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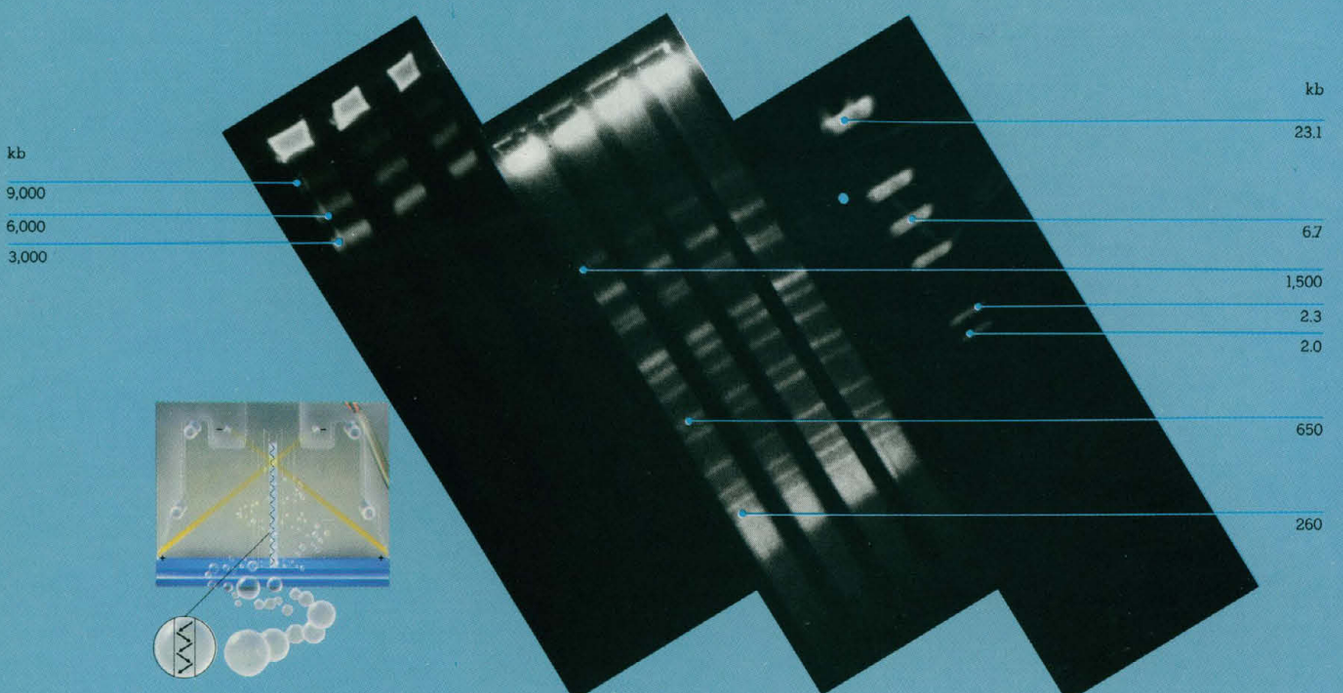

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Fig. 1. 9000 kb separation achieved using GeneLine with whole chromosomes of Schizosaccharomyces pombe.

Fig. 2. High-resolution lanes produced using GeneLine with whole chromosomes of the yeast Saccharomyces cerevisiae.

Fig. 3. Separation down to 2 kb using GeneLine with a HindIII digest of lambda phage DNA.

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COVER Dried intestinal contents of a hawksbill turtle (*Eretmochelys imbricata*). Glass-like needles are siliceous sponge spicules (ash content 92 percent of dry mass). The reef-dwelling hawksbill, endangered throughout its circumtropical range, feeds almost exclusively on choristid and hadromerid sponges in the Caribbean. See page 393. [Anne Meylan, Bureau of Marine Research, State of Florida Department of Natural Resources, St. Petersburg, FL 33701]

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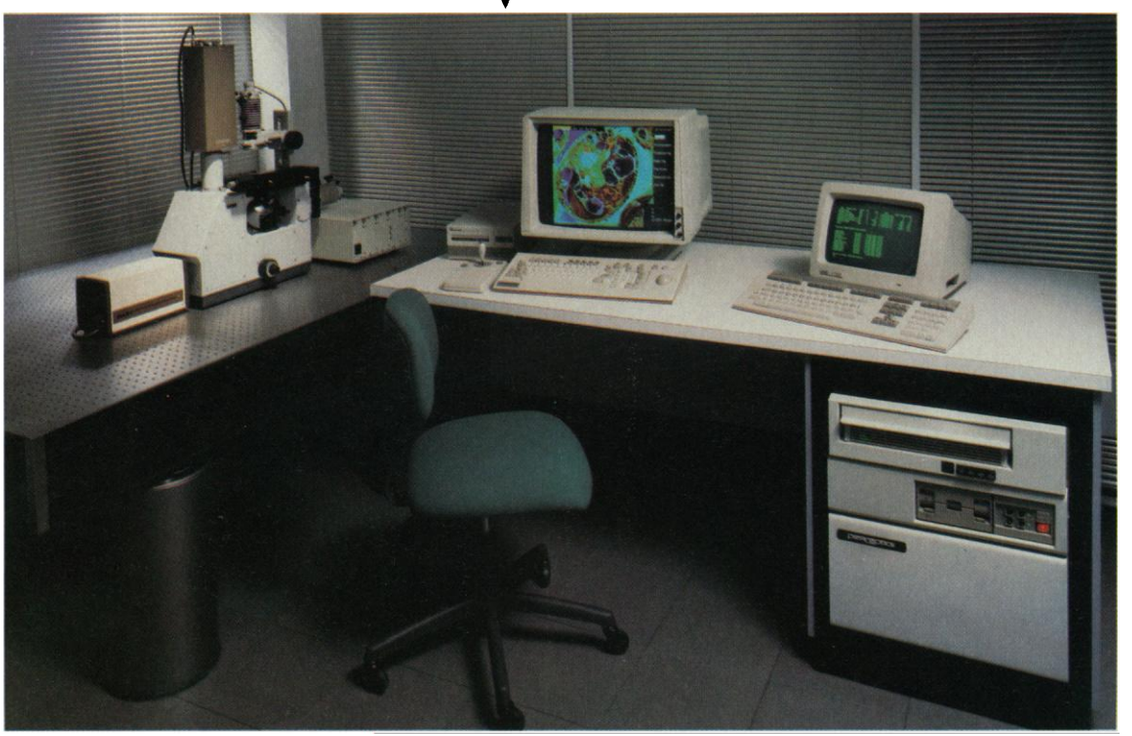

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Historical archeology at Flowerdew Hundred

FLOWERDEW Hundred is a 1000-acre colonial plantation that was established in 1619 by Virginia's first governor; it was later split into many small farms but subsequently consolidated into a single farm that is still operating today (page 362). The methods of historical archeology are shedding light on some features of the plantation's past social, political, and economic organizations; the approach, described by Deetz, melds information from artifacts with that from the written record. Through pipestem chronology—the fatter the inside diameter of the pipestem, the older the pipe—it has been shown that different sections of the plantation were in use during various periods in the 17th and 18th centuries. African slaves lived on the plantation from 1619 on, but their distinctive Colono ware pottery (based in African ceramic tradition but sculpted in European shapes) was recovered only at certain sites and only after 1680. The historical record indicates that around 1680 servants and masters lived apart; it was only then that slaves, needing their own cookware, made Colono ware. From such studies it is possible to learn more about the lives of the people not included in the written record.

Superconductivity at "one"

THE phenomenon of superconductivity was first observed in 1911 yet remained without a plausible theoretical interpretation until 1957 (page 375). In the 1960's, some large-scale and small-scale applications were invented, all limited to use at liquid helium temperatures. In 1986, a major technologic breakthrough took place, a new temperature regime was entered, and the development of high-temperature superconductors was under way. During this year of dramatic progress, superconductors that function at temperatures up to 95 kelvin have been prepared and probed. The new materials are cooled with liquid nitrogen, a more abundant and cheaper coolant than liquid helium, which is only available from natural gas wells; the potential cost savings in coolants, refrigeration, and insulating systems are additional significant factors attracting interest in the new materials. Geballe and Hulm discuss advances in the knowledge of the physics of superconductors and describe technologic improvements and promising applications that may come from the recent synthesis of theory with experiment.

Diet of glass

SPONGES are the major food of coral reef-dwelling hawksbill turtles, *Eretmochelys imbricata* (page 393). Meylan has observed that stomach and intestinal contents of juvenile and adult hawksbill turtles throughout the Caribbean are largely glassy spicules derived from silica-rich sponges (cover). Sponges often produce substances that are toxic for some fishes, turtles, and laboratory animals, but the hawksbills appear impervious to the noxious effects. (Hawksbill meat has been associated with sporadic human fatalities; pehaps toxic substances in the diet of the hawksbills play a part in this phenomenon.) Both through their heavy predation on sponges and by exposing sequestered food sources on the reef to other marine predators, the hawksbills may have been a force driving tropical reef dynamics, biologic diversity, and species succession. These turtles are now an endangered species because they are prized, and thus hunted, as sources of tortoiseshell.

Targeted killing of cancer cells

One form of a "magic bullet" that can kill human cancer cells in vitro has been developed by Liu *et al.*; the approach used may prove to have broad applicability for destroying many types of tumor cells (page 395). In the prototype experiments human melanoma cells were killed by cytotoxic T cells: the tumor cells had surface receptors for the melanoma-stimulating hormone and the killer cells had T cell receptors on their surfaces; they were brought together by a chemically coupled complex consisting of a synthetic analog of the melanoma-stimulating hormone and an antibody that reacts with a part of the T cell receptor. The use of a hormone instead of a specific antibody to locate the tumor cell makes this approach valuable for use with tumor cell variants that do not express tumor-specific antigens and for those that secrete their surface antigens. In addition, it is likely that the expression by tumor cells of hormone receptors (or growth factor receptors) may more consistently accompany the condition of malignancy than does the expression of tumor-specific antigens.

Autoimmunity to calcium channels

AUTOANTIBODIES that can react with calcium channels are directly involved in the pathogenesis of Lambert-Eaton syndrome (page 405). This disease, which is a myasthenic syndrome, is characterized by generalized muscle weakness; this weakness is a consequence of the insufficient release in muscles of transmitter substances from nerve terminals. In addition to the neuromuscular dysfunctions, patients with Lambert-Eaton syndrome commonly develop lung cancers. Kim and Neher show that antibodies from patients with Lambert-Eaton syndrome block calcium channels of test (bovine adrenal chromaffin) cells; the blockade is an all-or-nothing phenomenon for individual channels, and currents measured in unblocked channels showed normal kinetics both with respect to when channels open and how long they remain open. It is still unclear when and why calcium channel autoantibodies are produced in this disease and exactly how reductions in the numbers of functioning channels in both neuromuscular junctions and in cancer cells contribute to the pathogenesis of this syndrome.

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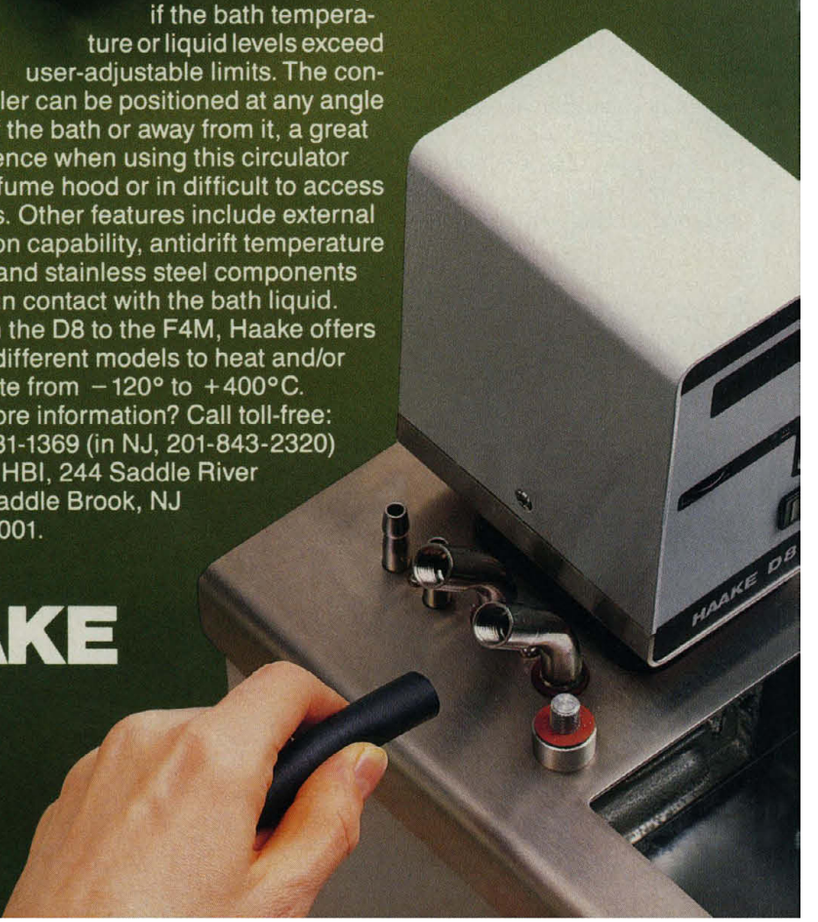

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Storage of Spent Nuclear Fuels in Nevada

The thousand pages of the recently enacted comprehensive budget bill contained language designating Nevada as the prime candidate to host a spent nuclear fuel deposit site (News & Comment, 1 January, p. 15). The mechanism by which the choice was implemented is controversial, but the decision was a good one.

The Yucca Mountain site is located in a desert region in southern Nevada. The area is owned and guarded by the federal government. A large number of aboveground and underground tests have been conducted about 15 miles away, depositing enormous amounts of plutonium and fission products. Wells located within a quarter-mile from shot holes have been monitored by the Environmental Protection Agency. Neither notable amounts of fission products nor above-regulatory limits of tritium have been detected. The absence of lateral movement of fission products is partially related to the hydrology of the region. Annual rainfall is on the order of 6 inches. With the exception of storm flow into dry lakes, much of the moisture is dissipated by evapotranspiration. The distance down to the water table is about 2000 feet. Flow in the liquid below the water table (very slow) is toward Death Valley, about 50 miles to the west.

When fuel assemblies are removed from nuclear reactors, they essentially cease to undergo fission, but decay of fission products continues to produce much radiation and heat. In practice, the spent assemblages are immersed in pools of water which provide shielding and cooling. After a year in the pool, short-lived nuclides such as the 8-day iodine-131 have disappeared; after 10 years, the radiation is only a small fraction of that originally present; the heat production in a typical spent-fuel assemblage containing 461 kilograms of uranium has dropped to 550 watts. However, potentially dangerous amounts of radioactivity remain—for example, the 29-year strontium-90 and the 30-year cesium-137. In the early time span beyond 10 years, heat production diminishes with a half-life of about 30 years.

Burial of fuel assemblages would provide shielding against radiation, but emission of heat would continue. It is this heat that makes burial in holes drilled in silicate rocks in the saturated zone suspect, for the heat would induce convective motion of hot water with accompanying corrosion. In contrast, the relatively dry environment above the water table would be comparatively free from corrosive effects. Archeological finds of ancient delicate objects of both organic and inorganic composition testify to the benign influence of dry environments on their preservation.

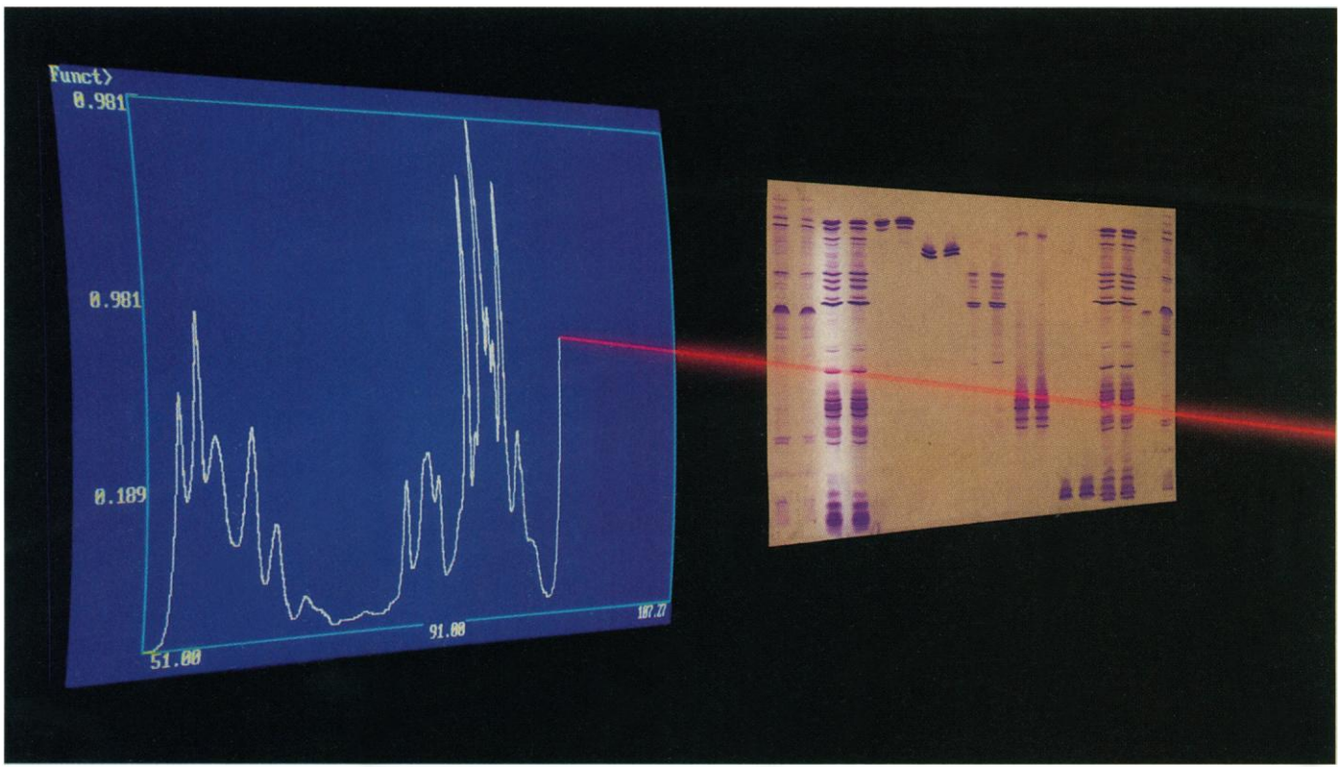
At the proposed location of burial in welded tuff at Yucca Mountain, uncertainties remain, such as effects of heat on the containing rock. In addition, there is some possibility of unexpected tectonic events. However, hazards in Nevada seem small in comparison with those that already exist elsewhere. Today more than 100 nuclear power reactors have been operating at 60 locations in about 30 states. Nationwide, they are the energy source of about 18 percent of the nation's electricity, and in some states account for more than half the electricity. Even if use of nuclear power were stopped, the problem of disposing of spent fuel would remain. Maintaining the spent fuel indefinitely in the many present locations near rivers or other bodies of water would multiply the risk of a future crisis.

The current legislation provides for further studies of the Nevada site at a cost estimated at more than a billion dollars, though the region has already been studied exhaustively by the U.S. Geological Survey and National Laboratories. The next phase of investigation will probably include excavation of tunnels into Yucca Mountain. The study should include emplacing and monitoring the effects of a limited number of spent fuel containers. A highly instrumented experimental facility that included retrieval capability could safely produce information that would permit design of a large-scale burial site.

Procedures for and politics of the disposal of nuclear waste both here and abroad are the subject of a scholarly study by Luther J. Carter.* His book and articles were a factor in the congressional action selecting the Nevada site for further study.—PHILIP H. ABELSON

**Nuclear Imperatives and Public Trust* (Resources for the Future, Washington, DC, 1987).

Bring the facts to light



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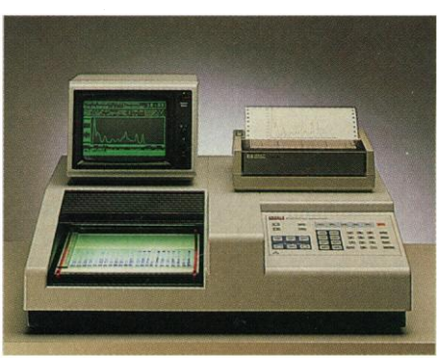

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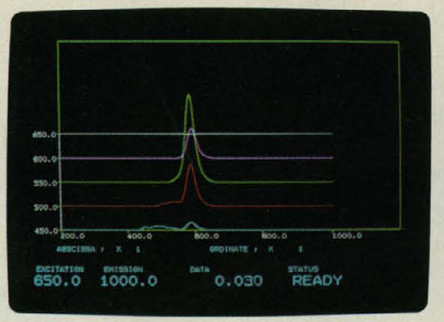

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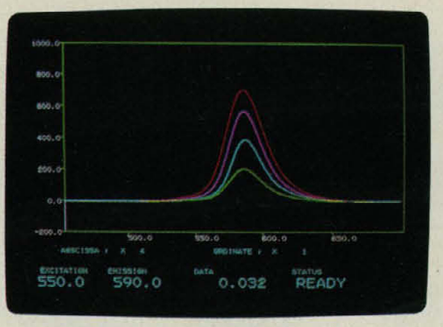

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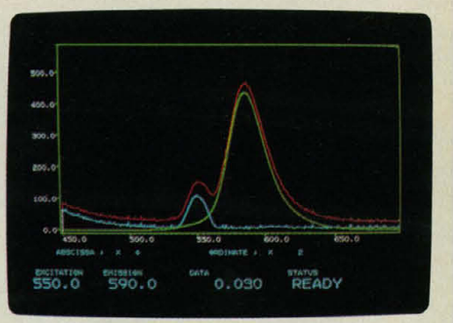

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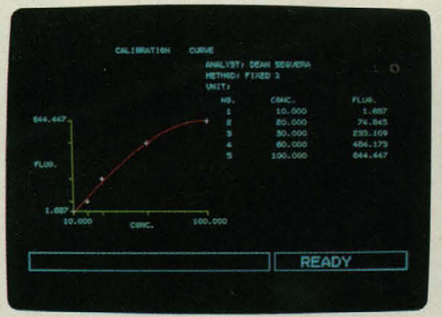

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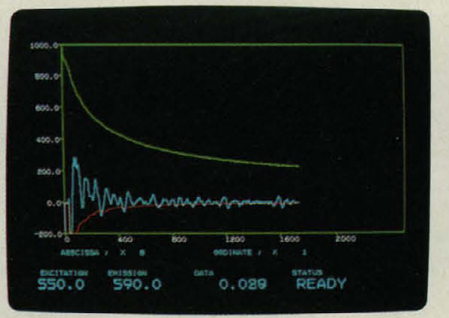

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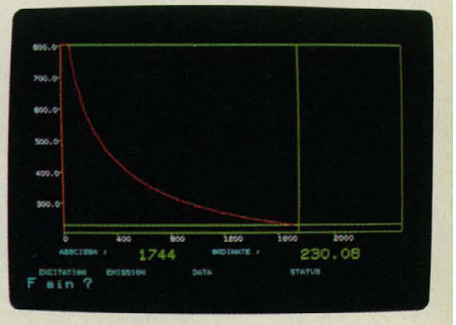

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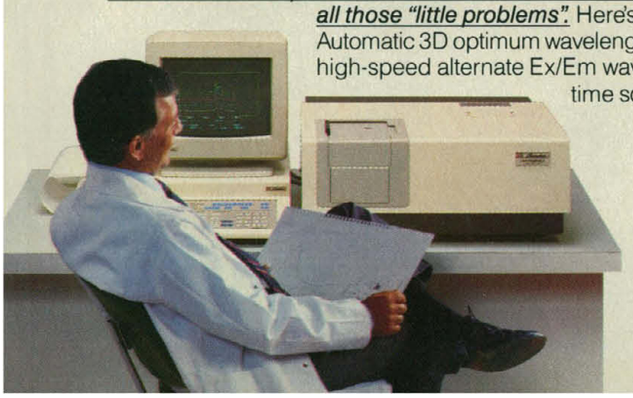
Shimadzu's new spectrofluorometer RF-5000 does away with all those "little problems". Here's how: Automatic 3D optimum wavelength search; high-speed alternate Ex/Em wavelength time scan (slews at 9000 nm/min!); quantitative analysis with first through third order curve fits (with linear, log, log-logit axes!); S/N typically found to be over 400 with a 10 nm bandpass (Ex and Em) for the Raman band of H_2O at 350 nm Ex and 397 nm Em; storage of 15 scans, 4 calibrations, 8 parameter files and 4 time scan files; addition, subtraction and smoothing—even on the fly! And for superior data presentations it comes with a high resolution color video display and a high resolution alphanumeric and graphic printer/plotter.



So, now you can forget all those little problems. The only reservation you should have is with your Shimadzu representative for a demo of the new RF-5000. You never had it so easy. Just call (301) 381-1227.

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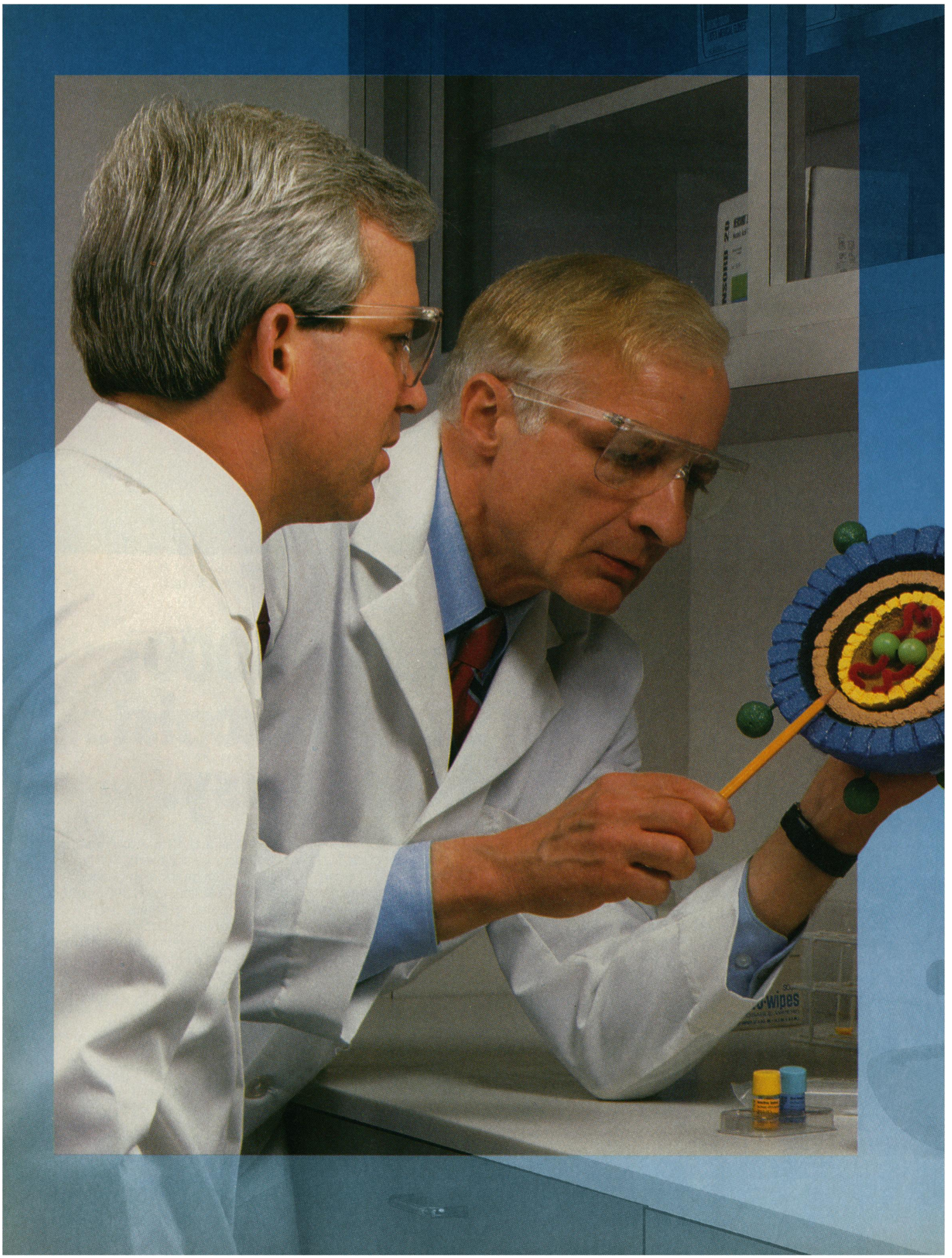

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◂**BIOS TIMEFRAME** To support and protect the blot, BIOS has developed a rigid carrier piece as a frame for the membrane. These easy to handle framed membranes come in sizes and membrane types that are compatible with your molecular genetic requirements. They are designed to fit together with the other instruments in the *BIOS Timeframe System.*

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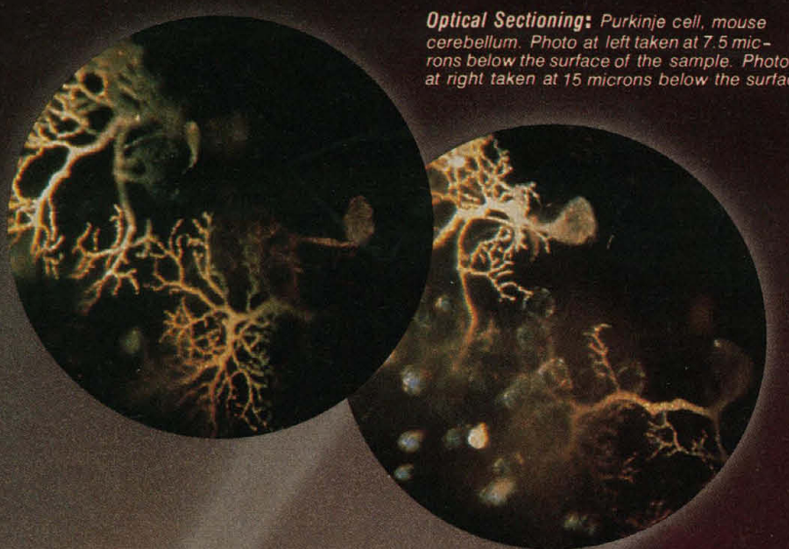

Optical Sectioning: *Purkinje cell, mouse cerebellum. Photo at left taken at 7.5 microns below the surface of the sample. Photo at right taken at 15 microns below the surface.*

Confocal imaging offers improved horizontal resolution — as much as 1.4 times that of a conventional light microscope. In addition, TSM provides powerful optical sectioning. This feature allows imaging at any depth (or depths) within a sample, limited only by the transparency of the material and the working distance of the objective used. This feature results from the TSM's ability to reject light scattered outside the focal plane.

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Tracor Northern

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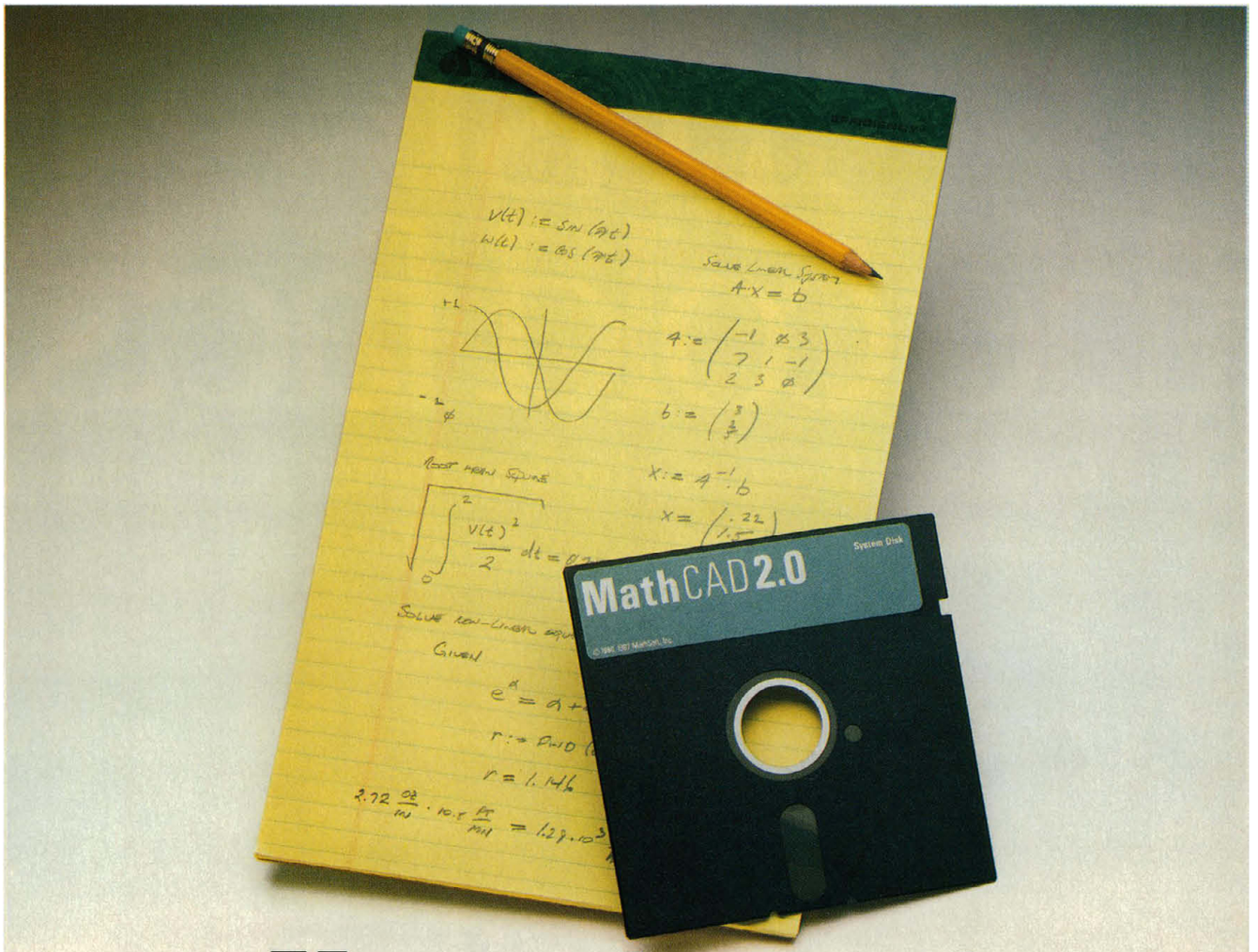

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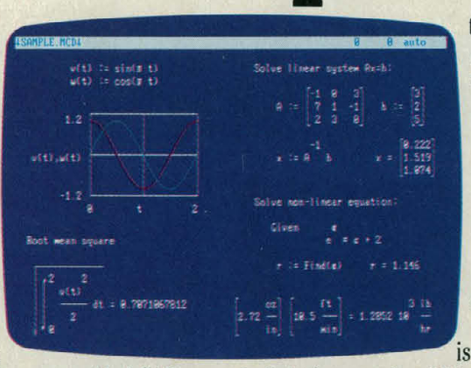

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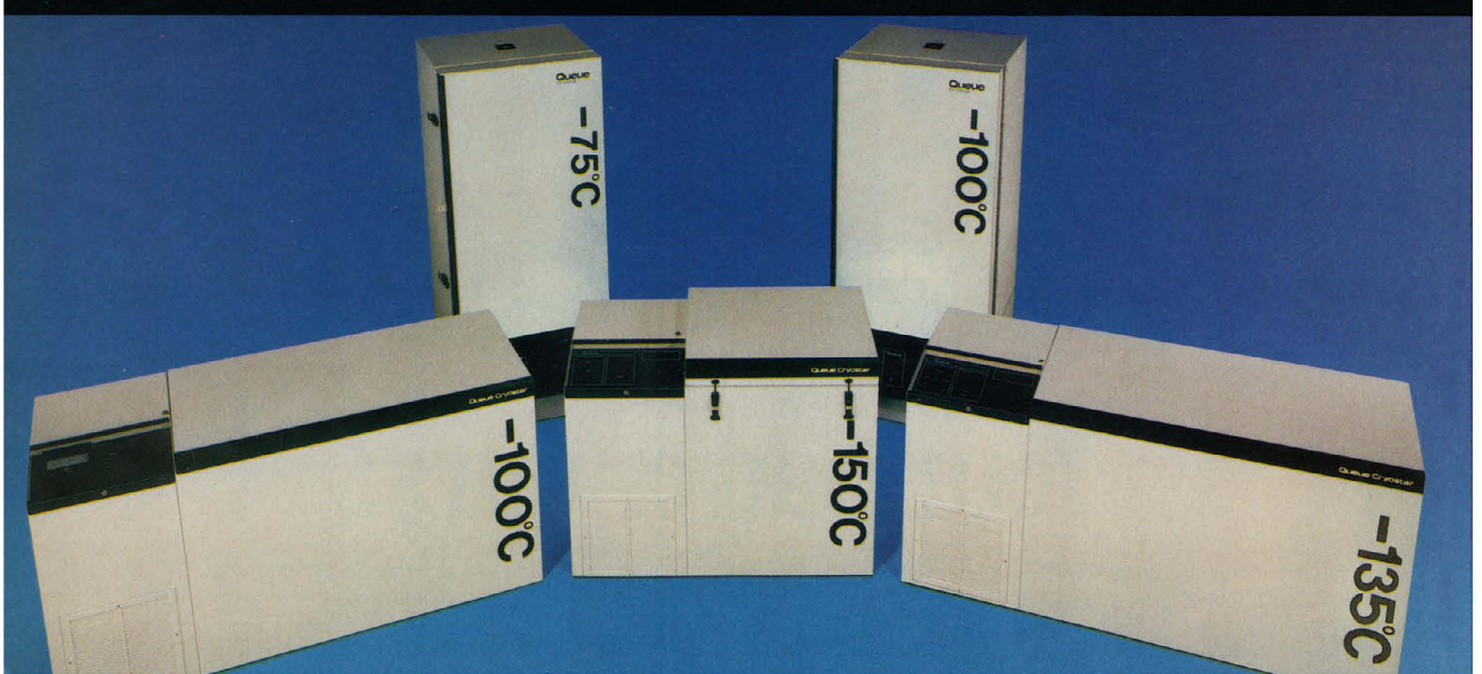

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7210	−75°	13.0 cu. ft., upright	−50° to −75°
7130	−100°	12.85 cu. ft., chest	−75° to −100°
7230	−100°	13.0 cu. ft., upright	−75° to −100°
7180	−120°	12.85 cu. ft., chest	−100° to −120°
7160	−135°	4.3 cu. ft., chest	−100° to −135°
7140	−135°	9.4 cu. ft., chest	−100° to −135°
7170	−150°	4.3 cu. ft., chest	−125° to −150°

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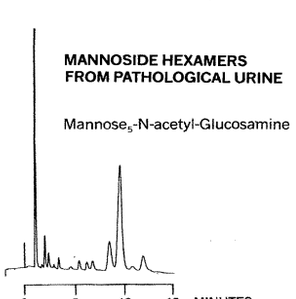

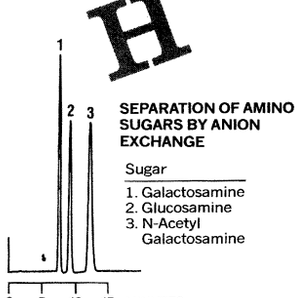

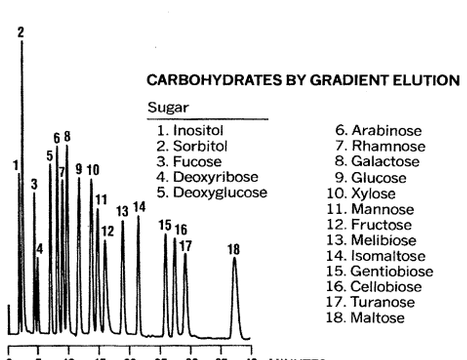

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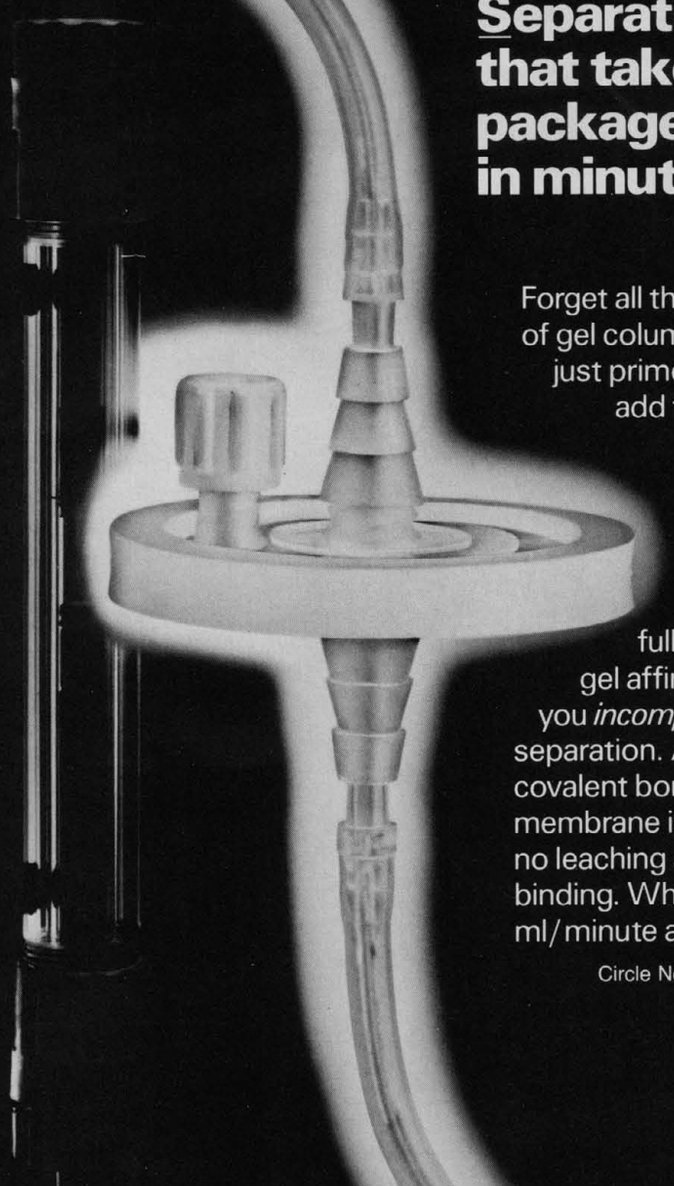

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HRLC™ MA7 cartridges give you higher resolution in half the time.

For rapid purification monitoring, you can't beat protein HRLC (high resolution liquid chromatography) from Bio-Rad. As the chromatogram shows, immunoglobulin purity can be measured in as little as *two minutes*. That allows you to change your large scale purification conditions very quickly in order to maintain optimum purity and activity. On the other hand, slower techniques such as "fast" protein LC can be risky. You could lose valuable product before detecting a purification problem—simply by waiting around for answers.

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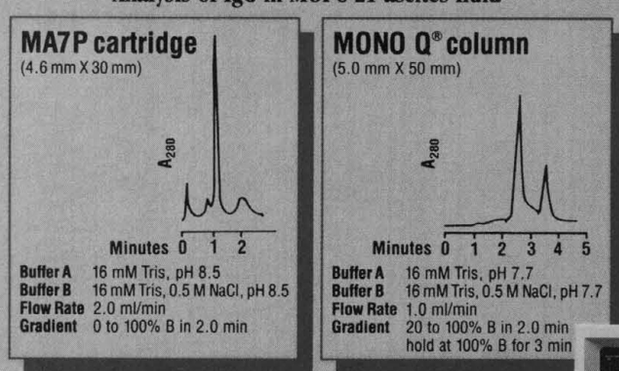
It's the Chemistry that Counts™

HRLC MA7 cartridges out-perform conventional fast protein LC columns because of the unique chemistry involved. The nonporous nature of the HRLC MA7 media allows ion exchange to take place on the *surface* of the bead. As a result of these fast exchange kinetics, separations and regenerations occur much faster than is possible with conventional columns. (See table).

Analysis of IgG in MOPC 21 ascites fluid



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Comparison of the HRLC MA7P cartridges and the MONO Q columns

PARAMETER	HRLC MA7P	MONO Q
Speed of separation	1-10 minutes	5-40 minutes
pH stability	2-12	2-12
Pressure limit	2,500 psi (175 bar)	1,450 psi (100 bar)
Particle size	7 micron	10 micron
Eluted peak volume	0.10 ml	not reported
Kinetics	rapid (nonporous)	diffusion limited (porous)
Matrix type	polymer	polymer
Dimensions	4.6 X 30 mm	5.0 X 50 mm

- **Disposable cartridge design.** Compare the price of an HRLC MA7 cartridge with a conventional fast protein LC column. You'll be surprised by the difference. New technology allows Bio-Rad to offer these cartridges at a fraction of the cost of conventional columns.
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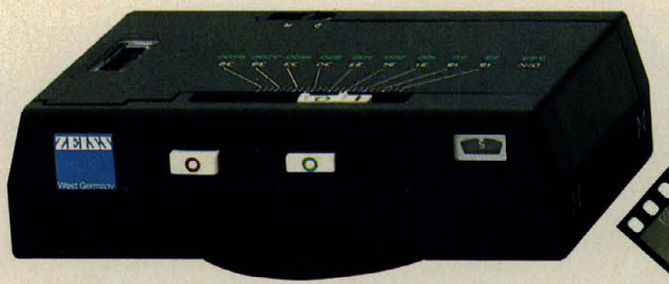
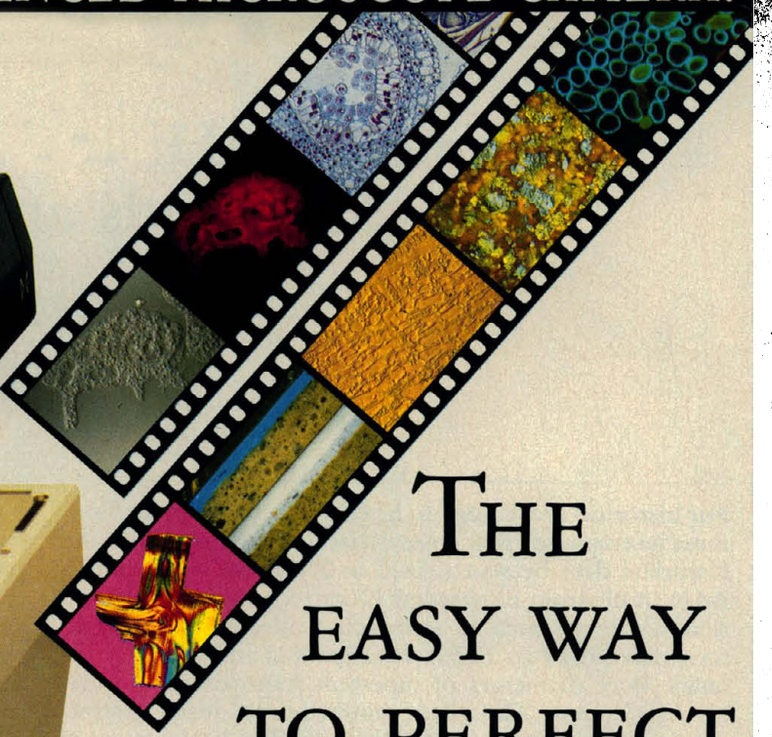


Basic body MC 100 with film cassette 35 mm Mot



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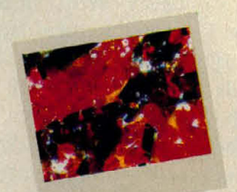
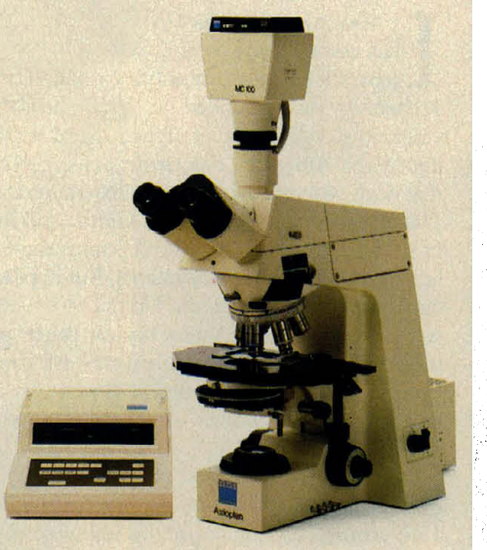
4 x 5" Camera attachment for large-format photography



Camera attachment CB 33 for instant photography



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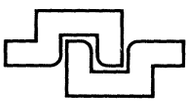
NATO International Scientific Exchange Programmes



Applications are invited for support under the programmes of the NATO Science Committee

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ASIs are tutorial courses of two weeks' duration on new important topics for up to 100 scientists and research students. They aim at the dissemination of advanced scientific knowledge and the promotion of international contacts among scientists.

Advanced Research Workshops

ARWs are working meetings which enable scientists and engineers to review the state-of-the-art in specific topics in fast moving fields and to formulate recommendations for the future. They are of about five days' duration.

Collaborative Research Grants

CRGs are aimed at encouraging cooperation between researchers in different nations of the Alliance seeking solutions to common problems. The proposed research must be specific and carried out jointly by researchers in at least two member countries. Short reciprocal visits are funded.

Those wishing to organize and direct an ASI or an ARW, or participate in collaborative research should write for information and application forms to :

Scientific Affairs Division (Ref. 1988-1), NATO, B-1110 Brussels, Belgium

1988

Programme of meetings

The Advanced Study Institutes and Advanced Research Workshops to be held in 1988 are given in the following pages. **Each meeting is held under the responsibility of its director, to whom all requests for information, attendance or support should be addressed.** Participation or tuition fees are not required from participants, some of whom may obtain small grants from the meeting director to assist with travel and living expenses. Attendance at ASIs is open to all suitably-qualified applicants. Attendance at ARWs is usually by invitation only, but a few places are available for particularly well-qualified scientists upon application to the director.

Locations and dates noted in this list may change; titles and addresses have been abridged. Many meetings are of an interdisciplinary nature - please check all subject areas.

In addition to the general Advanced Study Institutes and Advanced Research Workshops Programmes, NATO supports these types of meeting as part of a special effort in Global Transport Mechanisms (GTM), Selective Activation of Molecules (SAM), Cell to Cell Signals in Plants and Animals (CCS), Sensory Systems for Robotic Control (ROB), and Condensed Systems of Low Dimensionality (SLD).

PUBLICATION - The papers and discussions are published in the NATO ASI Series by :
Plenum - Reidel - Nijhoff - Springer Verlag

Advanced Study Institutes

LIFE SCIENCES — *SCIENCES DE LA VIE*

THE MOLECULAR BASIS OF CELL GROWTH REGULATION
Dr. M BARBACID, NCI-Frederick Cancer Res. Facil., Bldg. 539, P.O. Box B, Frederick, MD 21701, USA
October 1988 : Mallorca, Spain 267/87

PROSTANOIDS AND DRUGS
Prof. GC FOLCO, School of Pharmacy, Univ. of Parma, Via Balzaretti 9, 20129 Milan, Italy
5-16 September 1988 : Erice, Italy 308/87

TECHNIQUES AND NEW DEVELOPMENTS IN PHOTOSYNTHESIS RESEARCH
Prof. J BARBER, Imperial College, Dept. Biology, Prince Consort Road, London SW7 2BB, UK
31 July-13 August 1988 : Spetsai, Greece 360/87

RECEPTORS, MEMBRANES TRANSPORT AND SIGNAL TRANSDUCTION
Prof. JP CHANGEUX, Neurobiol. Molec., Inst. Pasteur, 25, r. Dr. Roux, 75724 Paris Cedex 15, France
14-28 August 1988 : Spetsai, Greece 362/87

ORGANIZATION AND FUNCTION OF THE EUKARYOTIC GENOME
Prof. HG ZACHAU, Inst. f. Physiol. Chem. der Univ., Goethestr.33, 8000 München 2, Germany
1-10 September 1988 : Spetsai, Greece 607/87

IMMUNOLOGICAL ADJUVANTS AND VACCINES
Dr. G GREGORIADIS, Acad. Dept. of Med., Royal Free Hosp. Sch., Pond Street, London NW3 2QG, UK
24 June - 1 July : Cape Sounion, Greece 657/87

SENSORY TRANSDUCTION
Prof. A. BORSELLINO, SISSA, Strada Costiera, 11, 34014 Trieste, Italy
9-19 June : Erice, Italy 714/87

THE FORMATION, PROCESSING AND EVALUATION OF MEDICAL IMAGES
Dr. AE TODD-POKROPEK, Univ. College, Medical Physics Dept., Gower Street, London, WC1E 6BT, UK
12-24 September : Portugal 911/87

VASCULAR ENDOTHELIUM : RECEPTORS AND TRANSDUCTION MECHANISMS
Prof. JD CATRAVAS, Pharmacology Dept., Medical College of Georgia, Augusta, GA 30912, USA
18-29 June 1988 : Cephalonia, Greece 938/87

THE ENZYME CATALYSIS PROCESS : ENERGETICS, STRUCTURE AND DYNAMICS
Dr. JL HOUBEN, Ist. di Biofisica, Via San Lorenzo, 26, 56100 Pisa, Italy
12-24 September 1988 : Il Ciocco, Italy 939/87

PHYSICS AND CHEMISTRY — *PHYSIQUE ET CHIMIE*

EVOLUTIONARY PHENOMA IN GALAXIES
Dr. JE BECKMAN, Ist. de Astrofisica de Canarias, 38200 La Laguna, Tenerife, Spain
4-15 July 1988 : Tenerife, Spain 259/87

TIMING NEUTRON STARS
Prof. H DGELMAN, MPI für Extraterrestrische Physik, 8046 Garching, Germany
4-15 April 1988 : Izmir, Turkey 263/87

NEW THEORETICAL CONCEPTS FOR UNDERSTANDING ORGANIC REACTIONS
Prof. J BERTRAN, Dep. de Quimica, Univ. Autonoma de Barcelona, 08193 Bellaterra, Spain
19 June-2 July 1988 : San Feliu de Guixols, Spain 359/87

LIQUIDS AT INTERFACES
Prof. PGDE GENNES, Collège de France, 11 Pl. Berthelot, 75231 Paris Cedex 05, France
30 May-24 June 1988 : Les Houches, France 572/87

SPECTROSCOPIC AND DEFRACTION TECHNIQUES IN INTERFACIAL ELECTRO-CHEMISTRY
Dr. C GUTIERREZ, Ist. Rocasolano, CSIC, Serrano 119, 28006 Madrid, Spain
3-15 July 1988 : Puerto de la Cruz, Canaries, Spain 600/87

VIBRONIC PROCESSES IN INORGANIC CHEMISTRY
Prof. CD FLINT, Chemistry Dept., Birkbeck College, Malet St., London WC1E 7HX, UK
5-17 September 1988 : Pugnochiuso, Italy 606/87

DIFFRACTION-LIMITED IMAGING AT VERY LARGE TELESCOPES
Dr. D ALLOIN, Observatoire de Paris/Meudon, 92195 Meudon-Principal Cedex, France
13-23 September 1988 : Cargese, Corsica, France 605/87

TECHNIQUES AND CONCEPTS OF HIGH ENERGY PHYSICS
Prof. T FERBEL, Physics Dept., University of Rochester, Rochester N.Y. 14627, USA
14-25 July 1988 : St Croix, US Virgin Islands 617/87

RANDOM FLUCTUATIONS AND PATTERN GROWTH EXPERIMENTS AND THEORY
Dr. HE STANLEY, Ctre for Polymer Studies, Boston University, Boston, MA 02215, USA
17-31 July 1988 : Cargese, France 644/87

METHODS IN FIELD AND SUPERSTRING THEORIES
Prof. A DAIGNEAULT, Dep. de Math, Universite, C.P. 6128, Succ. A, Montreal, PQ, H3C 3J7, Canada
6-24 June 1988 : Montreal, Canada 645/87

ATOMIC PHYSICS OF HIGHLY-IONIZED ATOMS
Dr. R MARRUS, Physics Dept., Univ. of California, Berkeley, CA 94720, USA
5-10 June 1988 : Cargese, Corsica, France 658/87

POLYMER COLLOIDS III
Prof. RH OTTEWILL, School of Chemistry, Univ. of Bristol, Cantocks Close, Bristol BS8 1TS, UK
3-15 July 1988 : Strasbourg, France 659/87

OPTICAL COMPUTING
Prof. BS WHERRETT, Physics Dept., Heriot-Watt Univ., Riccarton, Edinburgh EH14 4AS, UK
14-26 August 1988 : Edinburgh, UK 678/87

THE TECHNIQUES AND APPLICATIONS OF VERY LONG BASELINE INTERFEROMETRY
Dr. M FELLI, Oss. Astrofisico di Arcetri, Largo E. Fermi, 5, 50125 Florence, Italy
11-25 September 1988 : Bologna, Italy 716/87

A METHOOOLOGICAL APPROACH TO MULTINUCLEAR NMR IN LIQUIOS AND SOLIDS : CHEMICAL APPLICATIONS
Prof. P GRANGER, Lab. de RMN, Inst. de Chimie, BP 296/R8, 67008 Strasbourg Cedex, France
22 August - 2 September 1988 : Maratea, Italy 791/87

SPECTROSCOPY OF INORGANIC BIOACTIVATORS
Prof. T THEOPHANIDES, Univ., Dept. de Chimie, CP 6128, Succ. A, Montreal, Quebec H3C 3J7, Canada
20-31 May 1988 : Thessaloniki, Greece 793/87

NEW ASPECTS OF NUCLEAR DYNAMICS
Prof. PKA DE WITT HUBERTS, Sectie-K, NIKHEF, PB 41882, 1009 DB Amsterdam, Netherlands
8-21 August 1988 : Dronten, Netherlands 931/87

ATOMS IN STRONG FIELDS
Prof. CA NICOLAIDES, Theor. & Physic. Chemis. Inst., NHRF, 48 Vas. Constantinou Ave., Athens 116/35, Greece
25 May - 7 June 1988 : Kos, Greece 933/87

ADVANCED METHODS OF DETERMINATION OF CROSSLINKING AND SCISSION IN POLYMERS AND THEIR EFFECT ON MECHANICAL PROPERTIES
Prof. O GUVEN, Hacettepe Univ., Chemistry Dept., Beytepe, Ankara 06532, Turkey
4-15 September 1988 : Antalya, Turkey 934/87

REACTIVE AND FLEXIBLE MOLECULES IN LIQUIDS
Prof. T DORFMULLER, Chemistry Dept., Univers. of Bielefeld, PF 8640, 4800 Bielefeld, Germany
19-29 September 1988 : Chalkidiki, Greece 935/87

CONSTRUCTIVE QUANTUM FIELD THEORY
Prof. G VELO, Dip. di Fisica, Via Irnerio, 46, 40126 Bologna, Italy
1-15 July 1988 : Erice, Italy 937/87

COMPUTER SIMULATION OF FLUIDS, POLYMERS AND SOLIDS
Dr. CRA CATLOW, Dept. of Chemistry, Keele University, Keele, Staffs ST5 5BG, UK
4-17 September 1988 : Bath, UK 943/87

SOLID STATE MICROBATTERIES
Dr. JR AKRIDGE, Eveready Battery Co. Inc., 25225 Detroit Rd., PO Box 45035, Westlake, OH 44145, USA
3-15 July 1988 : Erice, Italy (SLD) 912/87

MATHEMATICS — *MATHEMATIQUES*

NUMERICAL LINEAR ALGEBRA, OIGITAL SIGNAL PROCESSING AND PARALLEL ALGORITHMS
Dr. P VAN DOOREN, Philips Research Lab., Av. Van Becelaere 2, Box 8, 1170 Brussels, Belgium
1-12 August 1988 : Leuven, Belgium 305/87

NUMBER THEORY AND APPLICATION
Dr. RA MOLLIN, Mathematics Dept., University of Calgary, Calgary, Alberta T2N 1N4, Canada
17-30 April 1988 : Banff, Alberta, Canada 720/87

COMPUTER SCIENCE — *INFORMATIQUE*

CONSTRUCTIVE METHODS IN COMPUTING SCIENCE
Prof. FL BAUER, Inst für Informatik, Technische Universität, PF 20 2420, 8000 München 2, Germany
24 July - 5 August 1988 : Marktoberdorf, Germany 361/86

KNOWLEDGE-BASED ROBOT CONTROL
Dr. GN SARIDIS, Rensselaer Polytechnic Inst., Troy, NY 12181, USA
3-5 October 1988 : Bonas, France (ROB) 853/87

EARTH SCIENCES AND ASTROPHYSICS — *SCIENCES DE LA TERRE ET ASTROPHYSIQUE*

TOMOGRAPHY IN GEOPHYSICS
Mr. J ZINN-JUSTIN, Serv. de Physique Théorique, CEN Saclay, 91191 Gif-sur-Yvette, Cedex, France
9 August-3 September 1988 : Les Houches, France 570/87

FIELDS, STRINGS, CRITICAL PHENOMENA
Mr. J ZINN-JUSTIN, Serv. de Physique Théorique, CEN Saclay, 91191 Gif-sur-Yvette, Cedex, France
28 June-5 August 1988 : Les Houches, France 571/87

PROTOZOA AND THEIR ROLE IN MARINE PROCESSES
Dr. PC REID, Inst. for Marine Env. Res., Prospect Place, The Hoe, Plymouth PL1 3DH, UK
24 July-5 August 1988 : Plymouth, UK 604/87

MICROWAVE REMOTE SENSING FOR OCEANOGRAPHIC AND MARINE WEATHER-FORECAST MODELS
Prof. AP CRACKNELL, Carnegie Physics Lab., University of Dundee, Dundee DD1 4HN, UK
14 August - 3 September 1988 : Dundee, UK 619/87

COSMIC GAMMA RAYS AND COSMIC NEUTRINOS
Prof. MM SHAPIRO, 205 Yoakum Pkwy., 2-1720, Alexandria, VA 22304, USA
20-30 April 1988 : Erice, Italy 648/87

GEOMAGNETISM AND PALAEOMAGNETISM
Prof. SK RUNCORN, School of Physics, University, Newcastle upon Tyne NE1 7RU, UK
11-23 April 1988 : Newcastle upon Tyne, UK 677/87

OARK MATTER IN THE UNIVERSE
Prof. P GALEOTTI, University, Ist. di Cosmogeofisica, Corso Fiume 4, 10133 Torino, Italy
9-19 May 1988 : Erice, Italy, 715/87

EXPOSED CROSS-SECTIONS OF THE CONTINENTAL CRUST
Dr. MH SALISBURY, Ctre for Marine Geology, Geology Dept., Dalhousie Univ., Halifax, NS B3H 3J5, Canada
19-27 September 1988 : Killarney, Ontario, Canada 929/87

MODELLING THE OCEAN GENERAL CIRCULATION AND GEOCHEMICAL TRACER TRANSPORT
Dr. D ANDERSON, Atmospheric Physics, Clarendon Lab., Parks Rd., Oxford OX7 1JE, UK
15 - 26 February 1988 : Les Houches, France (GTM) 925/86

RECENT ADVANCES IN THE MODELING OF HYDROLOGIC SYSTEMS
Dr. DS BOWLES, Water Research Lab., Utah State University, Logan, UT 84322-8200, USA
10-22 July 1988 : Sintra, Portugal (GTM) 597/87

APPLIED SCIENCES AND ENGINEERING — *SCIENCES APPLIQUEES ET INGENIERIE*

AOSORPTION SCIENCE AND TECHNOLOGY
Prof. AE RODRIGUES, Dep. Engenharia Quimica, Rua dos Bragas, 4099 Porto Codex, Portugal
17-29 July 1988 : Vimeiro, Portugal 257/87

STRUCTURE-PROPERTY RELATIONSHIPS IN ION-BEAM SURFACE-MODIFIED CERAMICS : THEORY AND APPLICATIONS
Dr. CJ McHARGUE, Oak Ridge Nat. Lab., P.O. Box X, Oak Ridge, TN 37831-6118, USA
28 August-10 September 1988 : Il Ciocco, Italy 264/87

SUPERCONDUCTIVE ELECTRONICS
Prof. H WEINSTOCK, AFOSR/NE, Bolling AFB, Washington, DC 20332-6448, USA
26 June-8 July 1988 : Il Ciocco, Italy 303/87

ADVANCES IN FATIGUE SCIENCE AND TECHNOLOGY
Prof. CA MOURA BRANCO, CEMUL/IST, Technical Univ. of Lisbon, 1096 Lisboa Codex, Portugal
5-15 April 1988 : Alvor, Algarve, Portugal 601/87

PLASMA-SURFACE INTERACTION AND PROCESSING OF MATERIALS
Prof. O AUCIELLO, NC State Univ., Dept. of Nuclear Eng., Raleigh, NC 27695-7909, USA
4-16 September 1988 : Alicante, Spain 603/87

SURFACES AND INTERFACES OF CERAMIC MATERIALS
Dr. L-C DUFOUR, Chimie des Matérieaux, IREQ, CP 1000, Varennes, Quebec J0L 2P0, Canada
4-16 September 1988 : Oléron, France 610/87

RECENT ADVANCES IN HYDRAULIC PHYSICAL MODELLING
Dr. RBF MARTINS, Dept. of Hydraulics, LNEC, Av. do Brasil 101, 1799 Lisboa Codex, Portugal
4-15 July 1988 : Lisbon, Portugal 613/87

UNDERWATER ACOUSTIC DATA PROCESSING
Prof. YT CHAN, Electrical Eng. Dept., Royal Military Coll., Kingston, Ontario K7K 5L0, Canada
18-29 July 1988 : Kingston, Ontario, Canada 874/87

UNDERGROUND STORAGE OF NATURAL GAS - THEORY AND PRACTICE
Prof. MR TEK, 73-4329C Ahi Ahi St., Kailua Kona, Hawaii 96740, USA
2-13 May 1988 : Ankara, Turkey 875/87

ENERGY STORAGE SYSTEMS : FUNDAMENTALS AND APPLICATIONS
Dr. B KILKIS, Grad. School of Nat. Sc., Middle East Techn. Univ., Inonu Bulvari, ODTU, Ankara, Turkey
27 June - 12 July 1988 : Izmir, Turkey 936/87

REDUCED THERMAL PROCESSING OF VLSI CIRCUITS
Dr. RA LEVY, AT&T Bell Laboratories, Murray Hill, NJ 07974, USA
20 June - 1 July 1988 : Il Ciocco, Italy 942/87

SOCIAL & BEHAVIOURAL SCIENCES
SCIENCES SOCIALES ET DU COMPORTEMENT

SOCIAL COMPETENCE IN DEVELOPMENTAL PERSPECTIVE
Dr. BH SCHNEIDER, Child Study Ctr., 10 McDougall Lane, Ottawa, Canada K1N 6N5
8-18 July 1988 : Les Arcs, France 014/87

ETHOEXPERIMENTAL ANALYSIS OF BEHAVIOR
Dr. PF BRAIN, University College, Dept. of Zoology, Swansea SA2 8PP, UK
11-25 July 1988 : Il Ciocco, Italy 573/87

CREDIBILITY ASSESSMENT - A UNIFIED THEORETICAL AND RESEARCH PERSPECTIVE
Dr. JC YUILLE, Psychology Dept., Univ. of Br. Columbia, 2136 W. Mall, Vancouver, BC, V6T 1Y7, Canada
14-23 June 1988 : Maratea, Italy 790/87

THE ORIGIN OF HUMAN LANGUAGE
Prof. B. CHIARELLI, Ist. di Antropologia, Via del Proconsolo 12, 50122 Florence, Italy
July 1988 : Florence, Italy 932/87

Advanced Research Workshops

LIFE SCIENCES — *SCIENCES DE LA VIE*

PSYCHOBIOLOGY OF STRESS
Prof. A OLIVERIO, Inst. di Psicobiologia e Psicofarmacologia del CNR, Via Reno 1, 00198 Rome, Italy
29 August-2 September 1988 : Sorrento, Italy 013/87

PROCESSING OF SENSORY INFORMATION IN THE SUPERFICIAL DORSAL HORN OF THE SPINAL CORD
Dr. F CERVERO, Physiology Dept., Bristol Univ. Medical School, University Walk, Bristol BS8 1TD, UK
22-27 May 1988 : San Lorenzo de el Escorial, Spain 293/87

PLASMA MEMBRANE CX1OOREDUCTASE IN CONTROL OF ANIMAL AND PLANT GROWTH
Prof. FL CRANE, Dept. Biological Sc., Purdue University, West Lafayette, IN 47907, USA
21-25 March 1988 : Cordoba, Spain 320/87

EVOLUTIONARY TINKERING IN GENE EXPRESSION
Dr. M GRUNBERG-MANAGO, Inst. Biologie Physico-Chim., 13 rue P. & M. Curie, 75005 Paris, France
26 August-1 September 1988 : Spetsai, Greece 584/87

PHYSIOLOGY OF COLD ADAPTATION IN BIRDS
Dr. C BECH, Dept. Zoology, University of Trondheim, 7000 Trondheim, Norway
6-10 June 1988 : Loen, Norway 585/87

MECHANICS OF HEARING
Dr. JP WILSON, Communication & Neuroscience, University of Keele, Keele, Staffs ST5 5BG, UK
4-8 July 1988 : Keele, Staffordshire, UK 592/87

THE INTERACTION OF GENETIC AND ENVIRONMENTAL FACTORS IN THE DEVELOPMENT OF VASCULAR WILT DISEASES IN PLANTS
Prof. EC TJAMOS, Benaki Phytopathological Inst., 145 61 Kiphissia, Athens, Greece
22-27 May 1988 : Cape Sounion, Greece 594/87

THE GUANINE NUCLEOTIDE BINDING PROTEINS - COMMON STRUCTURAL AND FUNCTIONAL PROPERTIES
Dr. L BOCH, Biochemisch Lab., Rijksuniversiteit, Wassenaarseweg, 64, 2333 AL Leiden, Netherlands
6-11 August 1988 : Renesse, Netherlands 623/87

HUMAN APOLIPOPROTEIN MUTANTS FROM GENE STRUCTURE TO PHENOTYPIC EXPRESSION
Prof. C SIRTORI, Ist. di Farmacologie e Farmacognosia, Via del Sarto, 21, 20129 Milan, Italy
27-31 March 1988 : Limone Sul Garda, Italy 691/87

BIOLOGICALLY-BASED METHODS FOR CANCER RISK ASSESSMENT
Prof. C TRAVIS, Office of Risk Analysis, Oak Ridge National Lab., Oak Ridge, TN 37831, USA
5-10 June 1988 : Corfu, Greece 949/87

RESEARCH IN CONGENITAL HYPOTHYROIDISM
Prof. F DELANGE, Pediatrics & Radioisotopes, Hôpital Saint-Pierre, 322 Rue Haute, 1000 Brussels, Belgium
16-18 May 1988 : Brussels, Belgium 956/87

DNA REPAIR MECHANISMS AND THEIR BIOLOGICAL IMPLICATIONS IN MAMMALIAN CELLS
Dr. MW LAMBERT, Dept of Pathology, UMDNJ, 185 So. Orange Ave. Newark, NJ 07103-2757, USA
2-7 October 1988 : Fontevraud, France 965/87

MORPHOLOGICAL IDENTIFICATION OF PLANT-PARASITIC NEMATODE GENERA
Dr. H FERRIS, Univ. of California, Dept. of Nematology, Davis, CA 95616, USA
7-10 June 1988 : Raleigh, North Carolina, USA 970/87

CELL AND MOLECULAR BIOLOGY OF ARTEMIA DEVELOPMENT
Dr. AH WARNER, Dept. of Biological Sc., University, Windsor, Ontario N9B 3P4, Canada
11-13 August 1988 : Montreal, Canada 972/87

VASCULAR DYNAMICS AND PHYSIOLOGICAL PERSPECTIVES
Dr. N WESTERHOF, Lab. vr Fysiol., Free Univ., v d Boechorststr. 7, 1081 BT Amsterdam, Netherlands
6-9 June 1988 : Maratea, Italy 973/87

DIETARY w3 AND w6 FATTY ACIDS : BIOLOGICAL EFFECTS AND NUTRITIONAL ESSENTIALITY
Prof. CL GALLI, Ist. di Farmacologia e Farmacognosia, Via Balzaretti 9, 20133 Milan, Italy
20-23 June 1988 : Belgirate, Italy 980/87

CELL TO CELL SIGNALS IN MAMMALIAN DEVELOPMENT
Dr. SW DE LAAT, Hubrecht Lab., Intern. Embryological Inst., Uppsalalaan 8, 3584 CG Utrecht, Netherlands
21-26 February 1988 : Les Arcs, France (CCS) 463/86

SIGNALS FOR CELL SEPARATION IN PLANTS
Prof. DJ OSBORNE, Plant Sciences Dept., Univ. of Oxford, South Parks Rd., Oxford OX1 3RA, UK
25-30 September 1988 : Turin, Italy (CCS) 923/86

PHYTOTOXINS AND PLANT PATHOGENESIS
Prof. A GRANITI, Ist. di Patologia Vegetale, Universita, Via G. Amendola 165A, 70126 Bari, Italy
30 May-3 June 1988 : Capri, Italy (CCS) 299/87

REGULATORY MECHANISMS OF NEURON TO VESSEL COMMUNICATION IN THE BRAIN
Dr. MS MAGNONI, Inst. of Pharmacol. Sciences, University, Via Andrea del Sarto 21, 20120 Milano, Italy
September 1988 : Salo, Italy (CCS) 311/87

CELL TO CELL SIGNALS IN THE INNER RETINA
Prof. R WEILER, Neurobiologie, Universität Oldenburg, Postfach 25 03, 2900 Oldenburg, Germany
19-22 september 1988 : Oldenberg, Germany (CCS) 380/87

THEORETICAL MODELS FOR CELL TO CELL SIGNALLING
Dr. A GOLDBETER, Serv. de Chimie Physique II, ULB, C.P. 231, 1050 Brussels, Belgium
4-9 September 1988 : Knokke-Zoute, Belgique (CCS) 389/87

THE NICOTINIC ACETYLCHOLINE RECEPTOR IN THE CENTRAL NERVOUS SYSTEM
Prof. F CLEMENTI, Pharmacology Dept., Univ., Via Vanvitelli 32, 20129 Milan, Italy
18-21 April 1988 : Venice, Italy (CCS) 593/87

MOLECULAR BIOLOGY OF NEURORECEPTORS AND ION CHANNELS
Prof. A MAELICKE, MPI für Ernahrungsphysiologie, Rheinlanddamm 201, 4600 Dortmund 1, Germany
5-10 June 1988 : Santorini (Thira) Greece (CCS) 986/87

PHYSICS AND CHEMISTRY — *PHYSIQUE ET CHIMIE*

SQUEEZED AND NON-CLASSICAL LIGHT
Dr. P TOMBESI, Dip. di Fisica, Univ. La Sapienza, Ple A. Moro 2, 00185 Rome, Italy
25-29 January 1988 : Cortina, Italy 012/87

NUMERICAL DETERMINATION OF THE ELECTRONIC STRUCTURE OF ATOMS, DIATOMIC AND POLYATOMIC MOLECULES
Dr. M DEFRANCESCHI, Lab. de Chimie, ENS, 1 Rue Maurice Arnoux, 92120 Montrouge, France
18-22 April 1988 : Versailles, France 363/87

NEW TRENDS IN NONLINEAR DYNAMICS AND PATTERNING PHENOMENA
Dr. P COULLET, Phys. Théorique, Université, Parc Valrose, 06034 Nice Cedex, France
2-9 August 1988 : Cargese, Corsica, France 948/87

HETEROSTRUCTURES ON SI : ONE STEP FURTHER WITH SILICON
Dr. P SIFFERT, Ctre. de Rech. Nucléaires, Lab. PHASE, 67037 Strasbourg Cedex, France
15-21 May 1988 : Cargese, Corsica, France 957/87

COMMON TRENDS IN STATISTICAL PHYSICS AND FIELD THEORY
Dr. C ITZYKSON, Physique Théorique, CEN-SACLAY, 91191 Gif-sur-Yvette Cedex, France
24 May-3 June 1988 : Cargese, Corsica, France 964/87

NONLINEAR OPTICAL EFFECTS IN ORGANIC POLYMERS
Dr. J MESSIER, DEIN/LPEM, CEN-SACLAY, 91191 Gif-sur-Yvette Cedex, France
19-24 June 1988 : Nice, France 971/87

NOISE AND NONLINEAR PHENOMENA IN NUCLEAR SYSTEMS
Prof. JL MUNOZ-COBO, Univ. Politecnica, Ing. Quimica y Nuclear, Apdo. 22012, 46071 Valencia, Spain
26-30 May 1988 : Valencia, Spain 977/87

SIMPLE MOLECULAR SYSTEMS AT VERY HIGH DENSITY
Dr. A POLIAN, Phys. des Milieux Cond., Univ. P & M Curie, T13-E4, 4 Pl. Jussieu, 75252 Paris 05, France
28 March-7 April 1988 : Les Houches, France 856/87

SUPERCOMPUTER ALGORITHMS FOR REACTIVITY, DYNAMICS AND KINETICS OF SMALL MOLECULES
Prof. A LAGANA, Dip. di Chimica, Universita, Via Elce di Sotto, 8, 06100 Perugia, Italy
30 August - 3 September 1988 : Colombella di Perugia, Italy 859/87

HETEROGENEOUS CATALYSIS FOR CARBON MONOXIDE CONVERSION
Prof. PA JACOBS, K.U. Leuven, Lab. Oppervlaktechemie, Kard. Mercierlaan 92, 3030 Leuven, Belgium
17 - 22 April 1988 : Nieuwpoort, Belgium (SAM) 891/86

SELECTIVE EXCITATION AND ACTIVATION OF LANTHANIDE LEVELS IN MOLECULES
Dr. P CARO, Lab. de Bellevue, 1, Pl. Aristide Briand, 92195 Meudon, France
June 1988 : Sophia-Antipolis, France (SAM) 931/86

PHOTOCHEMICAL PROBES IN BIOCHEMISTRY
Dr. PE NIELSEN, Biochemistry Dept., Panum Inst., Blegdamsvej 3, 2200 Copenhagen N, Denmark
August 1988 : Holte, Denmark (SAM) 697/87

STRAIN AND ITS IMPLICATION IN ORGANIC CHEMISTRY
Prof. A DE MEIJERE, Inst. Organische Chemie der Univ., M-L-King-Platz 6, 2000 Hamburg 13, Germany
28 August - 1 September 1988 : Ratzeburg, Germany (SAM) 698/87

FREE RADICALS IN SYNTHESIS AND BIOLOGY
Prof. F MINISCI, Dip. di Chimica del Politecnico, Piazza L. da Vinci 32, 20133 Milano, Italy
30 May - 3 June 1988 : Gargnano, Brescia, Italy (SAM) 719/87

TRANSITION-METAL CARBENE COMPLEXES
Prof. U SCHUBERT, Inst. f. Anorganische Chemie der Universitat, Am Hugland, 8700 Würzburg, Germany
25 - 30 September 1988 : Wildbad Kreuth, Germany (SAM) 855/87

MOLECULAR MECHANISMS AND CONSEQUENCES OF ACTIVATION OF HORMONE AND GROWTH FACTOR RECEPTORS
Prof. CE SEKERIS, Biological Research Center, 48 Vas. Constantinou Ave., 116 35 Athens, Greece
15 - 20 September 1988 : Nafplion, Greece (SAM) 861/87

SELECTIVITIES IN LEWIS ACID-PROMOTED REACTIONS
Dr. D SCHINZER, Inst. f. Organische Chemie der Universität, Schneiderberg 1B, 3000 Hannover, Germany
2 - 7 October 1988 : Glyfada, Greece (SAM) 991/87

METALLIZATION AND SEMICONDUCTOR-METAL INTERFACES
Mr. IP BATRA, IBM Almaden Res. Cter., MS K33/801, 650 Harry Road, San Jose, CA 95120-6099, USA
22 - 26 August 1988 : Essex, UK (SLD) 883/86

BANDSTRUCTURE ENGINEERING IN SEMICONDUCTOR MICROSTRUCTURES
Dr. RA ABRAM, Eng. & Applied Science, University of Durham, South Road, Durham DH1 3LE, UK
10 - 15 April 1988 : Il Ciocco, Italy (SLD) 912/86

PROPERTIES AND APPLICATIONS OF 2D ORGANIC FILMS : LB FILMS AND RELATED STRUCTURES
Dr. A BARRAUD, Dep. de Physico-Chimie, CEN-SACLAY, 91191 Gif-sur-Yvette Cedex, France
5 - 10 June 1988 : Gif-sur-Yvette, France (SLD) 422/87

OPTICAL SWITCHING IN LOW-DIMENSIONAL SYSTEMS
Dr. H HAUG, Inst. f. Theoret. Physik, Universität, R-Mayer-Str. 8-10, 6 Frankfurt/Main 1, Germany
3 - 5 October 1988 : Marbella, Spain (SLD) 654/87

THE MECHANISM OF REACTIONS OF ORGANOMETALLIC COMPOUNDS WITH SURFACES
Prof. DJ COLE-HAMILTON, Dept. of Chemistry, University, St. Andrews, Fife, KY16 9ST, UK
22 - 24 June 1988 : St. Andrews, UK (SLD) 955/87

GROWTH AND OPTICAL PROPERTIES OF WIDE-GAP II-VI's LOW DIMENSIONAL SEMICONDUCTORS
Prof. TC McGILL, Appl. Physics Dept., MS 128-95, California Inst. of Technology, Pasadena, CA 91125, USA
9 - 12 August 1988 : Regensburg, Germany (SLD) 987/87

THE EVALUATION OF ADVANCED SEMICONDUCTOR MATERIALS BY ELECTRON MICROSCOPY
Dr. D CHERNS, HH Wills Physics Lab., University, Tyndall Ave., Bristol BS8 1TL, UK
12 - 17 September 1988 : Bristol, UK (SLD) 988/87

MATHEMATICS
MATHEMATIQUES

ADVANCES IN THE THEORY OF FRECHET SPACES
Prof. T TERZIOGLU, Mathematics Dept., Middle East Techn. University, Ankara, Turkey
15 - 19 August 1988 : Istanbul, Turkey 947/87

COMPUTER SCIENCE
INFORMATIQUE

SENSOR-BASED ROBOTS : ALGORITHMS AND ARCHITECTURES
Dr. CSG LEE, School of Electrical Eng., Purdue University, West Lafayette, IN 47907, USA
12 - 14 October 1988 : Bonas, France (ROB) 639/86

HIGHLY REDUNDANT SENSING IN ROBOTIC SYSTEMS
Dr. JT TOU, Information Res. Center, 339 Larsen Hall, Gainesville, FL 32611, USA
14 - 19 May 1988 : Milano, Italy (ROB) 682/87

CAD-BASED PROGRAMMING FOR SENSOR BASED ROBOTS
Prof. R. RAVANI, Mechanical Eng. Dept., UC-Davis, 2020 Bainer Hall, Davis, CA 95616, USA
4 - 6 July 1988 : Tuscany, Italy (ROB) 893/87

EARTH SCIENCES AND ASTROPHYSICS
SCIENCES DE LA TERRE ET ASTROPHYSIQUE

EUROPEAN NEOGENE MAMMAL CHRONOLOGY
Dr. E LINDSAY, Dept. of Geosciences, Univ. of Arizona, Tucson, AZ 85721, USA
16 - 20 May 1988 : Reisenburg, Germany 272/87

FATE AND CONTROL OF TOXIC METALS IN THE ATMOSPHERE
Dr. B OTTAR, NILU, POB 130, 3001 Lillestrom, Norway
12 - 16 September 1988 : Lillestrom, Norway 291/87

MARBLE IN ANCIENT GREECE AND ROME - GEOLOGY, SOURCES, COMMERCE, ARTIFACTS
Prof. N HERZ, Dept. Geology, Univ. of Georgia, Athens, GA 30602, USA
9 - 13 May 1988 : Il Ciocco, Italy 587/87

ROLE OF FLUIDS IN SEDIMENT ACCRETION, DEFORMATION, DIAGENESIS AND METAMORPHISM AT SUBDUCTION ZONES
Dr. MG LANGSETH, Lamont-Doherty Geological Observatory, Palisades, NY 10964, USA
June 1988 : Villefranche-sur-Mer, France 595/87

PETROLOGY AND GEOCHEMISTRY OF GRANULITES
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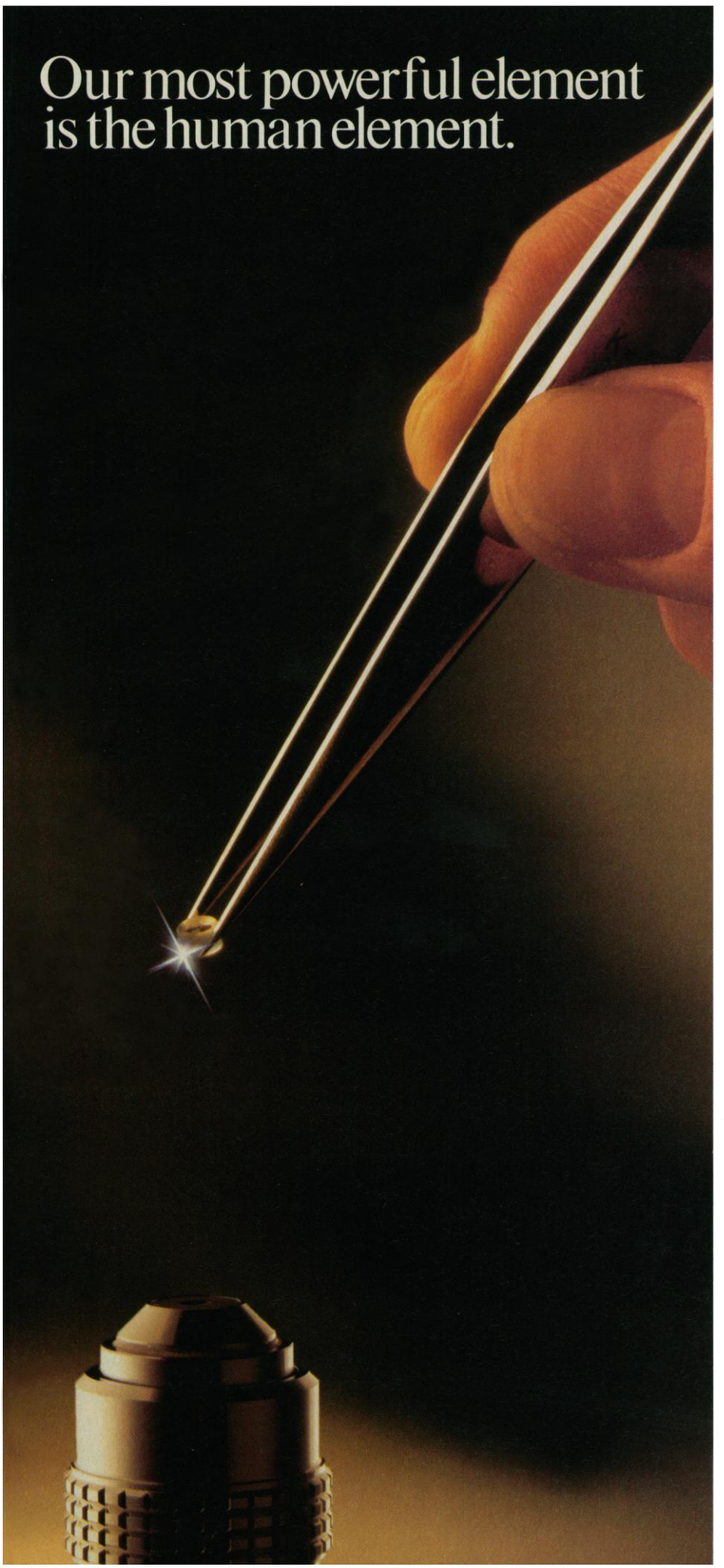

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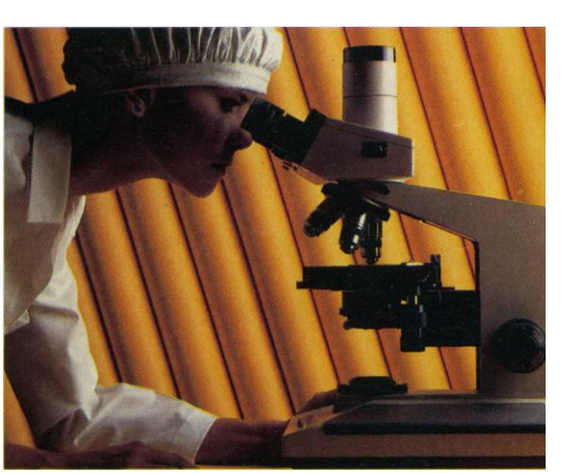

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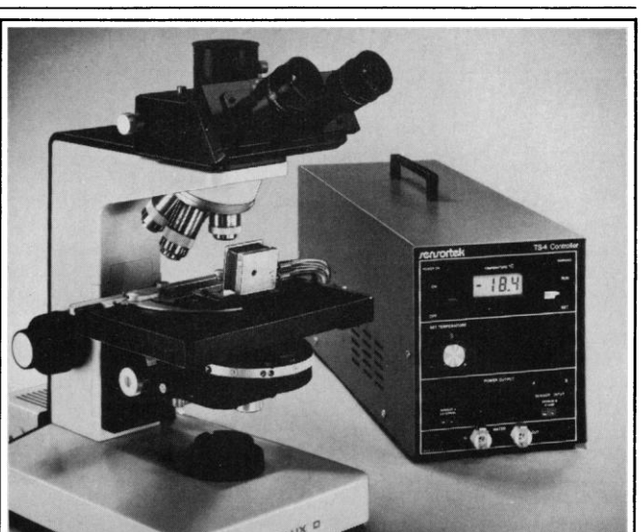

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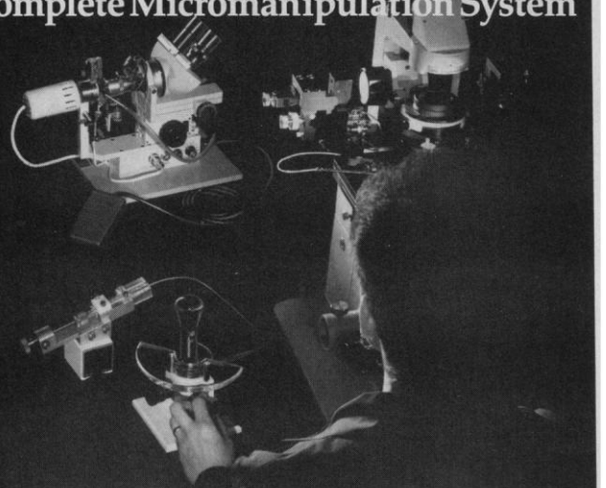

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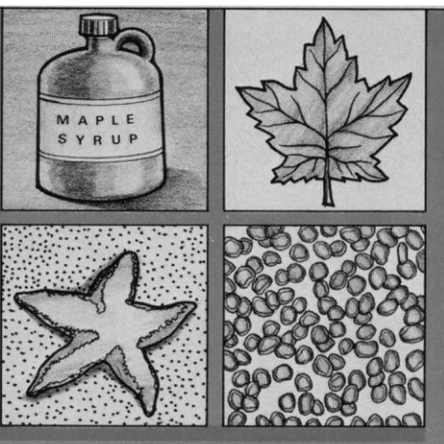

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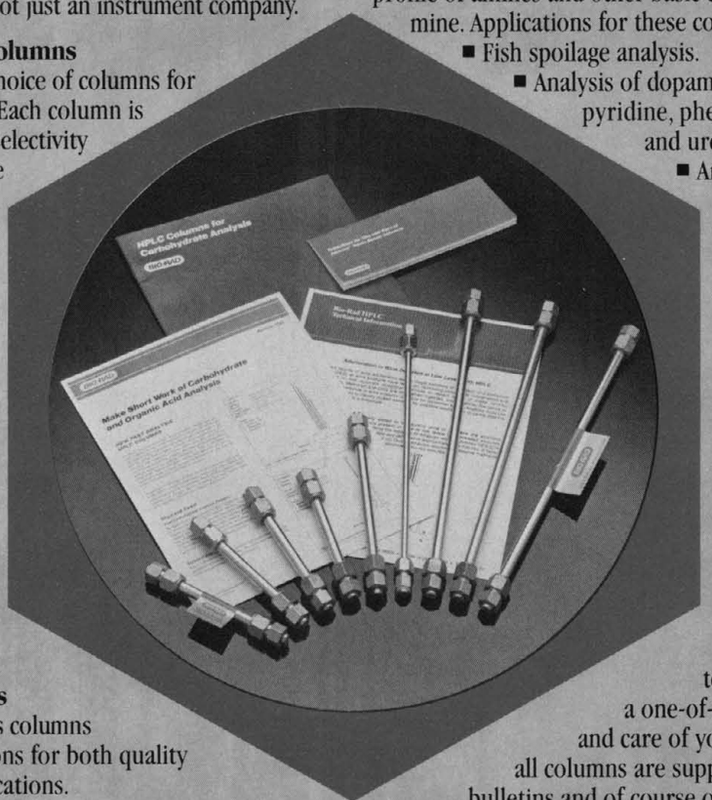

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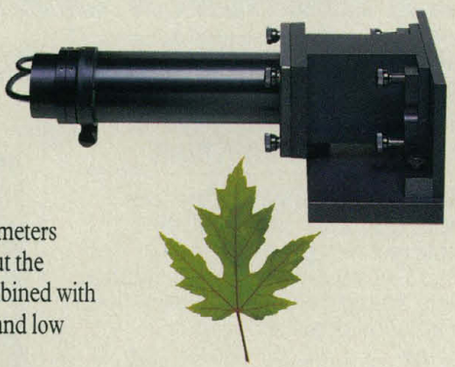

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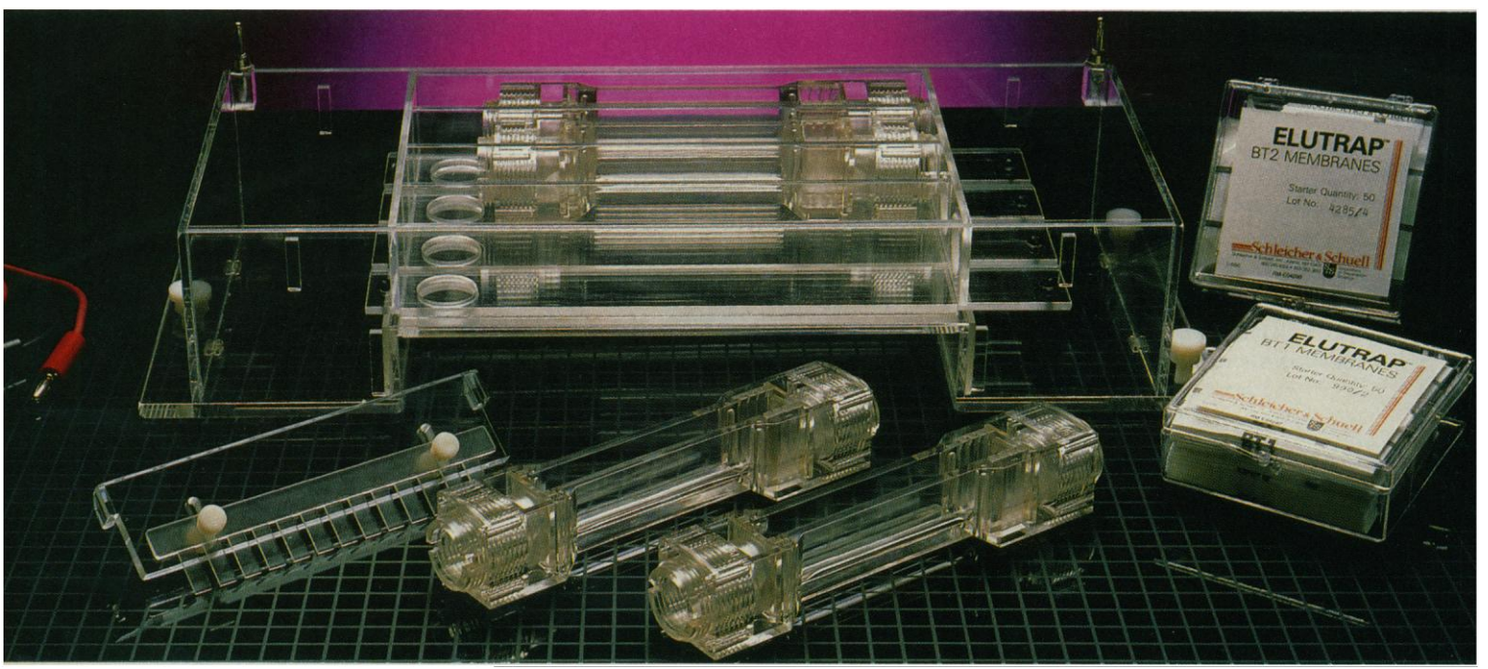

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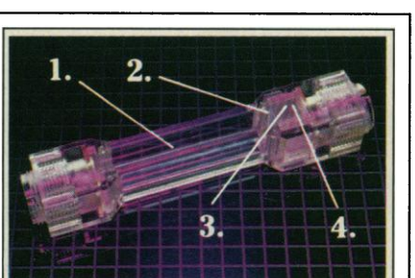

HOW IT WORKS.

1. Simply place gels or solutions in the sample chamber. Apply current to the system.
2. Charged fragments migrate directly through the BT2 membrane toward the opposite pole.
3. "Trap" volume can be adjusted to as low as 200 µl by moving the BT2 membrane.
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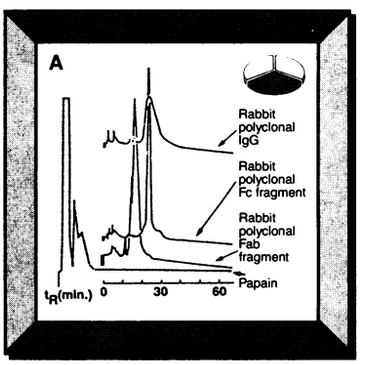

Papain Digest of Rabbit Polyclonal IgG on 5μm BAKERBOND ABx**

Analytical Conditions:
Portrait A only:
Mobile Phase: A = 25 mM MES, pH 5.4; B = 500 mM $(NH_4)_2SO_4$ plus 20 mM NaOAc, pH 6.7
Gradient: 100% A to 100% B over 60 min.
Sample: 2.0 ml, containing at least 1 mg protein, diluted in A buffer.

Common to Portraits A and B:
Column: 7.75 x 100 mm, 5-μm BAKERBOND ABx (Cat. #7271-07)
Flow Rate: 1.0 ml/min.
Pressure: 200 psi
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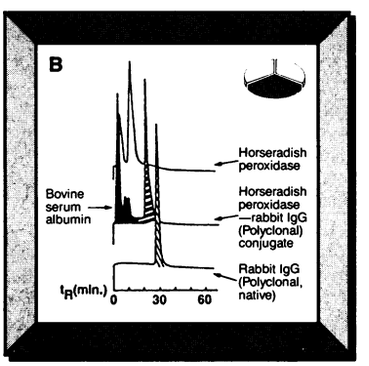

HRP/IgG Conjugate Separation on 5-μm BAKERBOND ABx

Analytical Conditions:
Portrait B only:
Mobile Phase: A = 25 mM MES, pH 5.2; B = 500 mM $(NH_4)_2SO_4$ plus 20 mM NaOAc; pH 6.7
Gradient: 100% A for 10 min. followed by a linear gradient of 100% A to 100% B over 30 min.
Sample: 2.0 ml containing at least 1 mg protein in A buffer.

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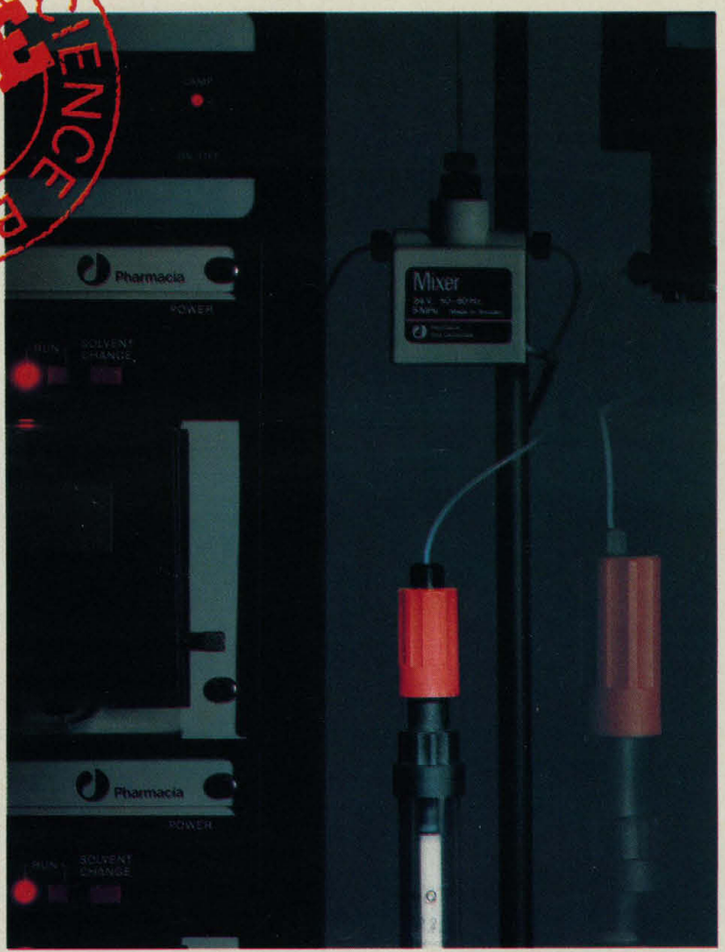

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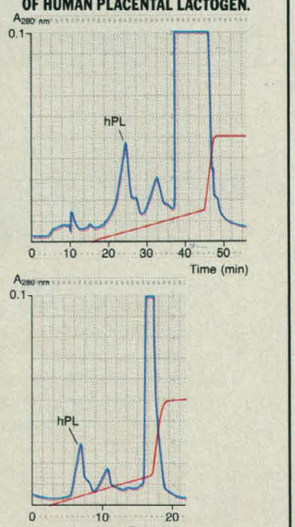

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