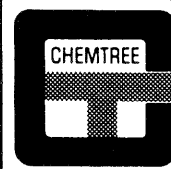
101 Fifth Ave., N.Y., N.Y. 10003

PROFESSIONAL SERVICES

HISTOLOGY SERVICE

RAPID SERVICE Large Orders Quickly Processed! Quickly Shipped! Professional supervision of every order. Free estimates on special problems. Distant points serviced swiftly. Special stains and techniques available. Full protected shipments. **HISTOLOGY SERVICE, INC.** 4801 N. Broad St., Philadelphia, Pa. Zipcode 19141. (215) DAvenport 4-5800.

SUPPLIES AND EQUIPMENT



SPECIAL NUCLEAR SHIELDING

CHEMTREE CORPORATION
Central Valley, N.Y.
914-928-2293

● HYPOPHYSECTOMIZED RATS

Shipped to all points via Air Express
For further information write
HORMONE ASSAY LABORATORIES, INC.
8159 South Spaulding Ave., Chicago 29, Ill.

SUMMER STUDY

JR. SCIENTIFIC SUMMER

EXPLORE western history and natural history in the Sierra Nevada & Great Basin. Ecological studies in mountains, desert, antelope refuge & forest research reserve. Strong riding, swimming, crafts. Challenge to alert boys & girls 10-14. Five-week session, July 16 to Aug. 20. No discrimination.

Dr. & Mrs. Richard G. Miller, 621 Rt. 1, Carson City, Nevada 89701. Code 702, 882-1728, WASHOE PINES RANCH



Your Fair Share Gift Works Many Wonders THE UNITED WAY

27 million families benefit by child care, family service, youth guidance, health programs, disaster relief and services for the Armed Forces from 31,000 United Way agencies.



Before you invest in an ultracentrifuge . . .

give these guys a whirl

These two men have been around. The IEC man is a specialist in ultracentrifugation systems. The S/P man is an expert in installation and continuing service. They arrive together to help provide your lab with the most advanced ultracentrifugation system available. Before you spend a barrel of money, contact us and give 'em a whirl.



scientific products

DIVISION OF AMERICAN HOSPITAL SUPPLY CORPORATION
GENERAL OFFICES: 1210 LEON PLACE, EVANSTON, ILLINOIS

**The new AO
StereoStar/ZOOM
Microscope
gives you high
resolution,
new convenience,
superior optics
and wide
magnification
range.**

Here are a few of the outstanding advantages that make the new AO® StereoStar/ZOOM Microscope the finest instrument of this type available today:

- Widest total magnification range: 3.5–210X
- High resolution to meet the most exacting needs
- The most convenient zoom control available
- Choice of five interchangeable, rotatable zoom power bodies
- Crisp, sharp images at all magnifications
- Extra large field of view and high eyepoint eyepieces
- Wide choice of stands for every purpose
- Long working distance
- Even illumination over the entire field
- Coolest operating illuminator.

See for yourself. Contact your AO Sales Representative for a demonstration, or write for our 24-page, full-color brochure on the newest in stereo microscopes—the AO StereoStar/ZOOM.

® TM Reg., American Optical Co.



**AMERICAN
OPTICAL
COMPANY**

**INSTRUMENT DIVISION
BUFFALO, NEW YORK 14215**

