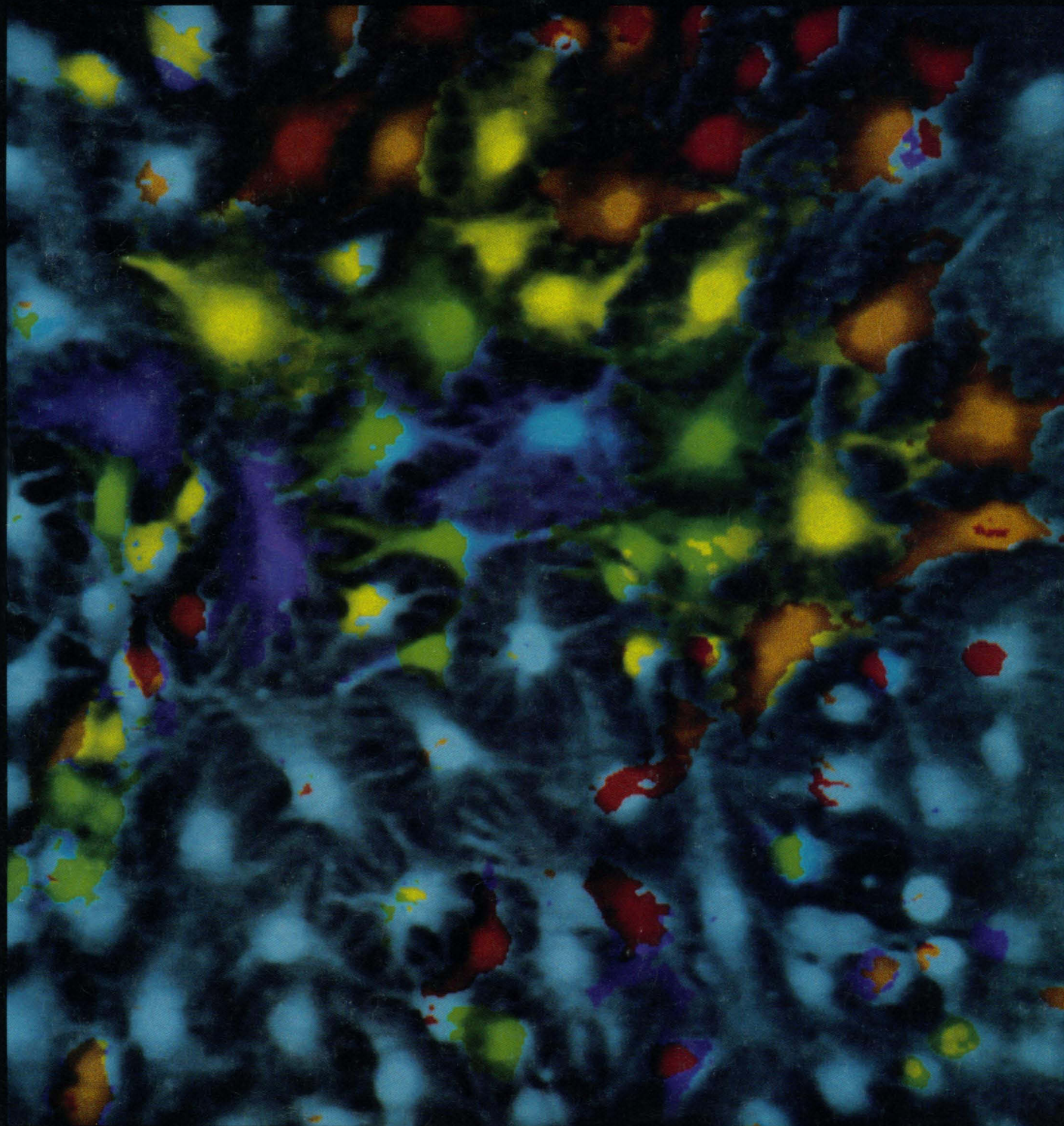


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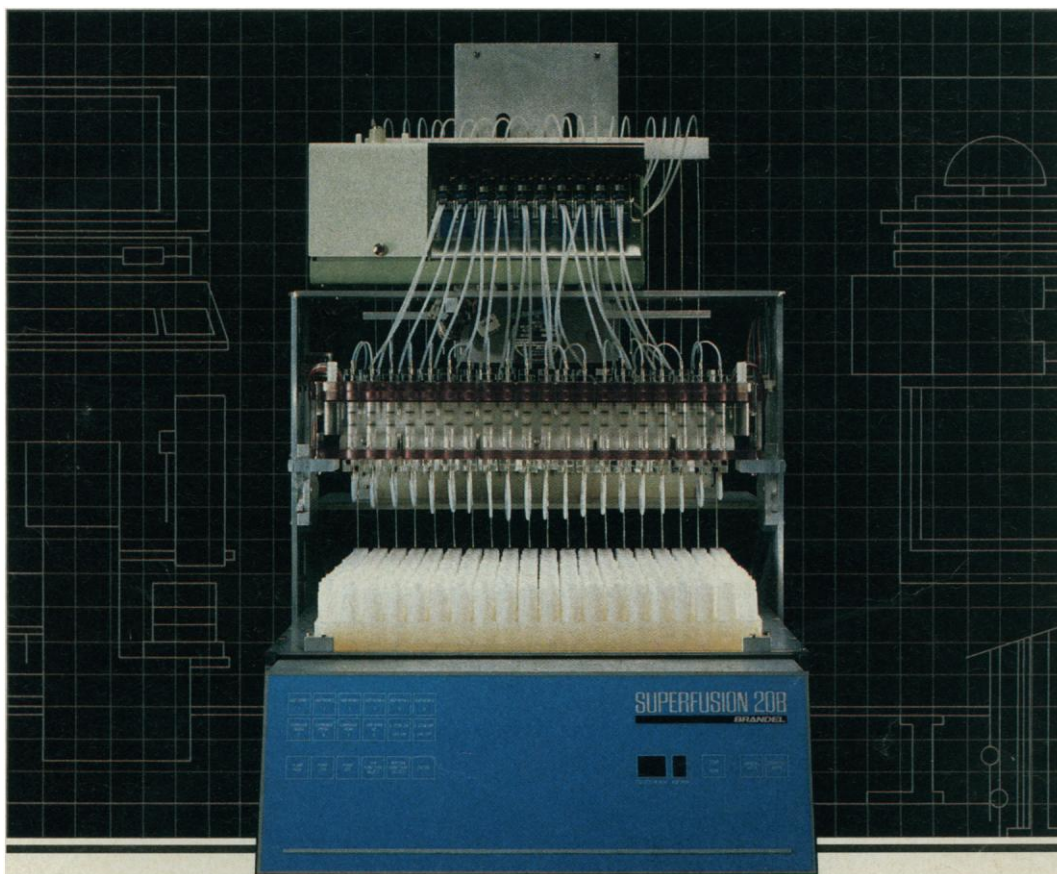
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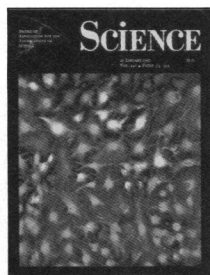
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COVER A wave of increased cytosolic calcium concentration propagates from cell to cell through a confluent culture of hippocampal astrocytes. The wave, induced by glutamate and measured with fluo-3, is evident from the spatial progression of color overlay areas (in a spectral sequence from violet to red). Each color indicates an area of calcium elevation at one of seven successive 4-second intervals. See p. 474. [Digital fluorescence micrograph courtesy of Ann H. Cornell-Bell, Steven M. Finkbeiner, Mark S. Cooper, and Stephen J. Smith]

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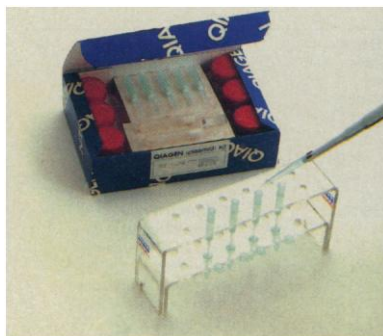
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This Week in SCIENCE

Malaria stalemate

CURES and vaccines for malaria have been elusive, and the optimism of public health officials in the mid-1980s, when much was being discovered about the structure and behavior of the malaria parasites, has all but vanished. Today 100 million people, mostly but not exclusively in the tropics, have malaria, and the parasites are becoming resistant to quinine-based drugs that for years helped to keep the disease in check. In three articles, Marshall and Cherfas (page 399) describe the combined approach that has been taken toward controlling malaria—one that has included development of vaccines, genetically engineered mosquitoes, and pharmaceuticals and use of insecticides and physical traps for catching mosquitoes—and explain how this approach has nonetheless failed to significantly improve the global malaria situation. As future efforts are planned, one of the continuing dilemmas will be to determine how best to spend the limited available funds (less than the total U.S. AIDS budget), whether for quick fixes like training health care workers to deal with symptoms or for research that might yield longer term solutions.

Plant pigmentation

THE scarlets, purples, mauves, and blues of flowers, fruits, and leaves of higher plants are caused by plant pigments called anthocyanins. When, where, and how intensely these colors are expressed in maize plants are determined by *R* gene products. One *R* gene, called *Lc*, was fused to a promoter and inserted into a vector; gold microprojectiles were then coated with the vector and shot into maize cells (page 449). Various maize tissues that normally are not pigmented by *Lc* became brightly colored, and therefore individual cells in which *Lc* was expressed could be directly identified. The experiments support the hypothesis of Ludwig *et al.* that promoters of *R* genes are important determiners of pigmentation patterns. Functional domains of the *R*

gene product, which is believed to regulate genes for various enzymes in pigmentation pathways, can now be studied. In addition, because the *R* gene product induces pigmentation, stably transformed cell lineages can be identified directly and noninvasively.

Blocking AIDS virus replication

A synthetic peptide-like compound called U-81749 blocks the activity of an important enzyme of HIV-1, the AIDS virus (page 454). As a consequence, HIV-1 particles do not mature inside infected blood cells and virus replication stops. Although the effects of U-81749 are partially reversible, it should be possible to adapt the design for the synthesis of a related compound that has irreversible inhibitory effects. Experiments by McQuade *et al.* show that activity of the HIV-1 protease can be blocked in vitro by U-81749. In addition, in a genetically engineered system in which HIV-1 genes are expressed by a different virus (vaccinia), exposure to U-81749 prevents the large precursor protein molecules for two gene products, gag and pol, from being processed; precursors accumulate in cells, and structural proteins of HIV-1, HIV-1 enzymes, and HIV-1 particles are not made.

Asthma blocker

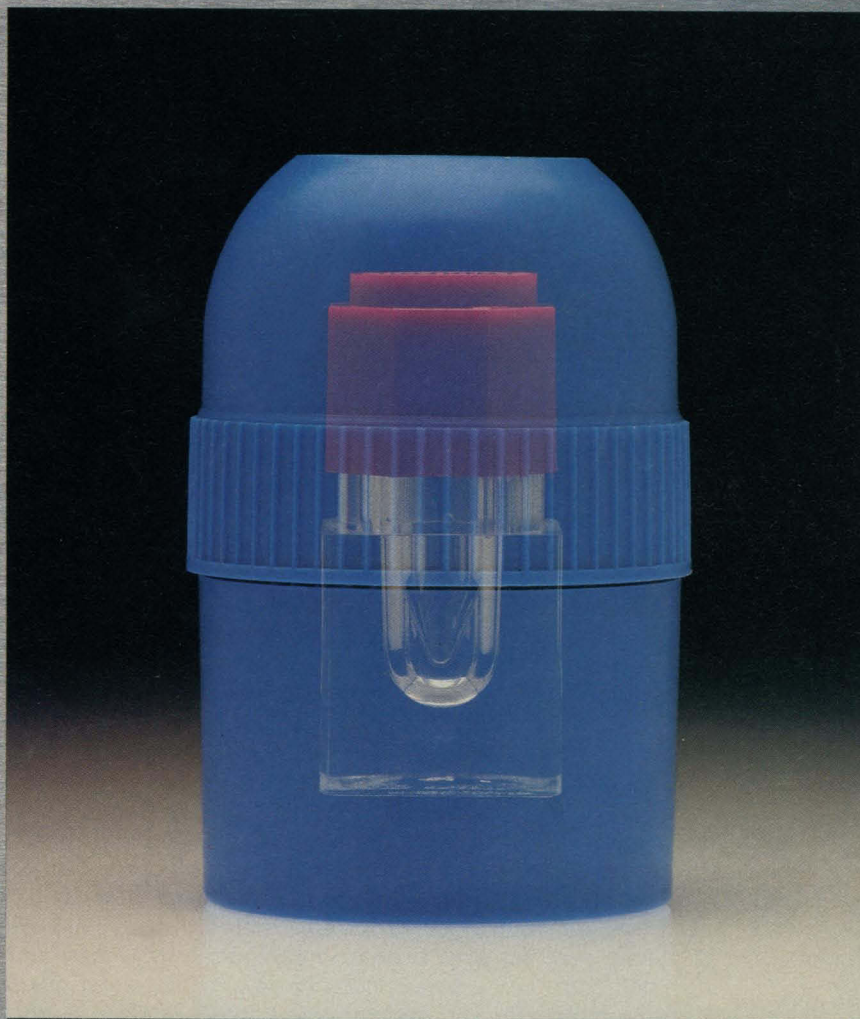
SYMPTOMS of asthma might be prevented or lessened by blocking ICAM-1 molecules, which are found on the surfaces of cells of the bronchial endothelium and lung epithelial tissues; antibodies or pharmaceuticals might serve as the blocking agents. ICAM-1 molecules facilitate migration of immunoreactive cells into inflamed areas of the body; in vivo and in vitro experiments now show that ICAM-1 molecules are also instrumental in bringing eosinophils into inflamed bronchial airways (page 456). The eosinophils come in contact with ICAM-1-expressing lung tissues and produce soluble substances that cause tissue

damage; their effects contribute to the hyperresponsiveness of the airways, which is a key feature in the pathology of asthma. Wegner *et al.* found that after monkeys had inhaled antigens that induced airway hyperactivity, ICAM-1 molecules were expressed in greater than normal amounts and eosinophils rapidly accumulated in airway passages; if the monkeys also received injections of antibodies specific for the ICAM-1 molecules, the influx of eosinophils was slowed and the hyperresponsiveness of the bronchi reduced. Because other respiratory diseases might similarly result from actions of ICAM-1 molecules, they too might be arrested with ICAM-1 blocking agents.

Electric field effects

DO the electric and magnetic fields that are produced by common household appliances, video displays, electric blankets, utility power lines, radar emitters, and other sources pose significant hazards to health? For several decades, the effects of very weak electric fields on living organisms have been debated, but work by Weaver and Astumian indicates that more serious study is warranted. They present a physical model that shows that electric field strengths can be extremely low and yet affect macromolecules in a cell's membrane (page 459). Two key variables that contribute to the exquisite sensitivity of cells to very weak signals are the breadth of the frequency window of the electric signal and the types of receptive molecules present in membranes; for example, certain enzymes undergo frequency-specific conformational changes that may in turn accelerate catalytic activity and biologic effects. Estimates of the smallest applied field to which cell membrane molecules can respond indicate that changes can be induced by fields with strengths so low that they appear to violate the thermal noise limit (which can randomize processes in cells). The importance of very weak electric fields cannot therefore be dismissed solely because background noise exists above the level of the field. ■ RUTH LEVY GUYER

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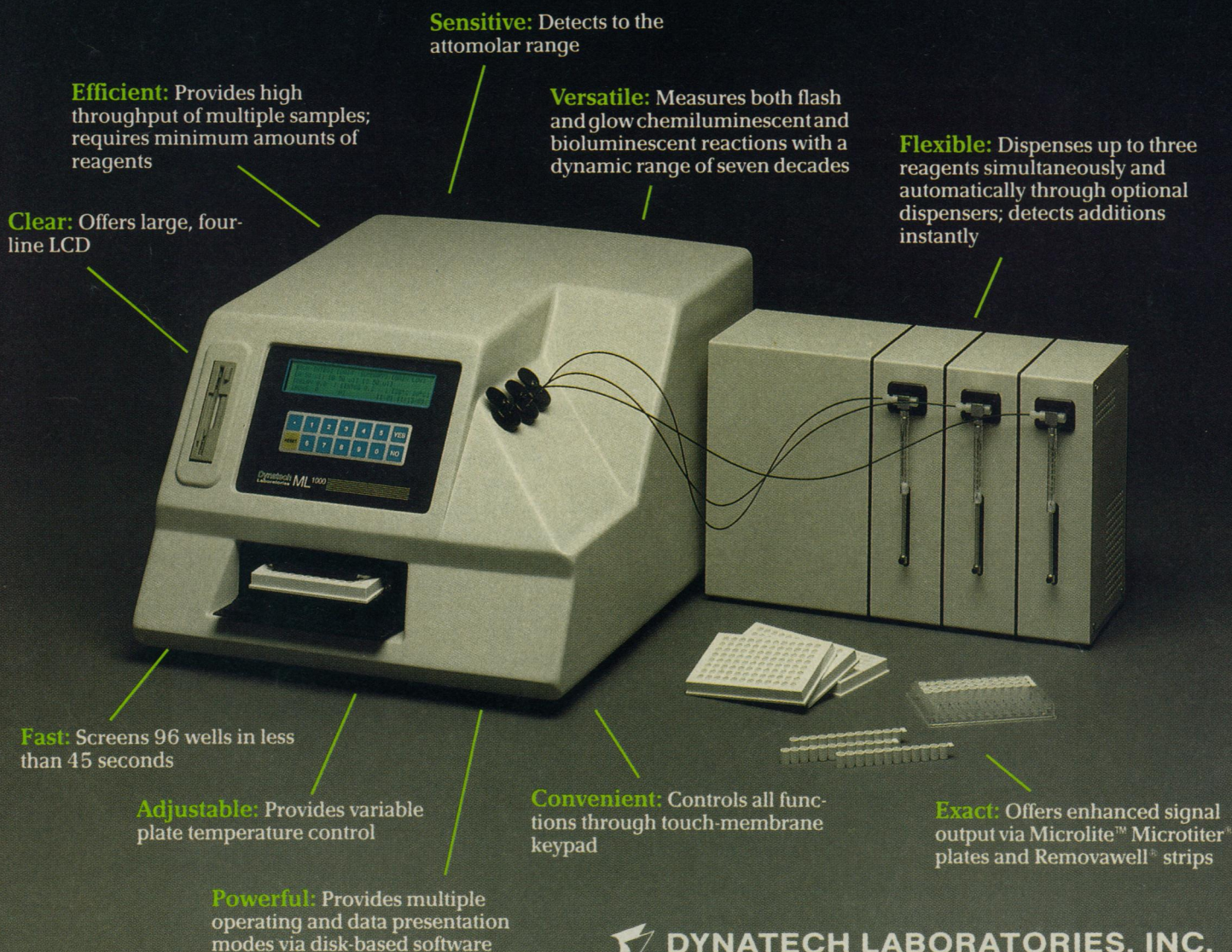
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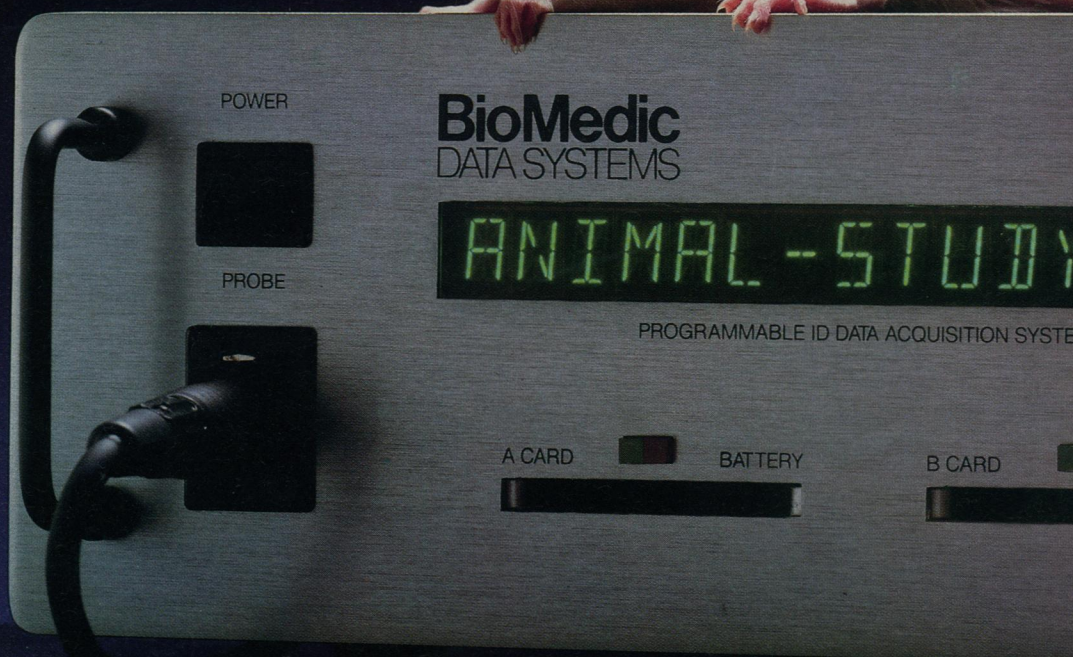
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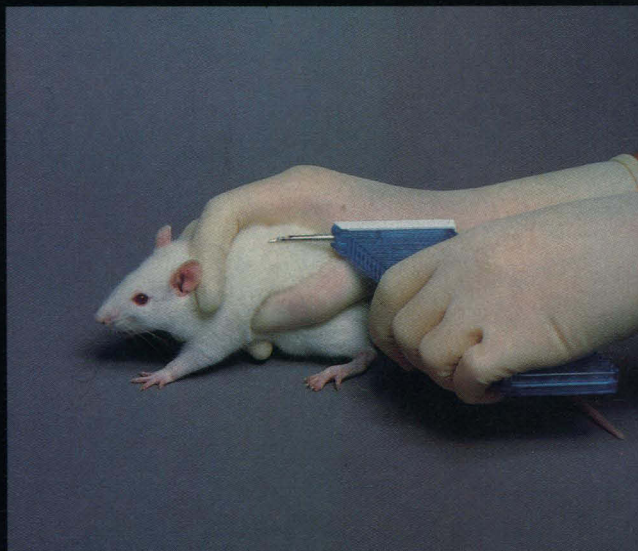
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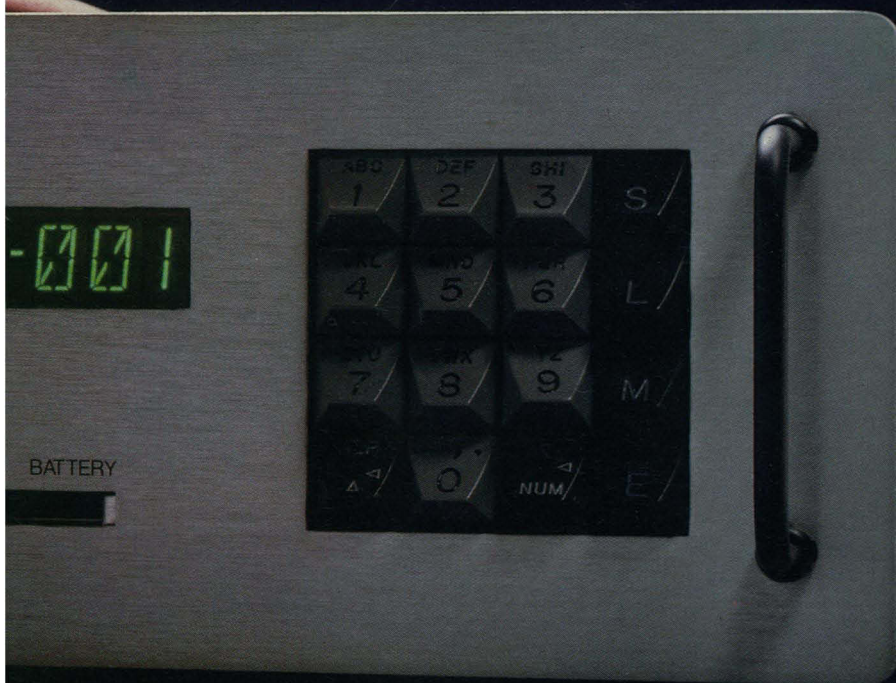
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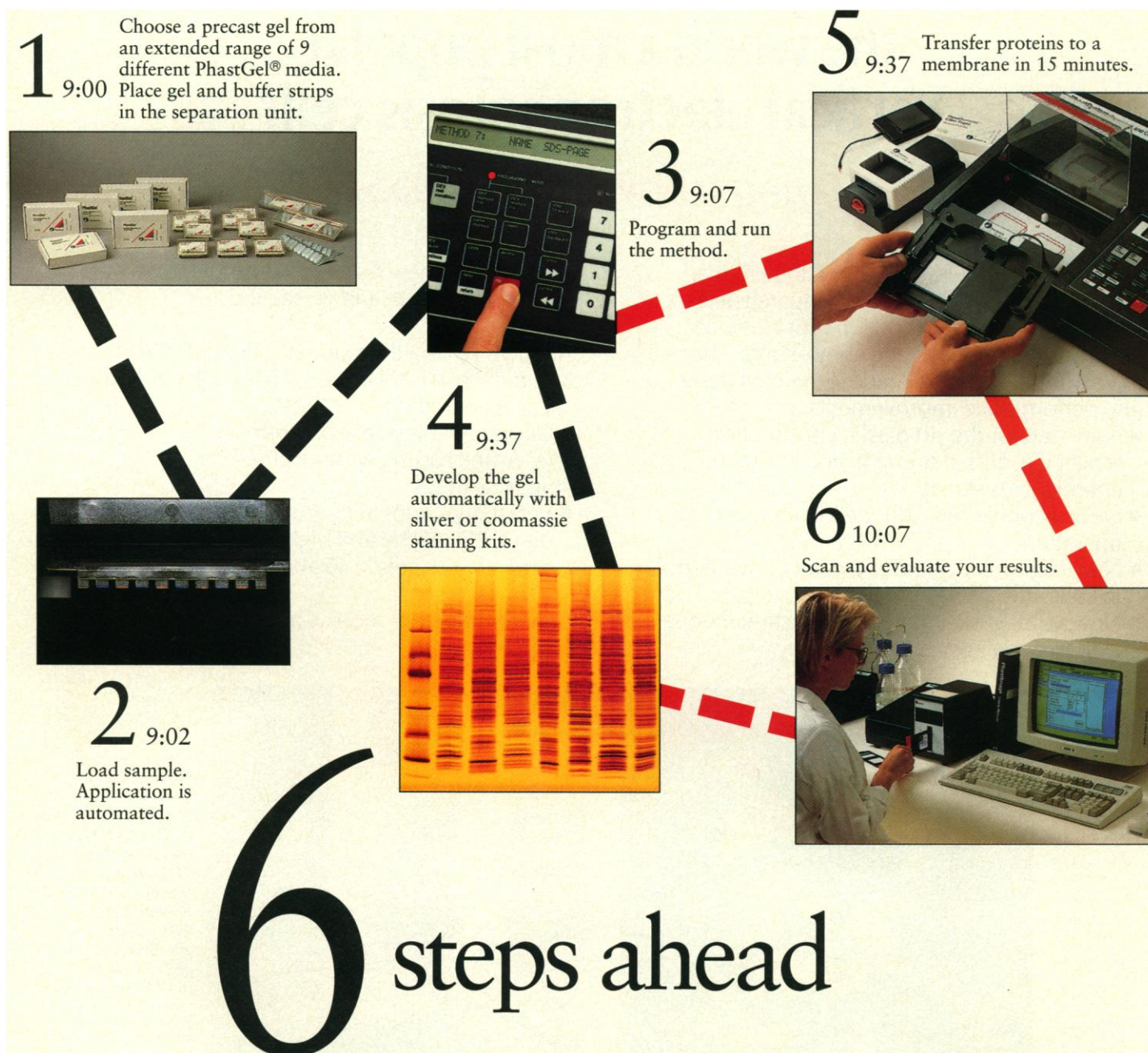
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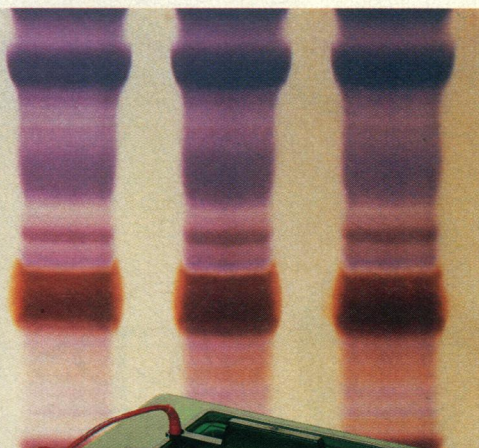
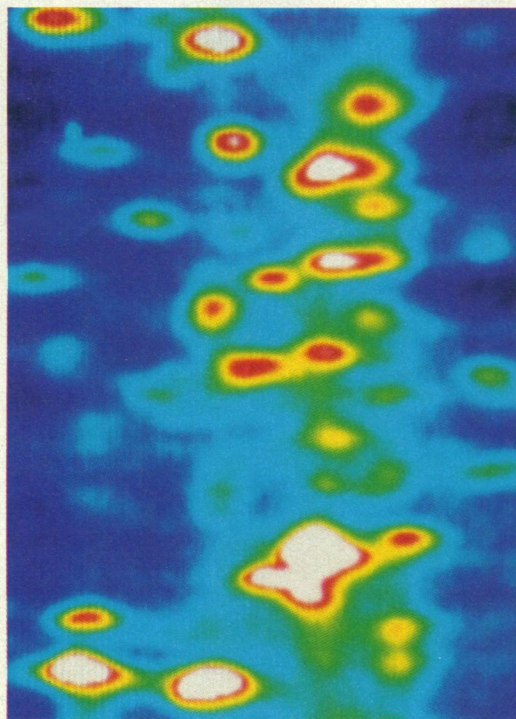
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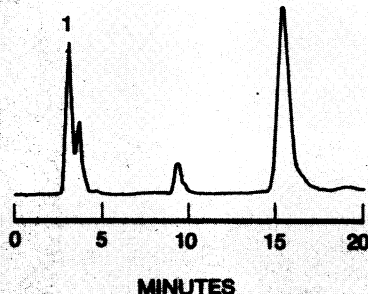
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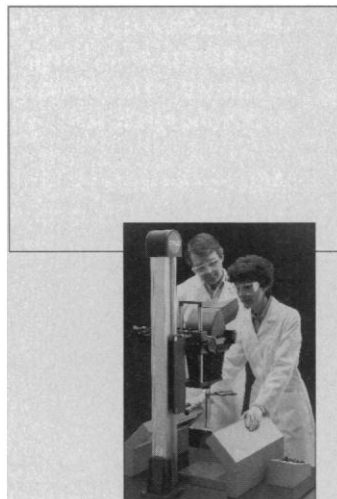
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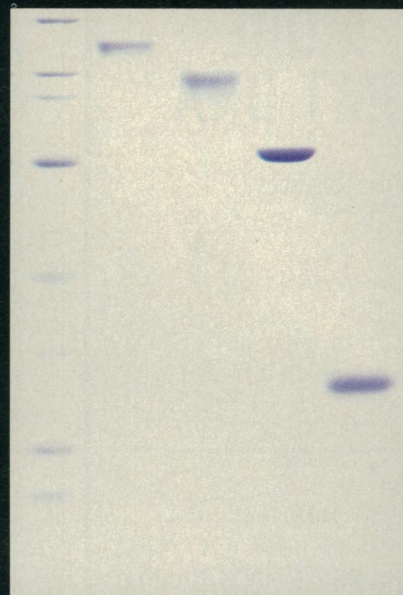
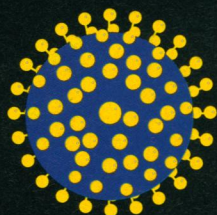
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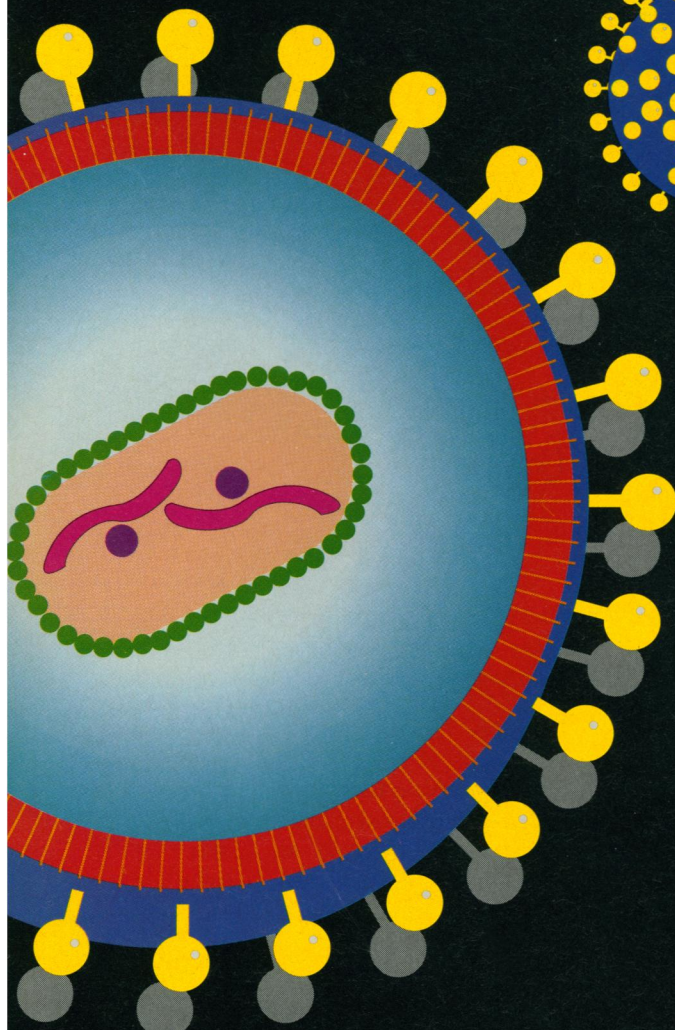
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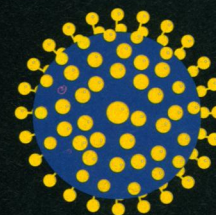
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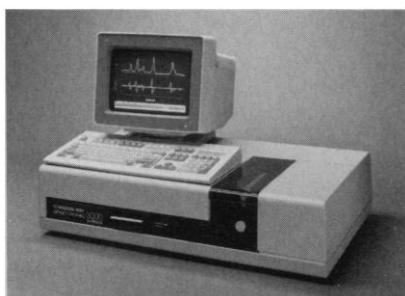
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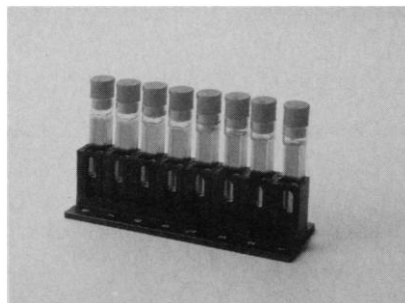
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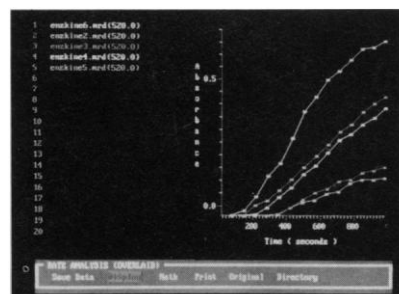
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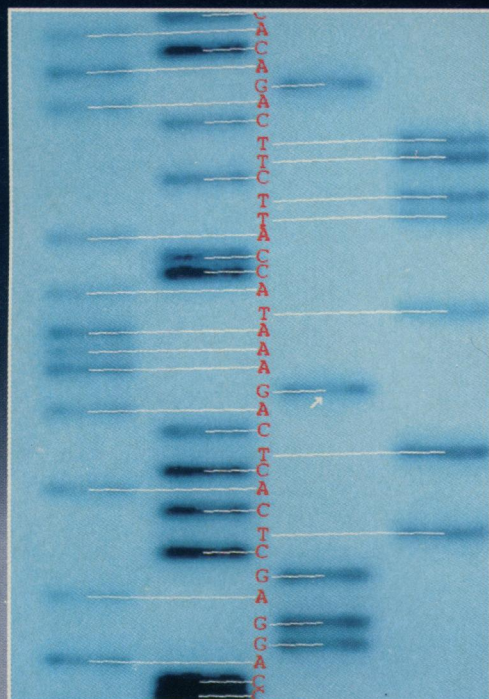
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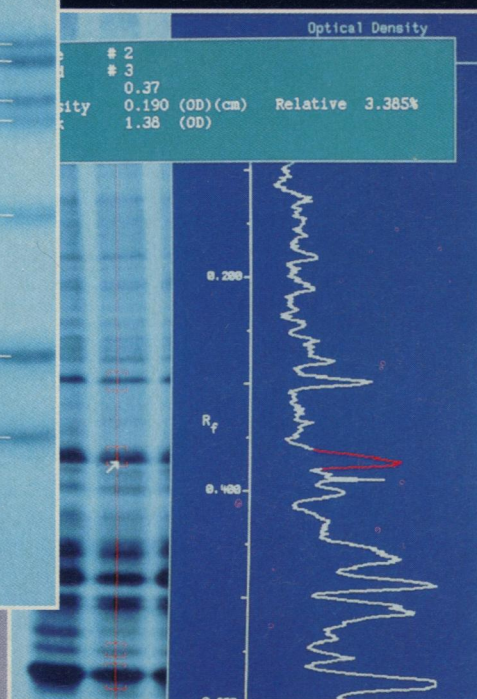
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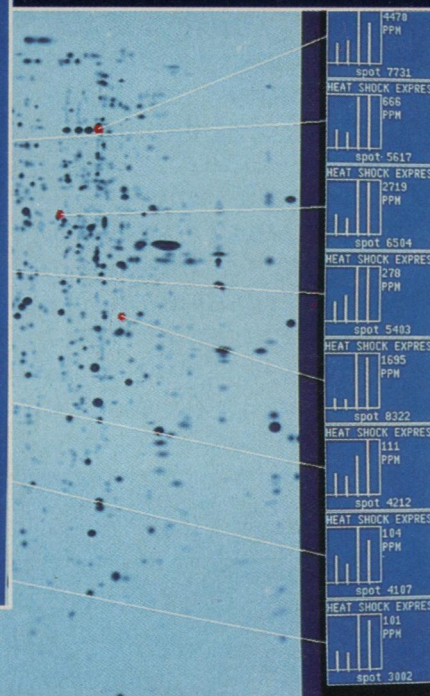
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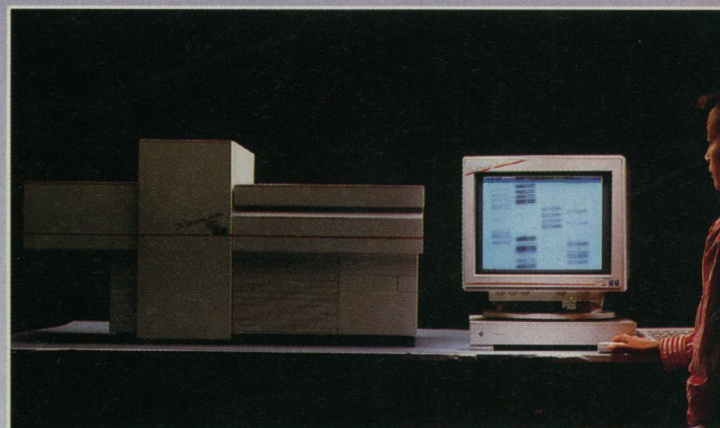
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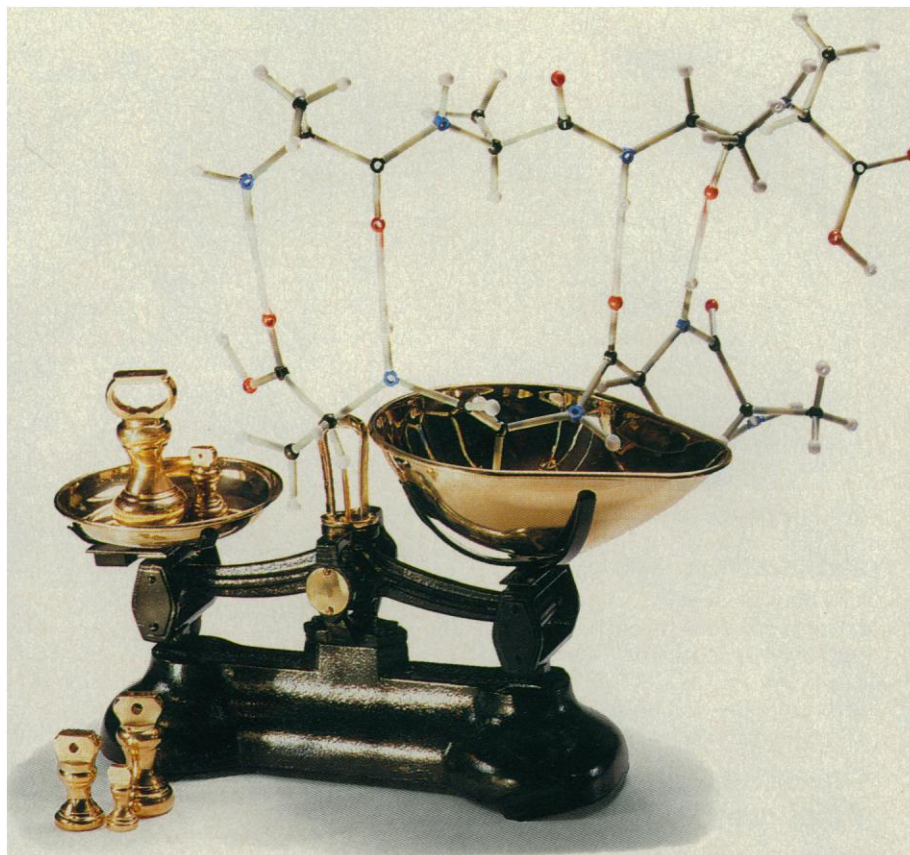
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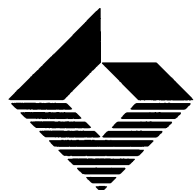
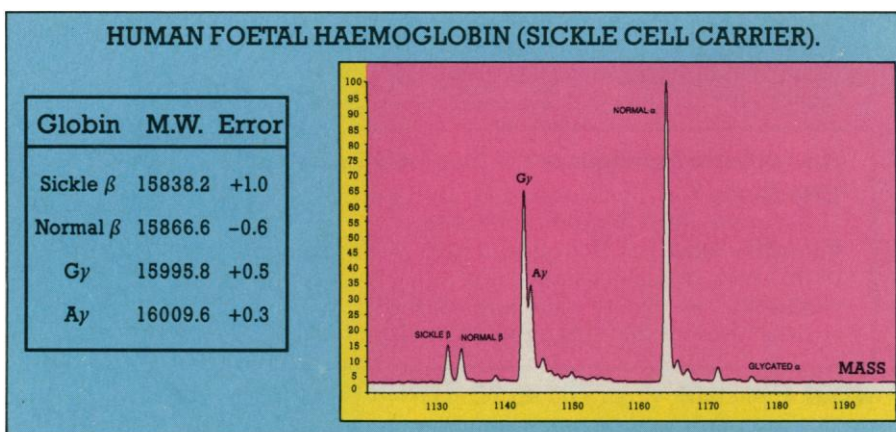
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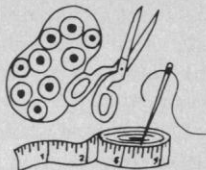
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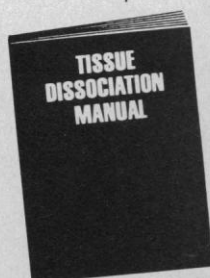


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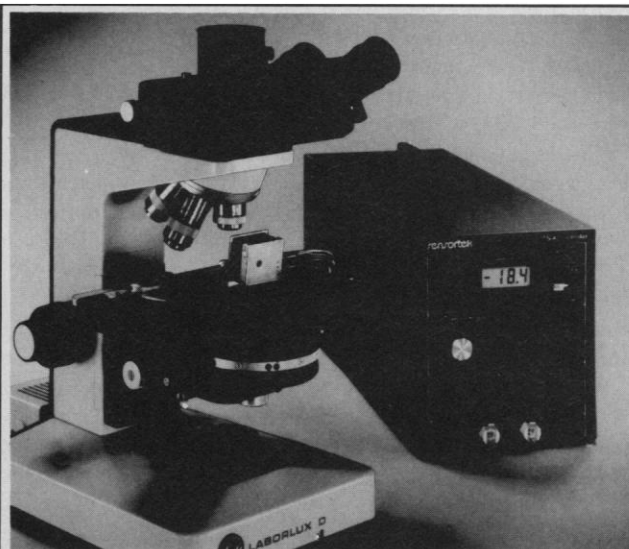
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**MEDICAL
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Bethesda, Maryland – May 17-19, 1990

The three-day course, organized by members of the NIH Interinstitute Medical Genetics Program, will include didactic and problem-oriented sessions.

Topics include: gene structure and expression, chromosome structure, cytogenetics, reverse genetics, gene mapping, recombinant DNA techniques in medical genetics, dysmorphology, inborn errors of metabolism, cancer genetics, endocrine genetics, neurogenetics and the genetics of connective tissue disorders. Also included will be prenatal diagnosis, genetic counseling and new approaches to the treatment of genetic diseases.

The course is intended, in part, as a review for candidates for the examinations of the American Board of Medical Genetics and will stress clinical applications, but will not ignore the excitement of current research.

AMA Category I credit, 24 hours. A fee of \$350 will cover tuition and syllabus (\$395 after April 15).

Further information is available from: **Medical Genetics, c/o FAES, One Cloister Court, Suite 230, Bethesda, Maryland 20814-1460, (301) 496-7975.**

The FAES/NIH is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians. The FAES/NIH designates this continuing medical education activity for 24 credit hours in Category 1 of the Physician's Recognition Award of the American Medical Association.

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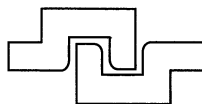


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Advanced Research Workshops

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. 1990-1), NATO, B-1110 Brussels, Belgium

1990

Programme of meetings

The Advanced Study Institutes and Advanced Research Workshops to be held in 1990 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 Cell to Cell Signals in Plants and Animals (CCS), Condensed Systems of Low Dimensionality (CSLD), Advanced Educational Technology (AET), Chaos, Order and Patterns : Aspects of Non-Linearity (COP) and Science of Global Climate Change (SGCC).

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

LIFE SCIENCES

SCIENCES DE LA VIE

BIOLOGICAL SIGNAL TRANSDUCTION

Prof. E.M. ROSS, Univ. of Texas, SW Med. Ctr., Dpt. of Pharmacology, 5323 Harry Hines Blvd., Dallas, TX 75235-9041 USA
6-17 August 1990 Spetsai, Greece 890302

PHOTOBIOLOGICAL TECHNIQUES

Dr. D.P. VALENZANO, Univ. of Kansas Med. Ctr., Dept. of Physiology, 39th and Rainbow Blvd., Kansas City, KS 66103 USA
1-14 July 1990 Kingston, Ontario, Canada 890309

CELLULAR REGULATION BY PROTEIN PHOSPHORYLATION

Prof. L.M.G. HEILMEYER, Ruhr-Univ. Bochum, Inst. Für Physiol. Chemie, Postfach 2148, D-4630 Bochum, Germany
5-15 September 1990 Londe les Maures, Var, France 890523

DRUG EPIDEMIOLOGY AND POST-MARKETING SURVEILLANCE

Prof. G.P. VELO, Univ. of Verona, Inst. of Pharmacology, Policlinico Borgo Roma, 37134 Verona, Italy
27 September-8 October 1990 Erice, Italy 890642

BIOLOGICAL EFFECTS AND PHYSICS OF SOLAR AND GALACTIC COSMIC RADIATION

Dr. P.D. McCORMACK, NASA HQ, Life Sciences Division, (Code EBM), Washington DC 20546, USA
6-19 October 1990 Cesme, Izmir, Turkey 890648

MASS SPECTROMETRY IN MOLECULAR SCIENCES: THE APPLICATIONS IN BIOCHEMISTRY, ENVIRONMENTAL AND FORENSIC SCIENCES

Prof. M.L. GROSS, Univ. of Nebraska, Dept. of Chemistry, Lincoln, NE 68588, USA
17-29 June 1990 Cetraro, Italy 890652

THE MOLECULAR PATHOLOGY OF ALCOHOLISM

Dr. T.N. PALMER, Charing Cross & Westminster Medical Sch., Dept. of Biochemistry, Fulham Palace Road, London W6 8RF, UK
26 August-6 September 1990 Il Ciocco, Italy 890653

GLOBAL REGULATION OF GENE EXPRESSION IN MICROORGANISMS

Dr. M. GRUNBERG-MANAGO, Inst. de Biologie Physico-Chimique, 13, Rue Pierre et Marie Curie, 75005 Paris, France
2-15 September 1990 Spetsai, Greece 890656

BIOPHYSICS OF PHOTORECEPTORS AND PHOTOMOVEMENTS IN MICROORGANISMS

Dr. F. LENCI, Istituto Biofisica, C.N.R., Via San Lorenzo 26, I-56100 Pisa, Italy
16-28 September 1990 Tirrenia, Pisa, Italy 890657

PLANT MOLECULAR BIOLOGY

Prof. R.G. HERRMANN, Ludwig-Maximilians-Univ. Botanisches Inst., Menzinger Strasse 67, 8000 München 19, Germany
13-23 May 1990 Klais, Germany 890680

INDIVIDUAL CELL AND PARTICLE ANALYSIS: MULTIDISCIPLINARY APPLICATIONS TO OCEANOGRAPHY

Dr. S. DEMERS, Inst. Maurice Lamontagne-Québec, Phytoplankton Section, 850 Route de la Mer, Mont-Joli, Québec, Canada G5H 3Z4
21-30 October 1990 Maratea, Italy 890685

MOLECULAR TECHNIQUES IN TAXONOMY

Prof. G. HEWITT, Univ. of East Anglia, School of Biological Sciences, Norwich, NR4 7TJ, UK
8-22 July 1990 Norwich, UK 890686

VASCULAR ENDOTHELIUM: PHYSIOLOGICAL BASIS OF CLINICAL PROBLEMS

Prof. J.D. CATRAVAS, Medical College of Georgia, Dept. of Pharmacology, Augusta, Georgia 30912, USA
18-29 June Corfu, Greece 890694

VACCINES: RECENT TRENDS AND PROGRESS

Dr. G. GREGORIADIS, Royal Free Hospital Sch. of Medicine, Acad. Dept. of Medicine, MRC Group, Pond St. London NW3 2QG, UK
24 June-5 July 1990 Cape Sounion Beach, Greece 890714

MOLECULAR BASIS OF HUMAN CANCER

Prof. C.A. NICOLINI, Chair of Biophysics, Faculty of Medicine, Viale Benedetto XV, 2, 16132 Genova, Italy
18-30 May 1990 Erice, Italy 890788

NEW TRENDS IN PHARMACOKINETICS

Prof. A. RESCIGNO, Univ. of Parma, Faculty of Pharmacy, Via Massimo d'Azeglio, 85, 43100 Parma, Italy
4-15 September 1990 Erice, Italy 890844

RHYTHMS IN FISHES

Prof. M.A. ALI, Univ. de Montreal, Dept. de Biologie, C.P. 6128 Succ. A, Montreal, Quebec, Canada H3C 3J7
15-28 July 1990 Montreal, Canada 891043

PHYSICS AND CHEMISTRY

PHYSIQUE ET CHIMIE

VACUUM STRUCTURE IN INTENSE FIELDS

Prof. H.M. FRID, Brown Univ. Dept. of Physics, Providence, RI 02912 USA
August 1990 Cargèse, Corsica, France 890292

LARGE-SCALE MOLECULAR SYSTEMS - QUANTUM AND STOCHASTIC ASPECTS

Prof. A. BLUMEN, Univ. of Bayreuth, Physical Inst., Postfach 101251, D-8580 Bayreuth, Germany
25 March-7 April 1990 Maratea, Italy 890293

MICROELECTRODES: THEORY AND APPLICATIONS

Dr. I. MONTENEGRO, Dept. of Chemistry, Univ. do Minho, Largo do Paco, 4719 Braga, Portugal
14-26 May 1990 Alvor, Portugal 890297

SCIENCE AND TECHNOLOGY OF NANOSTRUCTURED MAGNETIC MATERIALS

Dr. G.C. HADJIPANAYIS, Kansas State Univ. Dept. of Physics, Manhattan, KS 66506, USA
24 June-7 July 1990 Crete, Greece 890299

THE APPLICATION OF CHARGE-DENSITY RESEARCH TO CHEMISTRY AND DRUG DESIGN

Prof. G.A. JEFFREY, Univ. of Pittsburgh, Dept. of Crystallography, Pittsburgh, PA 15260, USA
17-27 April 1990 San Feliu de Guixols, Spain 890301

DIRECT METHODS OF SOLVING CRYSTAL STRUCTURES

Prof. H. SCHENK, Univ. of Amsterdam, Lab. for Crystallography, Nieuwe Achtergracht 166, 1018 WV Amsterdam, The Netherlands
18-29 June 1990 Erice, Italy 890306

FUNDAMENTAL SYSTEMS IN QUANTUM OPTICS

Mr. J. ZINN-JUSTIN, CEN-SACLAY, Serv. de Physique Théorique, F-91191 Gif-sur-Yvette, Cedex France
25 June-27 July 1990 Les Houches, France 890312

PHYSICS OF GRANULAR NANO-ELECTRONICS

Dr. D.K. FERRY, Arizona State Univ., Dept. of Electrical & Computer Eng., Tempe, AZ 85287-6206, USA
23 July-4 August 1990 Il Ciocco, Italy 890650

PATTERN RECOGNITION AND IMAGE PROCESSING IN PHYSICS

Prof. A.P. CRACKNELL, Univ. of Dundee, Carnegie Lab. of Physics, Dundee, DD1 4HN, U.K.
29 July-18 August 1990 Dundee, U.K. 890522

TECHNIQUES AND CONCEPTS OF HIGH ENERGY PHYSICS

Prof. T. FERBEL, Univ. of Rochester, Dept. of Physics, Rochester, NY 14627, USA
14-25 June 1990 St. Croix, US Virgin Islands 890655

FUNDAMENTALS OF GAS-PHASE ION CHEMISTRY

Prof. K.R. JENNINGS, Univ. of Warwick, Dept. of Chemistry, Coventry CV4 7AL, UK
25 June-7 July 1990 Mt. Ste Odile, France 890675

FUNDAMENTAL ASPECTS OF HETEROGENEOUS CATALYSIS STUDIED BY PARTICLE BEAMS

Prof. H.H. BRONGERSMA, Eindhoven Univ. of Technology, Dept. of Physics, P.O.B. 513, 5600 MB Eindhoven, The Netherlands
2-15 September 1990 Alicante, Spain 890677

THEORY OF HIGH T_c SUPERCONDUCTIVITY

Dr. P.W. ANDERSON, J. Henry Physics Lab., PO Box 708, Princeton Univ., Princeton, NJ 08544, USA
18-30 June 1990 Cargèse, Corsica, France 890695

THEORETICAL AND COMPUTATIONAL MODELS FOR ORGANIC CHEMISTRY

Prof. S.J. FORMOSINHO, Univ. of Coimbra, Dept. de Quimica, 3000 Coimbra, Portugal
26 Aug.-8 Sept. 1990 Praia de Porto Novo, Portugal 890696

PHASE TRANSITIONS IN SURFACE FILMS

Prof. H. TAUB, Univ. of Missouri-Columbia Dept. of Physics and Astronomy, 223 Physics Bld. Columbia, Missouri 65211, USA
19-30 June 1990 Erice, Italy 890836

INTERACTION OF CHARGED PARTICLES WITH SOLIDS AND SURFACES

Prof. F. FLORES, Univ. Autonoma Cantoblanco, Dept. Materia Condensada, Cantoblanco, E-28049 Madrid, Spain
6-18 May 1990 Alicante, Spain 890839

WAVEGUIDE OPTOELECTRONICS

Dr. J.H. MARSH, Univ. of Glasgow, Dept. of Electronics & Electrical Eng., Glasgow G12 8QQ, UK
30 July-10 August 1990 Glasgow, UK 890848

ELECTRIFIED INTERFACES IN PHYSICS, CHEMISTRY AND BIOLOGY

Prof. R. GUIDELLI, Florence Univ., Dept. of Chemistry, Via G. Capponi 9, 50121 Florence, Italy
22 July-3 August 1990 Varenna, Italy 890849

LOW DIMENSIONAL STRUCTURES IN SEMICONDUCTORS FROM BASIC PHYSICS TO APPLICATIONS

Dr. A.R. PEAKER, CNRS - Groupe for Electronic Materials, PO Box 88, Manchester M 60 10D, UK
1-15 July 1990 Erice, Italy 890852

PHYSICS OF GRANULAR MEDIA

Prof. D. BIDEAU, CNRS - Groupe de Physique Cristalline, Bât. B-Physique, Campus de Beaulieu, 35042 Rennes Cedex, France
20 February-1 March 1990 Les Houches, France 890869

PROPAGATION OF CORRELATIONS IN CONSTRAINED SYSTEMS

Dr. H.E. STANLEY, Boston Univ., Ctr. for Polymer Studies, Dept. of Physics, Boston, MA 02215, USA
1-14 July 1990 Cargèse, Corsica, France 890896

Z² PHYSICS

Prof. M. LEVY, Univ. Pierre & Marie Curie, LPHE, 4 Place Jussieu, 75230 Paris, Cedex 05, France
13-25 August 1990 Cargèse, Corsica, France 891025

NONLINEAR PHENOMENA RELATED TO GROWTH AND FORMS

Dr. M. BEN AMAR, Ecole Normale Supérieure, Labo. de Physique Stat., 24 rue Lhomond, 75231 Paris, Cedex 05, France
17-29 July 1990 Cargèse, Corsica, France (COP) 890304

INFORMATION DYNAMICS

Mr. H. ATMANSPACHER, Max Planck Inst. für Extraterrestrische Physik, D-8046 Garching, Germany
15-26 June 1990 Irsee/Kaufbeuren, Germany (COP) 890518

QUANTUM COHERENCE IN MESOSCOPIC SYSTEMS

Prof. B. KRAMER, Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-3300 Braunschweig, Germany
2-13 April 1990 Les Arcs, France (CSLD) 890520

HIGHLIGHTS OF THE EIGHTIES AND FUTURE PROSPECTS IN CONDENSED MATTER PHYSICS

Prof. L. ESAKI, IBM T.J. Watson Research Center, POB 218, Yorktown Heights, NY 10598, USA
16-21 September 1990 Biarritz, France (CSLD) 891022

ASTRONOMY & ASTROPHYSICS

ASTRONOMIE & ASTROPHYSIQUE

PHYSICS OF STAR FORMATION AND EARLY STELLAR EVOLUTION

Dr. N.D. KYLAFIS, Univ. of Crete, Dept. of Physics, 714 09 Iraklion, Crete, Greece
27 May-8 June 1990 Aghia Pelagia, Crete, Greece 890324

NEUTRON STARS: AN INTERDISCIPLINARY FIELD

Dr. J.E. VENTURA, Univ. of Crete, Dept. of Physics, Heraklion, Crete, Greece
3-14 September 1990 Aghia Pelagia, Crete, Greece 890715

COSMIC RAYS, SUPERNOVAE AND THE INTERSTELLAR MEDIUM

Prof. M.M. SHAPIRO, 105 Yoakum Parkway, Apt. 1720, Alexandria, VA 22304, USA
16-25 July 1990 Erice, Italy 890845

SUPERNOVAE

Dr. J. AUDOUZE, Institut d'Astrophysique de Paris, 98bis Bd. Arago, 75014 Paris, France
31 July-1 September 1990 Les Houches, France 890874

MATHEMATICS

MATHÉMATIQUES

GENERATORS AND RELATIONS IN GROUPS AND GEOMETRIES

Prof. E.W. ELLERS, Univ. Würzburg, Mathematisches Inst., Am Hubland, D-8700 Würzburg, Germany
1-14 April 1990 Castelvechio Pascoli, Italy 890298

COMPUTER ALGORITHMS FOR SOLVING LINEAR ALGEBRAIC SYSTEMS: THE STATE OF THE ART

Prof. E. SPEDICATO, Istituto Universitario, Dipartimento di Matematica, Via Salvechio 19, 24100 Bergamo, Italy
9-21 September 1990 Il Ciocco, Italy 890524

NONPARAMETRIC FUNCTIONAL ESTIMATION AND RELATED TOPICS

Prof. G.G. ROUSSAS, Univ. of California, Div. of Statistics, 469, Kerr Hall, Davis, CA 95616, USA
29 July-11 August 1990 Spetsai, Greece 890678

SHAPE OPTIMIZATION AND FREE BOUNDARIES

Prof. A. DAIGNEAULT, Univ. de Montreal, Dept. de Math. & de Statist., C. Post. 6128, Succ. A, Montreal, P.Q. H3C 3J7, Canada
25 June-13 July 1990 Montreal, Canada 890689

COMPUTER & SYSTEMS SCIENCES INFORMATIQUE & SCIENCES DES SYSTEMES

PROGRAMMING AND MATHEMATICAL METHODS

Prof. F.L. BAUER, Technische Univ. München, Inst. für Informatik, Arcisstr. 21, Postfach 20 24 20, D-8000 München 2, Germany
24 July-5 August 1990 Marktobderdorf, Germany **890684**

NEW FRONTIERS IN THE THEORY AND PRACTICE OF COMBINATORIAL OPTIMIZATION

Dr. S. TUFEKCI, Univ. of Florida, Dept. of Indust. & Sys. Eng., 303 Weil Hall, Gainesville, Florida 32611, USA
16-28 July 1990 Ankara, Turkey **890688**

SYSTEMS ISSUES AND AUTOMATION IN AN ADVANCED CONTROL SYSTEM

Dr. J. WISE, Embry-Riddle Aeronautical Univ., Ctr. for Aviation/Aerospace Research, Daytona Beach, Florida 32114, USA
18-29 June 1990 Maratea, Italy **890840**

SPEECH RECOGNITION AND UNDERSTANDING: RECENT ADVANCES, TRENDS AND APPLICATIONS

Prof. P. LAFACE, Politecnico di Torino, Dept. di Automatica e Informatica, Corso Duca Degli Abruzzi 24, 10129 Torino, Italy
1-13 July 1990 Maratea, Italy **890843**

EXPERT SYSTEMS AND ROBOTICS

Prof. T. JORDANIDES, California State Univ., Electrical Eng. Dept., Long Beach, CA 90840, USA
2-13 July 1990 Agios Nikolaos, Crete **890847**

APPLIED SCIENCES & ENGINEERING SCIENCES APPLIQUEES & INGENIERIE

MEMBRANE FILTRATION: THEORY & APPLICATIONS

Prof. A. HUYGHEBAERT, Univ. of Ghent, Faculty of Agricultural Sciences, Coupure Links 653, 9000 Gent, Belgium
7-21 April 1990 Bonas, France **880972**

SUPERMAGNETS, HARD MAGNETIC MATERIALS

Prof. G.J. LONG, Univ. of Missouri-Rolla, Dept. of Chemistry, Rolla, MO 65401, USA
10-23 June 1990 Il Ciocco, Italy **890307**

APPLICATIONS OF METALLIC AND CERAMIC SUPERCONDUCTIVITY

Prof. H. WEINSTOCK, Air Force Off. of Sc. Research, AFOSR/NE., Bolling AFB, Washington DC 20332-6448, USA
10-20 September 1990 Fort Collins, Colorado, USA **890308**

CHROMATOGRAPHIC AND MEMBRANE PROCESSES IN BIOTECHNOLOGY

Prof. CA COSTA, Univ. of Porto, Dept. Chemical Eng., Bragas 4099, Porto, Codex, Portugal
15-27 July 1990 S. Miguel, The Azores, Portugal **890525**

DIAMOND AND DIAMOND-LIKE FILMS AND COATINGS

Dr. R.E. CLAUSING, Oak Ridge National Laboratory, POB 2008, Oak Ridge, TN 37831, USA
22 July-3 August 1990 Castelvecchio Pascoli, Italy **890651**

ADVANCES ON ROCKFILL STRUCTURES

Dr. E. MARANHA DAS NEVES, Lab. Nacional de Engenharia Civil, Av. Do Brasil 101, 1799 Lisboa, Codex, Portugal
18-29 June 1990 Lisbon, Portugal **890676**

COMBUSTING-FLOW DIAGNOSTICS

Prof. D.F.G. DURAO, Technical Univ. of Lisbon, Inst. Superior Tecnico, Av. Rovisco Pais, 1096, Lisbon Codex, Portugal
16-27 April 1990 Albufeira, Portugal **890682**

LASER SYSTEMS FOR PHOTOBIOLOGY AND PHOTOMEDICINE

Prof. S. MARTELUCCI, The Second Univ. of Rome, Mech. Eng. Dept., Via Orazio Raimondo, 00173 Rome, Italy
11-20 May 1990 Erice, Italy **890687**

CONVECTIVE HEAT AND MASS TRANSFER IN POROUS MEDIA: FUNDAMENTALS AND APPLICATIONS

Prof. S. KAKAC, Univ. of Miami, Dept. of Mech. Engin., POB 284294, Coral Gables, FL 33124, USA
6-17 August 1990 Izmir, Turkey **890690**

PICTURE ARCHIVING AND COMMUNICATION SYSTEMS IN MEDICINE

Prof. H.K. HUANG, UCLA, CHS AR227, School of Medicine, Medical Imaging Division, Los Angeles, CA 90024-1721, USA
1-10 May 1990 Evian, France **890720**

ADVANCED MATERIALS AND PROCESSING FOR THE ULSI ERA

Dr. R.A. LEVY, AT&T Bell Laboratories, 600 Mountain Ave., Murray Hill, New Jersey 07974, USA
17 October 1990 - 13 March 1991
(Lectures by satellite only) **891016**

SOCIAL & BEHAVIOURAL SCIENCES SCIENCES SOCIALES ET DU COMPORTEMENT

TUTORIALS IN MOTOR NEUROSCIENCE

Prof. G.E. STELMACH, Univ. of Wisconsin, Motor Behavior Lab., 2000 Observatory Drive, Madison, Wisconsin 53706, USA
15-24 September 1990 Ajaccio, France **890294**

OPERATIONS RESEARCH AND MANAGEMENT IN FISHING

Mr. A.J. MARQUES GUIMARAES RODRIGUES, Univ. do Minho, Largo do Paco, P-4719 Braga, Codex, Portugal
25 March-7 April 1990 Povo da Varzim, Portugal **890303**

COGNITIVE AND LINGUISTIC ASPECTS OF GEOGRAPHIC SPACE

Prof. D.M. MARK, State Univ. of New York at Buffalo, National Ctr. for Geographic Inform. and Analysis, Buffalo, NY 14260 USA
8-20 July 1990 Las Navas Del Marques, Spain **890876**

SYNTHESES OF INSTRUCTIONAL SCIENCE AND COMPUTING SCIENCE FOR EFFECTIVE INSTRUCTIONAL COMPUTING SYSTEMS

Dr. P.H. WINNE, Simon Fraser Univ., Faculty of Education, Burnaby, British Columbia V5A 1S6, Canada
15-27 July 1990 Calgary, Canada (AET) **891040**

Advanced Research Workshops

LIFE SCIENCES

SCIENCE DE LA VIE

DNA POLYMORPHISMS AS DISEASE MARKERS

Prof. D.J. GALTON, St. Bartholomew's Hospital, Diabetic Dept., West Smithfield, London EC1A 7BE, UK
25-27 September 1990 London, UK **880872**

FOREST DEVELOPMENT IN COLD CLIMATES

Dr. F.H. LOCKYEAR, Retree International, P.O. Box 346, Wilsonville, Oregon 97070, USA
25-30 June 1990 Laugarvatn, Iceland **880898**

EARLY EFFECTS OF RADIATION ON DNA

Dr. E.M. FIELDEN, MRC Radiobiology Unit, Chilton, Didcot, Oxon OX11 0RD, UK
7-11 May 1990 San Miniato, Italy **890284**

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Dr. D. PANSU, Hôpital Edouard Herriot, Inserm Unité 45, Pavillon Hbis, 69437 Lyon, Cedex 03, France
4-7 March 1990 Lyon, France **890319**

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Prof. R.W.S. WISSLER, The Univ. of Chicago, Dept. of Pathology, 5841 S. Maryland Avenue, Box 414, Chicago, Ill. 60637, USA
3-7 June 1990 Siena, Italy **890662**

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Dr. J.E.G. McARTHUR, GBF-Gesellschaft f. Biotechn. Forschung Mascheroder Weg 1, 3300 Braunschweig, Germany
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19-21 September 1990 Washington DC, USA (AET) 891034

COGNITIVE MODELLING AND INTERACTIVE ENVIRONMENTS

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5-8 November 1990 Eindhoven, The Netherlands (AET) 891037

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26-29 September 1990 Leuven, Belgium (AET) 891038

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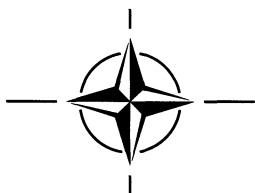
Dr. M. HACKER, New York State Dept. of Education, One
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Electrotecnica, 3000 Coimbra, Portugal
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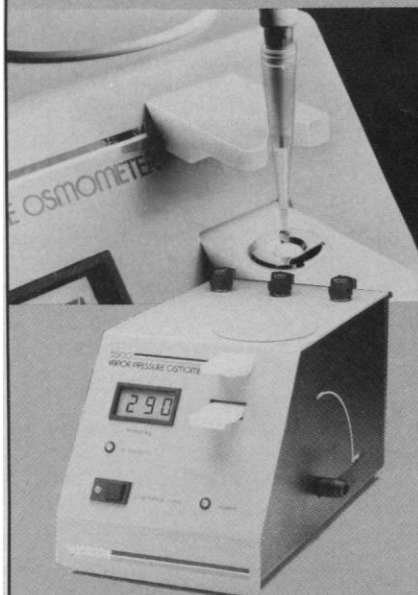


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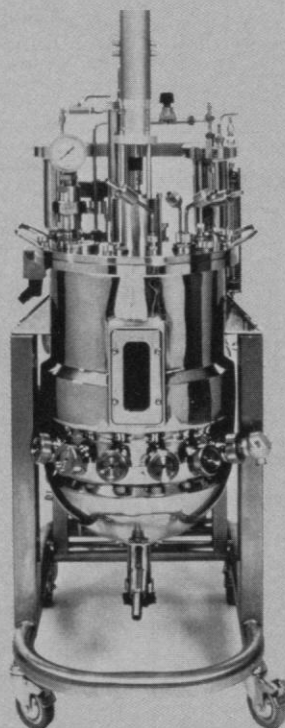
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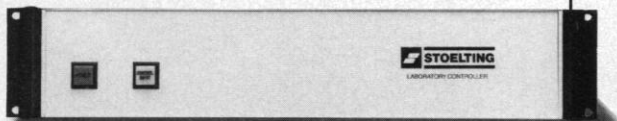
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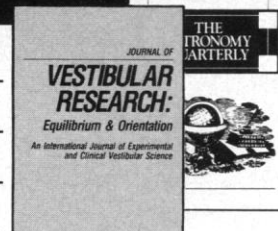
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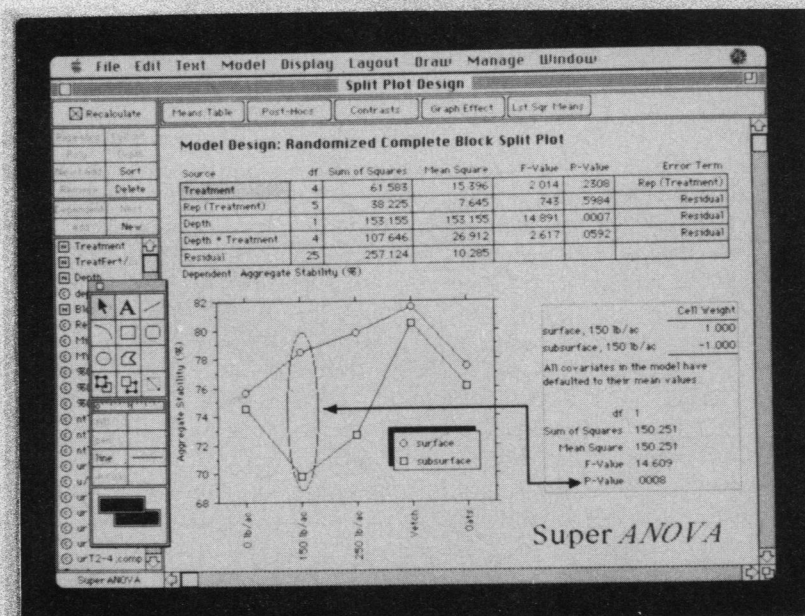
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