Introducing a low-cost automatic amino acid analyzer with 30-sample capacity: the Model 119

If you want fully automatic amino acid analyses, and have a limited budget, buy the Model 119 from Beckman. It analyzes up to 30 samples in sequence, and you program it just by setting a few timers. It is an operator's delight.

But even if it weren't easy to program, the Model 119 would still be far and away the quality choice in low-cost automatics. The analyses, of course, are superb—as they are from all Beckman Analyzers. And all are backed by direct Beckman field service, with offices in principal cities in the U.S., Canada, and around the world.

Model 119: the unbeatable combination of economy, automation, and performance.

Write for Brochure SB-333 to Spinco Division, Beckman Instruments, Inc., 1117 California Avenue, Palo Alto, California 94304.
If you think you can't afford Zeiss quality, find out first what your RA will cost.

If you need a microscope for microbiology or microchemistry...for hematology, bacteriology, urinalysis, cytology, pathology, histology, crystallography, etc.... and would like Zeiss quality but think you’ll have to settle for something less because of tight budgets...think again.

Think about the RA series. Zeiss RA microscopes are available at prices that are competitive with any other routine and research microscope on the market—and they utilize exactly the same objectives, eyepieces, and attachments as the famous Zeiss Universal, Photomicroscope, and Ultraphot.

And no compromises have been made. Because RA is not just a microscope, but a concept. With Zeiss' unique "building-block" design, practically any microscope option is available in an RA—brightfield, darkfield, fluorescence, phase contrast, Nomarski differential interference contrast, polarizing microscopy—and a complete line of photographic attachments.

You tell us what you want to do. We assemble an RA specifically for you—at a price you can afford. You pay only for those features and options necessary for your needs. But you have the capacity to expand any time your needs expand. For details, write Carl Zeiss, Inc., 444 5th Ave., New York, New York 10018 or phone (212) 736-6070.

Nationwide Service. Circle No. 6 on Readers' Service Card.

ATLANTA, BOSTON, CHICAGO, COLUMBUS, DALLAS, DENVER, HOUSTON, KANSAS CITY, LOS ANGELES, PHILADELPHIA, PHOENIX, SAN FRANCISCO, SEATTLE, WASHINGTON, D.C.
Whatever you need in a visible spectrophotometer, we’ve got it made.

It all adds up.

Let us demonstrate in your lab
Call collect 716 385-1000 or use the coupon.

Bausch & Lomb
Analytical Systems Division
820 Linden Ave., Rochester, N.Y. 14625

☐ Please have representative call to arrange a demonstration.
☐ Please send literature: (circle)
  Spectronic 20  Spectronic 70
  Spectronic 88  Spectronic 100

Name
Title
Firm/institution
Address
City
State    Zip
Telephone
For your work and your budget, Bausch & Lomb has an instrument with the features you require. Narrow bandpass. Wide spectral range. High performance. Minimum dollars. The right amount of instrument for the right amount of money. Off the shelf. Take a look.

Spectronic 20
The world's most widely used spectrophotometer, with over 90,000 sold. It has no equal in dependability, accuracy and ruggedness in the low-price field. Wavelength range is 340-600 nm, extendable to 950 nm with an inexpensive phototube and filter accessory. Narrow 20-nm bandpass provides excellent resolution. Readout is on a wide 5½" meter in % transmittance and absorbance. Extremely simple operation.

Circle No. 42 on Readers' Service Card

Spectronic 70
For exceptional sampling versatility and excellent performance, at a low cost, choose the Spectronic 70. It accepts virtually any test tube or cell made—test tubes up to 20-mm pathlength, rectangular cuvettes with pathlengths from 1.0 mm to 10.0 mm, and cylindrical cells up to 100-mm pathlength. Three quickly interchangeable sample compartments permit you to choose the one exactly suited to your needs. Wide 325-950-nm wavelength range and 8.0-nm bandpass provide for an extended range of applications. Readout is on an 8" meter in % transmittance and absorbance.

Circle No. 43 on Readers' Service Card

Spectronic 88
The Spectronic 88 permits direct meter readings in concentration, linear absorbance and transmittance. A single knob selects the operating mode.
You can read linear absorbance values between 0.0 to 2A effectively over 16 inches of meter. 0.1X to 3X scale expansion in the concentration mode assures accurate readings of samples with low absorbance differences.
Specifications are excellent—an 8-nm bandpass, photometric linearity better than .010A near .500A, less than 0.2% drift/day, continuous wavelength range from 325 nm to 950 nm.

Circle No. 44 on Readers' Service Card

Spectronic 100
The Spectronic 100 provides everything you've ever hoped for in a medium-priced visible spectrophotometer. It has all the sampling versatility and excellent performance of the Spectronic 70 and Spectronic 88—and a great deal more! It gives you a four-place digital readout in linear absorbance, transmittance and concentration, with selectable positioning of the decimal point. An automatic error light flashes a warning of out-of-range readouts.
A unique function-control system provides a quick and easy performance checkout. You'll always know that you're getting electronic performance right to specification. If you choose the Spectronic 100 with flow-thru sample compartment, you get a self-purging sampling system with zero-error logic that eliminates all possibility of cross contamination.
Two status lights provide positive, immediate sampling-mode identification, informing you at a glance whether your sample is in, out, or ready to be purged.

We do have it made—ready and waiting—whatever your needs. At the right price. Our servicing is everywhere, expert and fast, to keep you in business at all times. And the experts in our Applications Lab thrive on helping our customers find solutions to their problems.

Circle No. 45 on Readers' Service Card
When difficult GC analyses come along and they say, "Let George do it," George doesn't mind at all

George has a secret weapon to use on difficult GC analyses. It's the Model 2100 gas chromatograph with total research performance. It was designed specifically to operate easily and efficiently with the most difficult samples. Ones like you encounter in toxicology, natural products, pesticides, pharmaceuticals, steroids, lipids, metal-sensitive compounds, for example.

The 2100 has an all-glass system and on-column injection so sensitive components contact only glass. Its negligible dead volume provides superior resolution and sensitivity. The large (3000 in³) easily accessible U-column oven has amazingly uniform heat distribution and precise temperature control, even with temperature programming. A solid state dual/differential JFET electrometer is standard on all models. And the ability to run as many as four detectors and four U-columns simultaneously provides maximum productivity and operating flexibility.

George has something else that makes his life easier. Our unique methodology books. Each one is a procedural "cook book" for a particular type of analysis—pharmaceuticals and drugs, lipids, fatty acids, carbohydrates, steroids, derivatives, and trace gas analysis. You can have any or all of them, plus information on the Model 2100, with our compliments. Just drop us a note on your letterhead. If you're the one they're pointing to when they say, "Let George do it," we want to help you.
After all the tough preparatory work, you owe it to yourself to photograph specimens with products specifically designed for electron microscopy. You'll get better results, have to do less after-the-fact print manipulation.

Kodak gives you a choice of plates and films that lets you tailor your photography to subject and equipment stability. For transmission electron microscopes—Kodak Electron Image Plates and Kodak Electron Microscope Film 4489 (Estar Thick Base). If you're using the SEM, we suggest using Kodak Commercial Film 4127 (Estar Thick Base).

For print processing, look into the Kodak Ektamatic Processor. It occupies only $12 \times 30$ inches of table space, and delivers ready-to-use prints on Kodak Ektamatic SC Paper in 15 seconds. Filters give you a choice of paper contrasts from one box. Less paper to stock. You never run out of the grade you want.

Send for details. Make your own judgment. If you see it, you can keep it.
tunable UV
265-340 nm

First... from the leader in tunable lasers

chromatix
The first tunable UV laser
in the range from 265-340 nm!

If your experiment has been limited for lack of a tunable UV laser, here is the research tool you’ve been waiting for. Chromatix’s new System 15 combines our proven non-linear optics techniques with the best in dye laser technology to bring you the most versatile unit on the market today.

Not only do you get tunable UV in the range from 265 to 340 nm, but with the same device, you also get a tunable dye laser covering the visible range from 530 to 680 nm.

This new product is part of the Chromatix building block approach to tunable lasers. System 15 is made up of two modular components, the Model 1000 Laser and the Model 1050 UV/Vis Dye Laser. This approach assures real dollar value for your instrumentation investment by guarding against obsolescence. In fact, if you are already using a Chromatix laser, you can now have tunable UV by simply adding on the new Model 1050 UV/Vis Dye Laser.

For a real hands-on demonstration and a chance to actually operate this exciting new product, stop in and see us at one of the following shows: APS, January 31-February 2, San Francisco; Pittsburgh Conference, March 6-10, Cleveland; FASEB, April 12-16, Atlantic City; International Quantum Electronics Conference, May 8-11, Montreal. Or contact us at the address below. Complete specifications and prices are yours for the asking.

Circle No. 3 on Readers’ Service Card

d...for the control of light

Chromatix
1145 Terra Bella Avenue / Mountain View, California 94040 / (415) 969-1070
The new Reichert OmU3 Ultramicrotome: exclusive darkfield alignment permits fast, one-pass positioning.

The new OmU3's unique darkfield alignment system enables the operator to position the knife in one pass, quickly and positively, without damaging specimen or knife. Its simple operation makes technician training easier, saves sectioning time, and greatly reduces the chance for error.

Another exclusive feature is instant start/stop thermal feed. Sectioning can be stopped and a section removed. Without delay or readjustment, sectioning may be resumed at the originally set thickness. Cutting and recycling speeds are controlled independently. Sections can be cut at slow speeds and the knife recycled at a faster speed. The integral Reflexomat water pump allows filling the knife boat remotely to eliminate interruption of serial sections. For a convincing demonstration of the new Reichert OmU3, contact your American Optical representative and send for our new, detailed booklet.

AMERICAN OPTICAL CORPORATION

SCIENTIFIC INSTRUMENT DIVISION • BUFFALO, N.Y. 14215

Circle No. 15 on Readers' Service Card

Through the microscope, the illuminated gap between specimen and knife is seen as a brilliant slit.
INTRODUCING OUR NEW BARNSTEAD PRESSURE CARTRIDGE SYSTEM
TO MAKE WATER AS PURE AS YOU WANT IT.

You don't adapt to it. It adapts to you. Because we've made it modular. With eleven cartridges to build with.

Three for submicron filtration.
Four for demineralization.
One for colloid removal.
One for organic removal.
One for oxygen removal.
And one for pre-filtration.
And all the parts and pieces and plumbing it takes to adapt it any way it takes to get the kind of water you want.

Without having to use any special tools to set it up. Or reset it. Which really sets it apart. The coupon will get you a book that tells you all about the Barnstead PCS.

□ Please send me more information about your new Barnstead Pressure Cartridge System. The demineralizing System that adapts to me instead of me adapting to it.

Name__________________________________________________________
Title__________________________________________________________
Company______________________________________________________
City___________________________________________________________
State_____________ Zip________

BARNSTEAD SYRION CORPORATION
225 Rivermoor Street
Boston, Massachusetts 02132
What is Carworth now doing for users of laboratory animals?

The Carworth Letter
The Carworth Letter, a venerable and useful institution, has undergone major content and format changes. It is now a vehicle for getting new information to you quickly. For example, we’ll publish research news that might otherwise be unduly delayed. Or brief notes on the housing or care of animals. Or anything else that might be helpful to users of laboratory animals. (Contributions welcomed.) And if you’re not now on our mailing list, let us know. We’ll need your name, title, department, and address including zip code.

Quality Control
We are keenly aware of this fact: the user of laboratory animals simply can’t tolerate animals that fail to meet his precise specifications—whatever these may be. Since an animal is, in a sense, a “raw material” that is subsequently “processed” by the user, shortcomings in the starting material can well jeopardize everything that follows. Accordingly, we are in the process of further upgrading all of our quality control efforts in order to assure you of the most dependable animals available anywhere.

Surgical Modifications Available
We routinely provide a broad spectrum of surgical procedures. For example, depending upon species: hypophysectomy, thyroidectomy, adrenalectomy, partial heptectomy, vasectomy, splenectomy, and organ transplants. Beyond that, we offer the following unique service: we’ll come to your laboratories and learn your procedures so that you can subsequently turn to us for this time-consuming ritual. In many instances, having us do it will also reduce your overall cost. Tell us your needs.

“The Laboratory Mouse: Selection and Management”
by M. L. Simmons and J. O. Brick
As you probably already know, this recent text is eminently practical in its orientation. Why interject a book review here? For several reasons. First: author M. L. Simmons—now at Carworth—is deeply involved in the changes described herein. And secondly: we’re offering this book to readers for a limited time only and for as long as our supply lasts. Just write and give us the information requested in the first item above.

Consultative Services
Do you have problems related to laboratory animal selection, housing or care? Then turn to Carworth. We’ll help you evaluate your various experimental requirements, or help with the design of your animal facility and the animals’ total environment, or with any other aspect that can influence the ultimate success of your programs.

Shipping Containers
Carworth is switching shipping packages. The new configuration better withstands the rigors of shipping, is easier to handle in transit and upon receipt, and, most importantly, appears to provide a more congenial environment for the animals while traveling.

Catalog Offer
Carworth is animals, of course. But Carworth is also a wide range of animal housing and animal care equipment and supplies. For example, we’ve pioneered the laminar flow rack as a practical means of reducing the airborne contamination that can sabotage your research efforts. Now to see what Carworth offers users of laboratory animals, write and ask for our catalog. Please include all the information requested in the first item above.
J.T. Baker Introduces New Products, New Purities, New Packaging

For 98 per cent of laboratory work requiring chemicals, J.T. Baker supplies the right product. In any laboratory doing critical work... the professional chooses J.T. Baker chemicals. Baker stays ahead with new products... organics with increased definition of purity... safer, easier-to-use containers... and the new Catalog 700 that tells you all about them.

The 72-page Application/Discipline section in Catalog 700 classifies more than 6,000 products for more than 100 key techniques and product groups for analytical, biochemical and biomedical/clinical laboratories... all conveniently indexed. A 23-page analytical section classifies products according to methodology, including most of the key instrument techniques. An alphabetical section details specifications, containers and prices. For Catalog 700 (20)

Here are some of the newer Baker products...

**Diagnostic/biomedical:** Hundreds of clinical reagents and specially products... diagnostic test kits... stain and buffer solutions... reagents for use with the Coulter Counter®... standard solutions in a wide range of concentrations... products for glucose tolerance testing... in a new diagnostic catalog (21)

All the reagents necessary to formulate solutions for automated analysis... use tested and guaranteed suitable. Included are lyophilized DPN Diaphorase, HABA Dye, INT Dye, Fast Red PDC Salt. For many limited stability solutions, accurately pre-weighed products are packaged in convenient SPONPAK™ containers. (22)

Ready-to-use solutions for automated chemistries, made from the same high purity reagents, and use tested to assure performance. (23)

**New reagents for Grignard reactions:** Two new reagents, 'Baker Analyzed™ INSTA-START™ Ether and INSTA-START™ THF, have been especially formulated to significantly reduce the induction time required in Grignard reactions. No other initiators are needed. For information covering specific reactions (25)

**Special low-mercury reagents for environmental testing:** New grades of nitric, sulfuric and perchloric acid assure low blank values in the determination of trace metals, including mercury, lead and copper critical in pollution control. Sulfuric Acid (Lot 37276) is typical: Copper 0.7 ppb, Lead 5 ppb, Mercury 3 ppb, Nickel 7 ppb. (26)

Also reagents for almost all the APHA tests (newest edition). For a guide to the products, referenced to the new APHA manual. (27)

**Specially defined solvents, Safetainer™ packages:** Now—a GC assay is supplied with 26 'Baker Analyzed™ reagent grade solvents. For specific instrumentation and other applications, Baker offers seven specially characterized types of solvents, including: ULTREX® for use as standards; 'Baker INSTA-ANALYZED™ guaranteed 99.9% by GC, with actual gas chromatogram, UV and IR curves and lot analysis; SPECTROPHOTOMETRIC GRADE with actual lot absorbance values at selected wavelengths, values for infrared windows and actual lot analysis. (28)

Now: 26 key solvents in the new SAFETAINER™ package... the safer solvent container for laboratory use. Exclusive design assures positive seal, prevents drips and vapor leakage and breakage. (29)

**Products for liquid scintillation:** Key reagents are "use tested" by liquid scintillation spectrometry, with calibration against NBS radiochemical standards. Solvents in Liquid Scintillation grade include 1,4-Dioxane and Toluene. Also important solutes, such as PPO, DPS, POPOP. (30)

**Ultra high purity products:** More than 100 ULTREX® chemicals provide state-of-the-art purity and analytical definition. These "new generation" high assay materials are designed for use as trace analysis reagents, standards, electronic dopants and high purity ceramic materials. ULTREX® products are used in lunar analysis, where contaminants must be of the lowest level. Example: In ULTREX® hydrofluoric acid, all detected metallic impurities were less than .05 parts per million. Zone refined organics and fractionally crystallized organic liquids of highest purity are used for thermodenamic measurements and standards. (31)

**Biochemicals and biochemical reagents:** More than 100 enzyme substrates, including many with new defined purity... a broad line of carbohydrates and amino acids... include 40 biochemicals that meet NAS/NRC specifications. (32)

**Products for the separation sciences:** Over 780 products including Baker-flex® flexible sheets for TLC, with 20 types of adsorbents, in four sheet sizes; 39 'Baker Analyzed™ Ion Exchange Resins; 148 products for electrophoresis techniques. (33)

New products—safer containers—the chemicals you need and use most frequently—all available from your nearby J.T. Baker distributor.

See the new CHROMATAPE™ system for automated thin-layer chromatography in Booth 1-104-106 at the FASEB meeting.
Because the Brush 260 6-channel recorder gives you the most accurate, reliable data at the lowest cost per channel.

The 260 also gives you all the important Brush exclusives. Like a pressurized ink system, which eliminates smudging, puddling, and priming. So traces are always crisp, clear, and uniform. And a throw-away plastic cartridge which holds a year's supply of ink.

Another Brush exclusive is our Metrisite® non-contact servo-loop feedback device. The Metrisite makes the 260 so accurate we guarantee 99½% linearity.

And the 260 has built-in preamps which provide a measurement range from 1mV/div. to 500V full scale. Frequency response for the 260 at 50 divisions is flat within ±2% of full scale from d-c to 40Hz.

Add in six 40mm analog channels and four event markers. Plus eight pushbutton chart speeds from 1.0 to 125mm/second and mm/min. And you can use the 260 as a portable unit, rack mount it or put it in a roll-around cart.

The Brush 260. It's a good way to get the most for your money. For more information, write: Gould Inc., Instrument Systems Division, 3631 Perkins Avenue, Cleveland, Ohio 44114. Or Rue Van Boeckel 38, Brussels 1140, Belgium.
One man's pure radiochemical...

We provide our customers with the purest possible radioactive chemicals. But sometimes that's just not enough. Sometimes a researcher needs to know exactly what impurities the chemical has been tested for.

So with every radiochemical compound we send out, we include a data sheet that specifies the initial and latest radiochemical purity of the compound, its chemical purity (when applicable), the methods used to prepare and analyze it, the recommended storage conditions for the compound, and its approximate rate of decomposition under those conditions. Nobody else does it that thoroughly.

And, if you need special tests, you can decide immediately from reading the data sheet and ask for them. You'll know you're getting the purest possible compound.

And you'll know exactly what “purest possible” means.
recover purified gel zones

With conventional gel electrophoresis apparatus, recovery of undiluted sample components or quantitation of them without denaturation is difficult or impossible. By combining the separating power of sieving gels with the zone storage and retrieval convenience of density gradients, the ISCO ELECTROSTAC™ greatly improves zone recovery.

TYPICAL SCAN OF ZONES IN DENSITY GRADIENT

Sample: 7.5 micrograms Yeast-RNA
5s fraction
4s fraction

The ELECTROSTAC positions a polyacrylamide gel above a sucrose density gradient column. Separated zones migrate from the lower surface of the gel downward into the density gradient, maintaining their isolation and relative positions. The zone is then recovered by removing the ELECTROSTAC and pumping the gradient upward through a UV absorbance monitor, and then to a fraction collector. If scanning shows separation to be incomplete, the gel can be replaced for further electrophoresis before fractionation. The sucrose can be dialyzed out to leave a purified fraction. The ELECTROSTAC permits a multiple approach to separation by allowing the use of wide ranges of gel characteristics and buffers, and has been demonstrated to be particularly well adapted to the preparation of gel-separable fractions of nucleic acids. For complete details on the ELECTROSTAC send for literature and our current catalog.

Cancer Research

Many lay people believe that if we can put a man on the moon, we can also conquer cancer, if only we spend enough money. Let me point out the fallacy.

NASA and its Soviet counterpart are accomplishing fantastic feats. However, these feats are nothing other than the construction of machinery that is physically powerful and precise enough to reach specified velocities and directions. They have been accomplished with the help of Newton's celestial mechanics, which are two and a half centuries old, plus some more modern, but previously known devices. Man's ability to reach far into interplanetary space captures the admiration of the public. Space probes are scientific instruments comparable to telescopes. One can always build bigger and better instruments if one has enough money and trained manpower. The space probes have served us well; they have brought us much observational information, but to my knowledge no fundamental new concepts have been discovered.

Cancer is a horse of a different color. The nature of cancer is—let us admit it—still unknown. Certainly, much money and trained manpower are required to conquer cancer. But these are not the most important ingredients. We are in search of new ideas and concepts. They can only be gained by totally unprejudiced human brains.

Two of the greatest discoveries of our century, the theory of relativity and the genetic code, were achieved by brains without the help of machinery. The discovery of antibiotics, as that of x-rays, was due to an accidental observation. Other basic, novel concepts, such as the period-luminosity relationship of cepheids on which intragalactic distance estimates are based, and the concept of the expanding universe, which resulted from patient accumulation of observational data with powerful instruments, were unexpected results arrived at by unprejudiced persons. In all these cases, it took an unusually alert mind to notice a totally unknown phenomenon.

So, likewise, it will be necessary in the conquest of cancer for an individual biomedical scientist, unprejudiced by previously learned doctrines, to notice and correctly interpret a hitherto unknown property of malignant tissue. The best environment for this discovery is that of freedom of investigation. The more highly the new cancer agency is organized administratively, the less likely it is for the "breakthrough" to occur within its framework. The National Institutes of Health (NIH) possess a high degree of flexibility. Funding of research at academic institutions through NIH offers the atmosphere in which cancer may be conquered.

HANS ELIAS

Department of Anatomy, Chicago Medical School, University of Health Sciences, Chicago, Illinois 60612

Price Advantage

Readers of the review (11 Feb., p. 621) of the book Cosmic Gamma Rays by Stecker might be interested to know that an edition of this book was published by the National Aeronautics and Space Administration and is available from the Superintendent of Documents, Washington, D.C., for $1.25. This edition is paperback, it is true, but that deficiency may not outweigh the tenfold price advantage, compared to the edition published in Baltimore. The NASA edition has the same name, and is further identified by "NASA SP-249."

N. PEARLMAN

Department of Physics, Purdue University, Lafayette, Indiana 47907
Until the new Cary 118 you could always judge a spectrophotometer by its cover.

The brushed aluminum trim, flashing digits, and slick new nameplate would lead you to believe this is one of those other UV-VIS spectrophotometers. The kind that rely on cosmetics to compensate for lack of performance.

But rest assured. The new Cary 118 combines the exceptional performance of the Cary 16 with the operational ease of the Cary 15. In fact, the features include a double monochromator, a digitally coupled wavelength scan and chart drive, and a photometric accuracy of 0.001 at 1 absorbance.

It also offers a pay-as-you-progress feature. Sort of modular, but not the add-a-box approach. Start with the basic manual spectrophotometer at $9,950. Later slip in a recorder. Then, later yet, a scanning mechanism. Or you can have the complete recording/scanning version all at once for $14,450. Either way, you end up with the identical instrument.

The recorder itself is a brand new design. For example, the pen drive has no cables or gears, so there's no backlash. And no detectable pen dead zone.

Service accessibility is another thing we kept in mind. All the solid-state electronics are in a roll-out drawer, and everything can be reached from the front. Even the brochure describing the Cary 118 is a handsome new design. Write for one. Cary Instruments, a Varian subsidiary, 2724 South Peck Road, Monrovia, California 91016. Ask for data file E202-22.
DON'T CALIBRATE!

rotate

and complete an experiment in the time it formerly took to set up

VOLUME-COMPENSATED DIFFERENTIAL RESPIROMETER

with DIGITAL READOUT in NUMBERS of MICROLITERS

A calibrated micrometer returns the manometer fluid to its balanced position by movement of a piston in the enclosed volume. This obviates the need for calibration of glassware and simplifies calculations.

EXPERIMENTS under AIR:
Standard models connect the active flasks and one reference flask to stationary volumeters by means of capillary Tygon® tubing. (Not applicable for use with gases which pass through Tygon.)

EXPERIMENTS under 100% Oxygen, Hydrogen, CO₂, etc.
All glass differential manometers with a reference flask for each active flask to eliminate gas penetration. Fewer stations per unit.

WRITE FOR MAIL!

GILSON MEDICAL ELECTRONICS
Middleton, Wisconsin 53562
or telephone: 608/836/1551

*Tygon is the registered trademark of the U.S. Stoneware Company
Pick-up on these miniature inert valves

If you handle ultra-pure or corrosive fluids... let us help give you a hand. We have a complete line of small valves for a large number of applications, in panel mounts, table mounts or free standing systems. Our miniature valve has porting holes of .060" and uses luer tapered fittings. (It's also available with a spring-loaded Teflon* plug.) Our big valve is just an inch high at the base. Its Teflon body has threaded holes to accept a variety of fittings. If you work with small fluid volumes and need small, inert valves... give us a try. Our valves are described in our catalog... let us send you a copy. Write to Hamilton Company, Post Office Box 307, Whittier, California 90603.

HAMILTON

Circle No. 1 on Readers' Service Card
FREEZE DRYING WORKHORSE HAS 5 LITER CAPACITY

The Cryolizer, Model B65 is a versatile freeze dryer used for manifold or batch lyophilization. It is available with a variety of interchangeable vacuum drums and manifolds that may be rotated a full 360° while under vacuum, permitting easy access to all ports. It has its own refrigeration, vacuum and automatic defrost systems which are all interlocked electrically to prevent operating errors. Other features include a vacuum shut-off valve between the pump and trap and a continuous reading electronic vacuum gauge.

Write for catalog B65S/372
NEW BRUNSWICK SCIENTIFIC CO., INC.
1130 SOMERSET ST., NEW BRUNSWICK, N.J. 08903 • (201) 846-4600

Circle No. 102 on Readers’ Service Card

Classify isoenzymes easily with gel slabs or columns

Intestinal Component

Bone Component

Liver Component

E-C gel slab or column electrophoresis systems enable you to quickly and easily classify alkaline phosphatase isoenzymes according to their source—liver, bone, placenta, or intestine.

E-C systems handle up to 30 samples at one time—ideal for diagnostic or screening work. Resolution is high and band differentiation is clear-cut and well defined.

Handles other isoenzymes, too, as well as general proteins. Complete systems include gel cell, power supply, densitometer, chemicals, reagents, and procedures. For information call E-C collect at 813-544-8875 or write to E-C Apparatus, 5000 Park Street N., St. Petersburg, Florida 33733.

E-C

A Milton Roy Company

Circle No. 63 on Readers’ Service Card
Slicing It Pretty Thin

It's a safe bet you won't find one in every household. Or in every laboratory. But if you're moving in the sort of specialized area of electrophoretic analysis of RNA, for example, and you have to serve up slices of polyacrylamide gels, a lot of laboratory types think the Mickle Gel SLICER is the best thing since delicatessens.

It figures.

How else can you cut a frozen column up to 10 cm long and 1 cm thick into flawless slices of less than 1.0 mm, in increments of 0.1 mm, and leave the rest of the column undisturbed? Cutting force and blade angle are adjustable for hard-frozen dilute gels, or softer, concentrated cylinders. Slices are easily collected for processing and scintillation counting. Twenty cuts per minute. Foot switch leaves hands free. Electromagnetic counter keeps score on slices. Write for complete details.

How To Look Good, Fast.

Costs being what they are today, the guy (or gal) who can save a few dollars gets the hero medal. Here's a way to look good while you're looking good and fast (while you're rapidly scanning polyacrylamide gel columns optically, that is).

Be the first to recommend purchase of the VICON LINEAR GEL SCANNER—the attachment that fits right into your Zeiss PMQ II Spec. cell compartment without modification (and avoids costly instrument duplication). It scans at 6 mm/min—even faster (25 mm/min) for coarser separations—in either direction. Resolution? Slot aperture is 100 μ thin to catch those narrow bands. Columns to 10 x 100 mm can be handled. Wavelength is variable from 200 to 750 μ. And there are a host of options available to meet your specific needs. Want to scan fast? Want to look good? Get the details. Write:

Dept. B.G.C.,
Brinkmann Instruments, Inc.
Cantague Road,
Westbury, N.Y. 11590
(516)334-7500

Brinkmann Instruments
(Canada), Ltd.
90 Galaxy Boulevard,
Rexdale (Toronto), Ontario

BOOKS RECEIVED

(Continued from page 1354)

New York, 1971. xiv, 368 pp., illus. $18.50.


Hello Nalgene sep funnels.

Nalgene Separtory Funnels of Teflon® FEP are so transparent that even the ether/water phase interface can be clearly seen right down to the stopcock. Resists any chemical used in a sep funnel so it can be used with HIF. Ideal for trace analysis. Non-wetting for complete draining. The non-stick, easy-to-clean surface makes washing easy. Leakproof stopcock is Teflon TFE, non-seize stopper is new fluoropolymer, Tefzel®.

And they're unbreakable—yet competitively priced with glass. Think about that the next time you handle a glass funnel. Available in 125, 250, 500 and 1000 ml sizes (Cat. No. 4301).

Also available in same sizes with 24/40 Teflon TFE male joint as Teflon Addition Funnel (Cat. No. 4320) for safer use on columns and flasks.

Order from your Lab Supply Dealer. Ask for our Catalog or write Dept. 4215, Nalgene Labware Division, Rochester, New York 14602.

* DuPont Registered Trademark


Hydrolyzed STARCH GEL ELECTROPHORESIS

This Vertical Gel system employs direct insertion of liquid sample without paper or starch granules. It resolves larger samples into more zones and results in a more reproducible analysis. Sample slots are formed while gel is poured. The slot-forming comb can be removed from back of chamber without removing glass cover. This facilitates the production of co-planar surfaces and leaves the gel column undisturbed.

BUCHLER INSTRUMENTS DIVISION
NUCLEAR-CHICAGO CORP.
A SUBSIDIARY OF O. D. SEARLE & CO.
1327 SIXTEENTH STREET, FORT LEE, NEW JERSEY, 07024

Circle No. 84 on Readers' Service Card

TORBAL toploading balance is fast, accurate and rugged.

TORBAL ET-1 (160 g capacity, 1 mg accuracy) makes accurate weighing easier and more foolproof than ever before.

Complete digital display without the use of optics or verniers—no estimating.

Substitution weighing with no knife edges or friction pivots means freedom from maintenance.

“Null Principle” operation assures no effect on accuracy because of sensitivity changes as is the case with optical knife edge balances.

Less affected by vibration than optical knife edge balances.

Zero point does not change with minor changes in the level of the ET-1.

Convince yourself—ask us to arrange a demonstration.

WRITE FOR FREE BROCHURE.

THE TORSION BALANCE CO. Clifton, New Jersey. Sales offices in Chicago, Ill.; San Mateo, Cal.; Montreal, Quebec; and Windsor, England. Balances manufactured in Waterford, Ireland and Clifton, New Jersey.

Circle No. 81 on Readers' Service Card


The Enjoyment of Management. Frederick C. Dyer and John M. Dyer. Dow Jones–Irwin, Homewood, Ill., 1971. xii, 188 pp., illus. $7.95.


SCIENCE, VOL. 175
We've just opened your field of vision.

Now you can scan more than twice the area you could with ordinary, wide-field eyepieces. Olympus' new Super Widefield optical system gives you a clear, crisp view of five field diameters from 0.265mm at 1000x (oil) to 6.63mm at 40x. Scanning time is reduced, and with it, eyestrain and lost motion. Now you see 217% more of the flat field for which Olympus is known.

And, as usual with Olympus, you can add this new capability to your present Olympus EH, FH, EHA or FHA. It takes but a few minutes to install the Super Widefield Eyepieces, binocular or trinocular SW observation tube, SW Condenser and SW Plan Achromat objectives (4x, 10x, 20x, 40x and 100x oil-immersion).

After all, modular versatility is one of the features that opened people's eyes to Olympus in the first place. Send for literature. Write: Olympus Corporation of America, Two Nevada Drive, New Hyde Park, New York 11040.

OLYMPUS
Super Widefield: it's an eye-opener.

PATHOPHYSIOLOGY OF GESTATION
edited by NICHOLAS S. ASSALI, Univ. of Cal., Los Angeles
This three volume treatise represents an innovation in the medical literature on diseases of human reproduction, their origin, mechanisms, and general principles. Its originality lies in its two-fold approach to each disorder covered. First, the treatise uses the most basic and reliable physiological and biochemical information available to illustrate the pathophysiological mechanisms that generate a disorder. Second, instead of describing each disorder and its clinical manifestations separately—as is the case in most classical clinical textbooks—the treatise analyzes the multiple normal homeostatic functions of the relevant system of the organism in the pregnant and non-pregnant state, and then discusses in detail how these functions can be altered by various disease states.

VOLUME 1/MATERNAL DISORDERS
1972, 624 pp., $29.00
VOLUME 2/PLACENTAL DISORDERS
1972, 370 pp., $25.00
VOLUME 3/FETAL AND NEONATAL DISORDERS
in preparation
Three volume set price: $60.00 until publication of Volume 3; $72.50 thereafter.

FOUNDATIONS OF MODERN AUDITORY THEORY, Volume 2
edited by JERRY V. TOBIAS, Federal Aviation Admin., Oklahoma City, Okla.
Volume 2 opens with a chapter on the perception of speech and then discusses signal detection, psychoacoustics, the structure and function of the middle ear, bone condition, neuroanatomy of the auditory system, and, finally, binaural phenomena.

1972, 530 pp., $34.00
Volume 1: 1970, 462 pp., $22.50

ANALYTICAL PROFILES OF DRUG SUBSTANCES, Volume 1
edited by KLAUS FLOREY, The Squibb Inst. for Medical Research, New Brunswick, N. J.
In order to foster better understanding of drug characteristics, the Pharmaceutical Analysis and Control Section of the Academy of Pharmaceutical Sciences has began a cooperative venture to compile and publish Analytical Profiles of important drug substances. These profiles present information not currently available in official compendia, including the physical and chemical properties of drug substances, as well as methods of synthesis and pathways of physical and biological degradation and metabolism, solubility, pH and pK values, spectra and spectrophotometric constants, and stability data.

1972, 492, $14.00

PAABS REVISTA
A Publication of the Pan-American Association of Biochemical Societies
editor-in-chief: C. M. KAY, Dept. of Biochemistry, Univ. of Alberta, Canada
The philosophy behind the formation of this journal is that there is a need for a different type of reporting of advances in knowledge. The reviewer's charge is to review a given area, on the basis that they select for full republication up to 5 significant papers that have appeared on the subject concerned in the recent past (2-3 years). Writing assignment is a short essay, describing the background and the significance of the work as well as its implications for the future development of the subject. Reviews are solicited from leading contributors in various areas by members of the Editorial Board.

Volume 1, 1972 (Quarterly)
Institutional subscription price: $25.00
PAABS Membership price: $25.00
Other private subscriptions: $18.00
(Please add $1.80 for postage outside U.S.A. and Canada)
* Society Member Subscribers must certify that the journal is for their personal use only.

ACADEMIC PRESS
NEW YORK AND LONDON
111 FIFTH AVENUE, NEW YORK, N. Y. 10003


Microconstruction. W. A. Gaunt. Pitman (Medical), London, 1971. xii, 108 pp., illus. £2.25.


Personality and National Character. R. Science, Vol. 175.
Klett Summerson
Photoelectric Colorimeter

No. 800-3
Test Tube
Model

KLETT COLONY MARKER and TALLY

This instrument takes the drudgery and error out of the counting of bacterial colonies.

Klett
MANUFACTURING CO., INC.,
179 East 87th Street, New York, 28, N.Y.

With Bausch & Lomb’s low cost helium-neon gas Laser and Laser Experiment Kit you will teach optical principles most effectually. Furthermore, you'll find your students cooperating most energetically.

Operation of the Laser is uncomplicated and dependable for classroom use. Just plug it in and it begins to lase. Power is .1mw, multi-mode, producing a monochromatic beam at 6328 Angstroms. It's about the size of a shoebox and weighs approximately three pounds.

The Experiment Kit contains all necessary components to conduct impressive demonstrations. There are set-ups for 13 experiments from reflection to a Michelson Interferometer. Even for making and reconstructing holograms. A comprehensive manual and treatise on laser theory and practice are included.

Just write for our catalog 41-2325 and you will have all the facts on this contemporary teaching tool.

BAUSCH & LOMB
SCIENTIFIC INSTRUMENT DIVISION
26403 Bausch Street, Rochester, New York 14602
unequalled sensitivity for scanning radio-labeled TLC plates

MODEL 6000-2
RADIOCHROMATOGRAM SCANNER
For rapid, nondestructive, and highly sensitive separations of compounds labeled with radioactive isotopes, for either analytical or preparative purposes, nothing can compare with the Varian/Berthold Radioactive Scanning System.

As little as 100 dpm of 14C and 3000 dpm of 3H per spot can be detected easily. If the material is present in a 2-mm zone, the sensitivity is 20 dpm for 14C and 600 dpm for 3H. We can detect even smaller amounts of isotopes with higher energies.

More than 700 of your colleagues use the Varian/Berthold TLC Scanner. They just put the plate on and scan. They obtain directly and simultaneously the activity profile and the corresponding integrals. Automatically. No fuss. No bother.

SEE THE 6000-2 AT FASEB BOOTHs C30-33, B30-33