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15 September 1989 $3.50
Vol. 245 ■ Pages 1153–1300

1 9:00

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2 9:02

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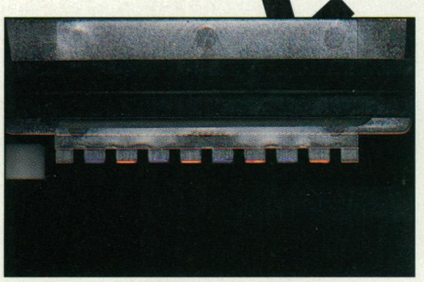
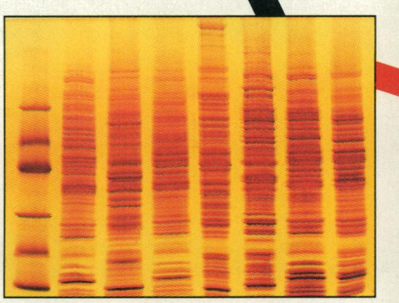


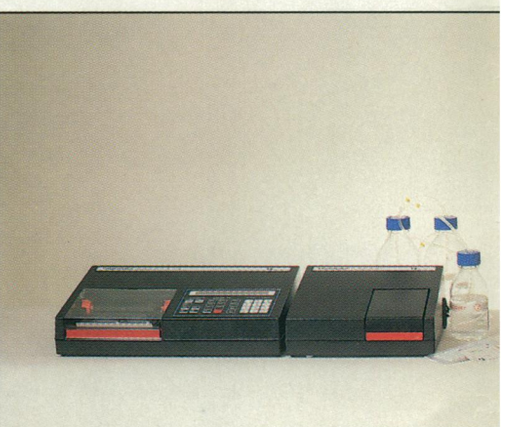
3 9:07

Program and run method.

4 9:37

Develop gel automatically with silver or coomassie staining kits.





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5 9:37
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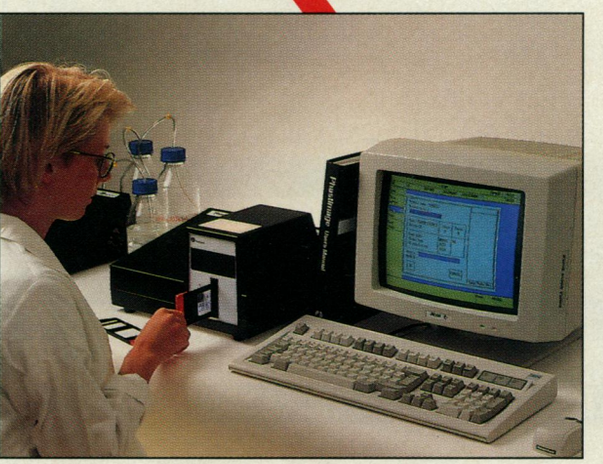
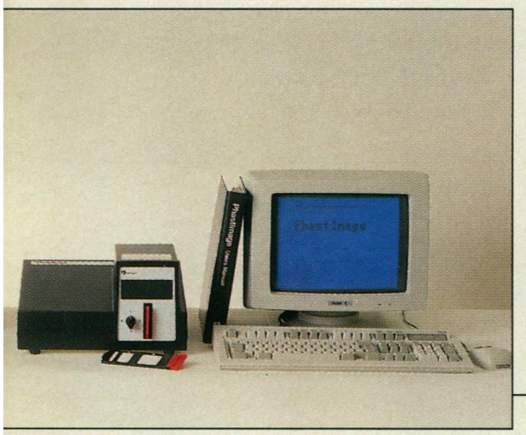


6 10:07
Scan and evaluate results.



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COVER The hoatzin, *Opisthocomus hoazin*, a neotropical leaf-eating bird, is the only bird known to have ruminant-like foregut fermentation. This unexpected digestive system in a small flying endotherm provides new insights into theoretical size limitations in vertebrate herbivores and the evolution of foregut fermentation as a digestive strategy. See page 1236. [Photograph by Stuart D. Strahl, WCI–New York Zoological Society]

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Whose data?

CRYSTALLOGRAPHERS are trying to hammer out an equitable policy on data release that will be fair to both an investigator who solves the crystal structure of a protein or nucleic acid and to others interested in using the data (page 1179). When a molecule's three-dimensional structure is solved, only the deduced structure is reported in the literature; the primary results, the three-dimensional coordinates for each atom in the molecule, are supposed to be deposited in the Brookhaven Protein Data Bank from which they can be obtained by other researchers. However, as reported by Barinaga, not everyone faithfully deposits data in the data bank; some omissions are intentional, for personal or commercial reasons, while others are oversights. Therefore, the development of a uniform policy that establishes what is a reasonable amount of time for the original researcher to work with data before sharing it will not be enough; it will also be necessary to determine who—individuals, journal editors, data bank personnel, or organizations—might be involved in enforcing compliance with the policy.

Moon meteorites

A phenomenal amount of information about the origins and histories of lunar meteorites has been obtained and inferred from analyses of noble gas isotopes trapped in such meteorites (page 1197). Eugster describes five lunar meteorites that are estimated to have landed on the Antarctic ice sheet some 70,000 to 170,000 years ago. The meteorites range in size from less than 50 to more than 600 grams; they were propelled into space by large comets or asteroids that hit the moon. For the meteorites to escape from the moon's gravitational field, the asteroids should have had diameters greater than 100 meters. Three of the lunar meteorites spent 5 to 11 million years traveling to the earth and may be pieces of the same falling rock; the other two traveled much faster and arrived at the earth in less than 300,000 years. Studies of these lunar meteorites and of the rocks that were brought back to the earth during the Apollo and Luna missions have led to a richer understanding of the chemical composition of the lunar crust.

The Saturn system

NEW images of Saturn and its rings, at unprecedented resolutions, have been obtained from radio interferometric observations at the Very Large Array in New Mexico (page 1211). Astronomers can now study variations in brightness associated with the planet and with the rings. Grossman *et al.* use atmospheric models and the microwave maps to illustrate how temperature and ammonia concentration vary with latitude and affect the brightness of Saturn's atmosphere: there is a slight warming from the equator to the poles and, in the planet's northern mid-latitude, the most profound depletion of ammonia (indicated by a bright zone) was noted. From these data, inferences can be made about the sizes of the particles in each of the rings and about how the rings scatter the microwave thermal emissions from the planet and polarize the scattered radiation. As the limits of resolution and sensitivity have been reached for Earth-based radio observations, deeper probing into the natures of Saturn's atmosphere and rings will depend on future missions to Saturn.

Foregut fermentation

HOATZINS (cover) are exotic clawed birds that have been nicknamed "stinkbirds" because they smell like fresh cow manure. Their unpleasant odor is the result of an active fermentation process that is occurring in their foreguts (page 1236). Two gut structures, the crop and esophagus, serve hoatzins much as do the rumens of cows: in these organs, symbiotic bacteria ferment fibrous plant materials and produce volatile fatty acids, which are important energy sources. Grajal *et al.* found that hoatzins of north-central Venezuela preferred high quality (water-rich and protein-rich) foods, specifically the new leaves of certain types of plants. Anatomic tradeoffs that occurred to make foregut fermentation possible may account for some of the hoatzins' behavioral peculiarities; for example, they are not facile flyers, perhaps because the space taken up by their fermentation structures left little room for the attachment of flight muscles. Because foregut fermentation was previously believed to be confined to mammals, this discovery will alter theories of how and why this form of digestion has evolved.

Proteins of diapedesis

NEUTROPHILS, which are immune cells that circulate through the bloodstream, can respond rapidly to inflammation. They sense where infections have occurred, become activated, and quickly pass through the blood vessel wall into inflamed tissues. Adhesion molecules on the neutrophil interact with other molecules on the surfaces of vessel wall cells; the neutrophils first attach to and then pass through the wall in a process called diapedesis. Two neutrophil adhesion molecules—Mac-1 and gp100^{MEL-14}—appear to be coordinately and inversely regulated (page 1238): when neutrophils are activated, gp100^{MEL-14} molecules are shed from the surface and the expression of Mac-1 molecules is increased. Similar kinetics govern upregulation of Mac-1, downregulation of gp100^{MEL-14}, and the overall timing of the diapedesis process, which is thought to be complete within 10 minutes of the first interaction of cell with vessel wall. Kishimoto *et al.* speculate that, because unactivated neutrophils adhere to endothelial walls through gp100^{MEL-14}, the shedding of gp100^{MEL-14} may prevent released neutrophils from entering normal tissues and damaging them; when the functioning of Mac-1 molecules is enhanced, they and other "integrins" facilitate passage of the neutrophil to sites of inflammation.

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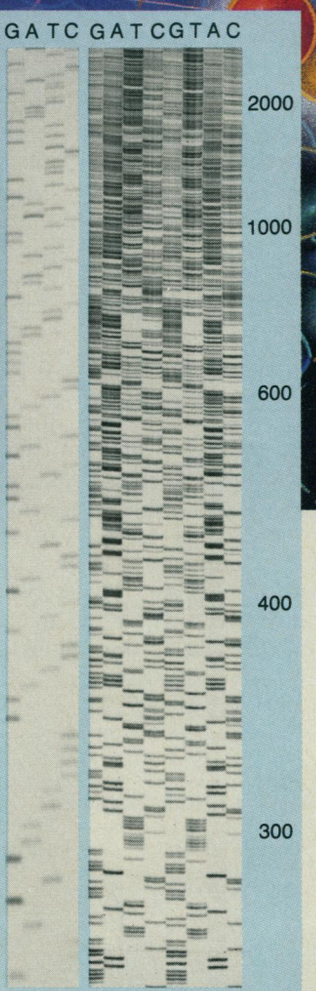

FIGURE 1. FIGURE 2.

Figure 1.
Sequence of strong secondary structure region in M13mp7 using Sequenase® Version 2.0.

Figure 2.
DNA Sequence generated with Sequenase® Version 2.0.

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SCIENCE

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The Human–Voyager 2 Collaboration

The successful Grand Tour of the outer planets by Voyager 2 represents one of humanity's great achievements. The splendid outcome* of the mission carried out in forbidding and hostile environments was due to exemplary exercise of imagination, ingenuity, careful design, and a high level of human-machine operational interaction. An essential ingredient was excellent engineering capability at the Jet Propulsion Laboratory (JPL) that had been nurtured by earlier Mariner missions to the inner planets. Vidicon TV cameras developed for those flights had proved their utility and dependability. Instruments used in science experiments had also been successfully flown. Perhaps most important was experience gained in long-distance human-computer interaction that permitted response to glitches that too often arise in electronic equipment exposed to the rigors of space.

Voyager, though light in weight, had features that facilitated coping with many contingencies. In the 1800-pound spacecraft were six computers, eleven different science instrument packages, ^{238}Pu thermoelectric generators furnishing about 400 watts of power, attitude-controlling devices, propellant for mid-course maneuvers and attitude control, two radios for sending information, and two for receiving it. Redundancy in the computers and radio receivers was later to prove crucial.

Two of the six computers were devoted to attitude control in three dimensions. Two were devoted to the scientific instrumentation. The remaining two were the brains of the vehicle. They were reprogrammable from Earth and could control the various functions of the spacecraft.

Less than 8 months after blast-off, defects that could have ruined the mission developed in the two radio receivers. One went dead. The second was found to be "tone-deaf." That is, it could not cope with the variations in frequency arising from a variable Doppler effect. In addition, the frequency that the receiver could recognize was influenced by temperature effects as small as 0.25°C. The JPL engineers diagnosed the problems and prepared computer tapes that slowly varied the sending frequency to compensate exactly for the disturbing effects. This restored good communication with Voyager. More than 11 years later, the receiver is still tone-deaf, but it can recognize the signals coming to it from Earth more than 4 light-hours away.

The Voyager 2 mission was one of the few times that a major space effort exceeded the promises made for it. JPL had only promised exploration of Jupiter and Saturn. But even before reaching Saturn the Voyager 2 team was making plans and developing capabilities for encounters with Uranus and Neptune. The images obtained from Jupiter and its satellites had been well received by the public. It was desirable to obtain good and many images of the two outer planets despite the low intensity of sunlight on them. At Neptune, light intensity is only 1/900 that at Earth. To obtain good pictures at the outer planets required a comparatively long exposure. But the attitude of the spacecraft tends to drift, leading to blurring of the image. The engineers devised and tested a way of minimizing this drift and radioed the necessary instructions to Voyager 2. Steps were taken to improve reception of image signals on Earth through expanding the array of radio dishes. A major improvement came from employing a redundant computer on the spacecraft. The memory and processor of the computer were used to compress the TV signals. A special computer code enabled Voyager 2 to send back the differences in light intensity from adjacent picture elements. This in effect enhanced the rate of communication of images by a factor of 2.5. Another improvement applicable to small satellites being passed at more than 40,000 miles per hour was to pan the camera by rotating the spacecraft while passing by. Instructions for this were communicated to the spacecraft which later implemented them at the appropriate moment.

One is left with a deep admiration for the quality of teamwork between humans and the spacecraft though they are nearly 3 billion miles apart. The humans safe on Earth have been able to use facilities of equipment and consultation to devise programming techniques that have wrung from Voyager 2 performance that was not imagined at blast-off on 20 August 1977.—PHILIP H. ABELSON

*Results from Voyager's encounter with Neptune and Triton will be published in a future issue of *Science*.

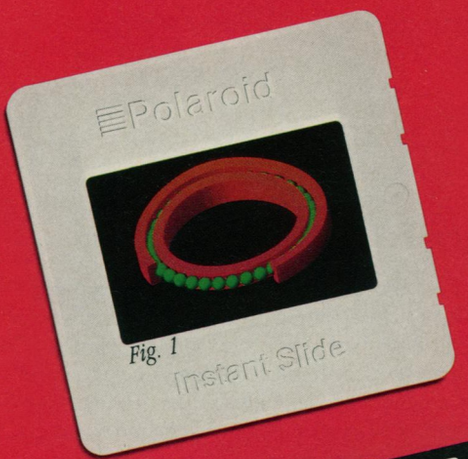

Fig. 1

Fig. 2

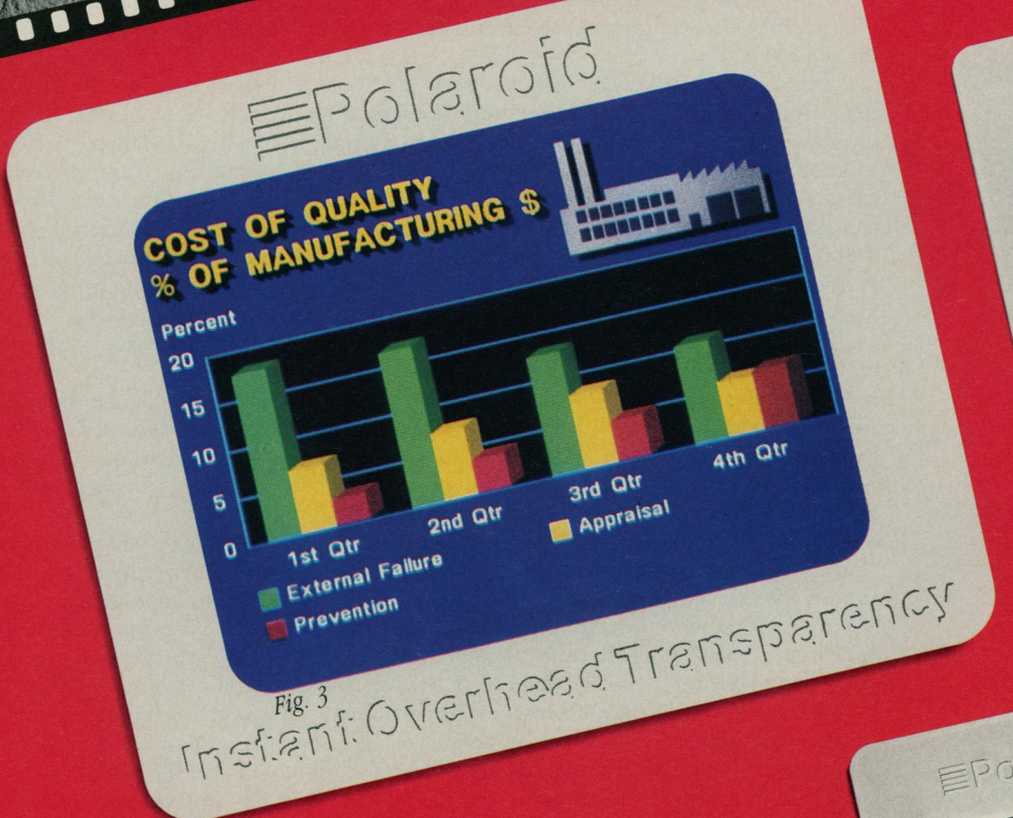

Fig. 3

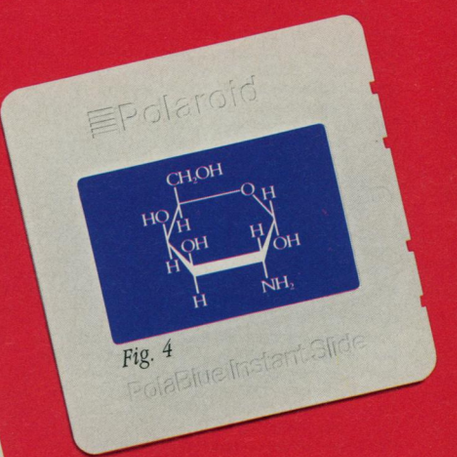

Fig. 4

Fig. 5

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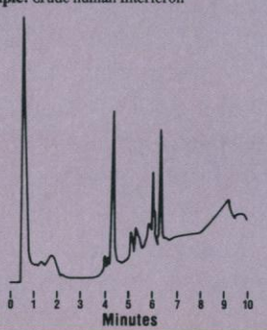
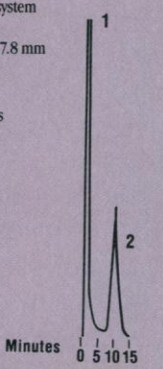
Column: HRLC MA7Q column, 50 x 7.8 mm
Sample: Crude human Interferon



System: HRLC protein system
Column: HRLC MA7S column, 50 x 7.8 mm
Sample: Anti-αHCG ascites fluid
Peaks: 1. Contaminants
2. I_gG_1



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certainly not with technical carelessness.

Incidentally, the weakness of the argument is exposed by the author himself. Publishing twice (*1*) pictures of purchased ammonoids as evidence, he stated without qualifications that they are "from the vicinity of Erfoud, Morocco." Thus, while I trusted the information coming from another scientist, Talent appears to have trusted the information coming from his shopkeeper—hardly a more cautious "approach to the primary facts."

To sum up, whistle-blowing seems to be in our days an urgent necessity. Whistle-blowing should, however, refrain from overzealous exaggerations that could easily harm the reputation of marginally involved, but basically innocent, persons.

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3. K. S. Jayaraman, *Nature* **338**, 694 (1989).

O'Toole's Charges

Margot O'Toole (Letters, 16 June, p. 1243) states that her charges against the paper by D. Weaver *et al.* (*1*) have not changed since the inception of the controversy over that paper. However, 3 years ago in a memorandum she wrote to me setting out her original charges, she took issue only with what she saw as "serious weaknesses" in the data presented in the paper and in their interpretation. In that paper, the authors attributed the high frequency of the idiotype-positive hybridomas derived from their transgenic mice to idiotype-positive immunoglobulins encoded by endogenous genes rather than by the transgene. O'Toole, on the other hand, appeared to believe "that the observed phenomena are best explained" by three other considerations: (i) an overlooked low-level expression of the transgene in many hybridomas from these mice; (ii) a high frequency of the idiotype-positive hybridomas from normal mice of the same strain; and (iii) heterodimer formation, involving disparate classes of immunoglobulin heavy chains, one from the transgene and the other from an endogenous gene.

In evaluating the dispute I examined the data in the published paper and discussed them extensively with various colleagues. Yet O'Toole says in her letter that I "did not even look at data." It may be that this statement was made because I did not examine laboratory notebooks and O'Toole wishes to convey the impression that it is only through examination of data in the form of raw notebook entries that disagreements, like those in her original memorandum, can be evaluated. But the review of unedited laboratory notebooks is an enormous undertaking with major disruptive effects on the research activities of the laboratories under review. Though opinion may vary over when this drastic process should be applied, it seems reasonable to reserve it for situations where the charges made, such as fraud, are correspondingly drastic. Yet fraud was not suggested in O'Toole's original memorandum, and in response to direct questioning she emphatically denied making such a charge.

Although in the beginning O'Toole focused entirely on disagreements with the authors' interpretations of what she regarded as weaknesses in their data, she has recently adopted the position that there were no data at all to support some of the published results, for example, that certain hybridomas had not been "subcloned."

To state, as she now does, that her charges have not changed from the beginning is clearly incorrect. In referring to O'Toole's shifting charges as a "moving target," Barbara J. Culliton's report (News & Comment, 19 May, p.765) got it just right.

HERMAN N. EISEN
Center for Cancer Research, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139

REFERENCES

1. D. Weaver *et al.*, *Cell* **45**, 247 (1986).

Caldera Unrest

Richard A. Kerr's article "Good news for volcano watchers" (Research News, 21 July, p. 255) calls welcome attention to our recently completed review of unrest at large calderas of the world (*1*). However, several of our conclusions are quite different from those noted. (i) The statement that "something is stirring beneath Mammoth Mountain, California, and hardly anyone seems to care" does not apply to the U.S. Geological Survey, or to our colleagues in the state of California, or to the officials and residents of the area with whom we work. Those who are responsible for monitoring Mammoth Mountain and the Long Valley caldera continue their careful surveillance, and we continue to look for lessons from elsewhere that might apply to Long Valley. (ii) Although we concluded that caldera unrest is common, has many origins, and frequently ends without eruption, we also stated that "The outcome of a specific episode of unrest cannot and should not be forecast solely on the basis of patterns of unrest at other calderas. . . ." The current swarm of small earthquakes beneath Mammoth Mountain, which postdates our review, reminds us that the final outcome of unrest at Long Valley is still uncertain. (iii) Lessons from history are different from those of geology, to be sure, but they are not contradictory, as Kerr implies. Geology records eruptions and a few long-lasting noneruptive processes, while contemporary monitoring records day-to-day and year-to-year, mostly noneruptive processes. History is a bridge between geology and monitoring, offering complementary lessons.

We hope our review will be a useful reference for scientists and citizens around the world who are faced with similar unrest and that it tells the people of Mammoth Lakes that they are not alone. But we also hope that it will not be mistaken as reason to relax during such unrest. If anything, the knowledge that caldera unrest can have many origins and many outcomes makes the task of dealing with such unrest harder, not easier, for scientists, officials, and residents alike.

C. G. NEWHALL
U.S. Geological Survey, Reston, VA 22092
D. DZURISIN
U.S. Geological Survey, Vancouver, WA 98661

REFERENCES

1. C. G. Newhall and D. Dzurisin, *Historical Unrest at Large Calderas of the World* (*U.S. Geological Survey Bulletin 1855*, Government Printing Office, Washington, DC, 1988).

Erratum: The caption of the photograph accompanying the article by David Dickson "Fetal tissue transplants win U.K. approval" (News & Comment, 4 Aug., p. 464) should have read, "Human fetal pancreas cells transplanted into mouse tissue will produce insulin."

Erratum: In Eliot Marshall's News & Comment article "Fallout from Pacific reaches Congress" (14 July, p. 123), Rongelap Atoll is described as "three-tenths of a square mile of sand and coconut palms." The atoll actually contains about 4 square miles of land surfaces. In addition, the lagoon encompassed by the atoll covers approximately 350 square miles.

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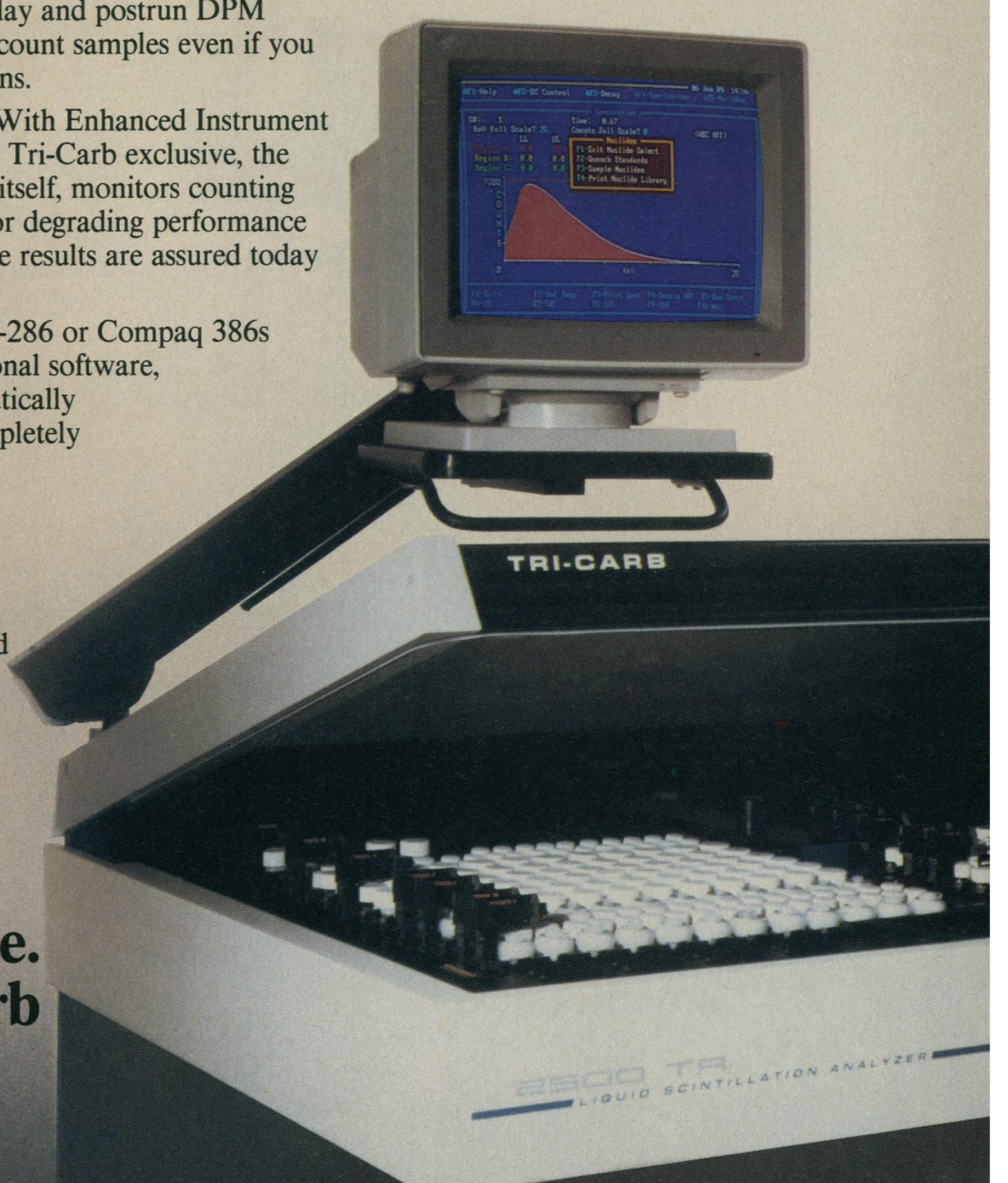

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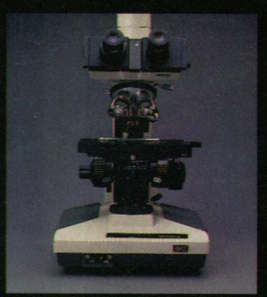

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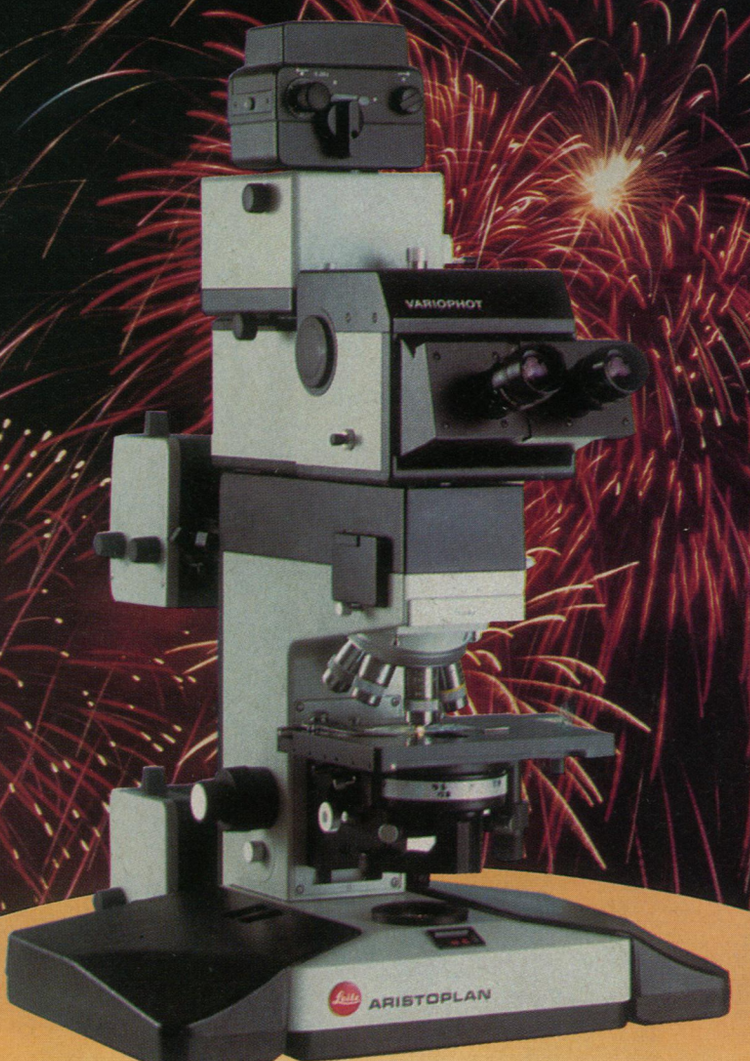

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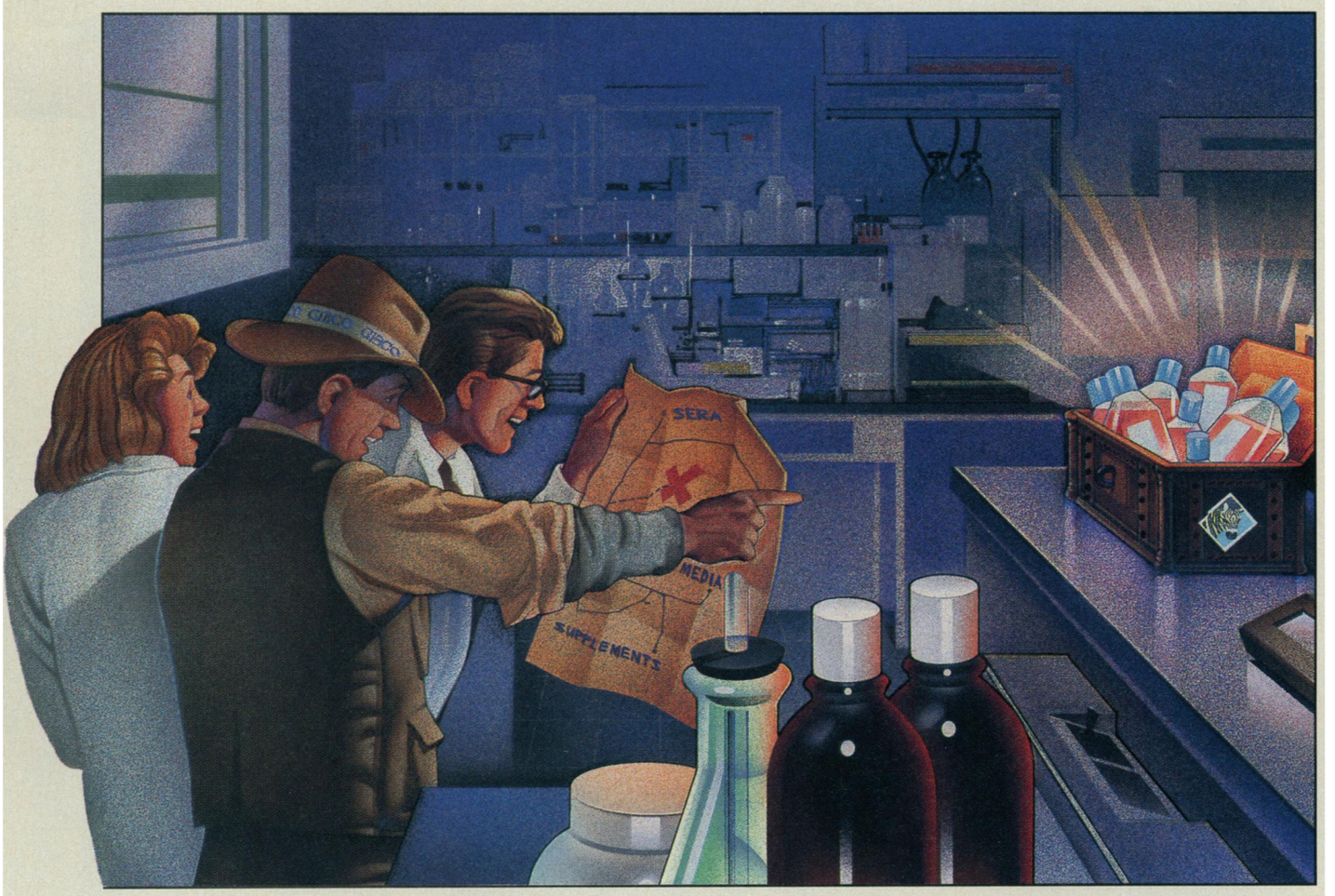

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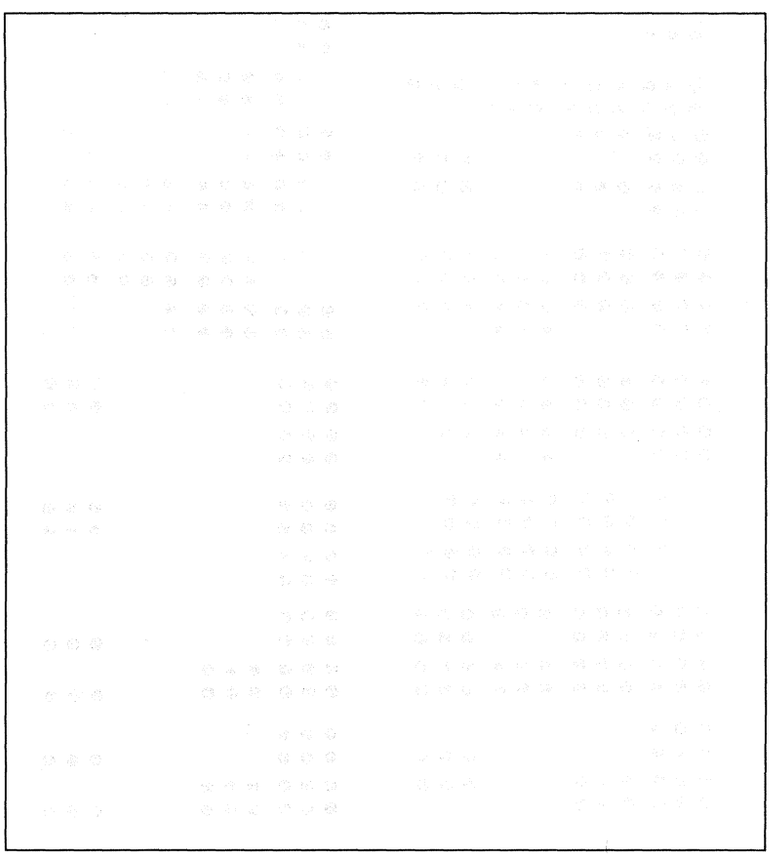

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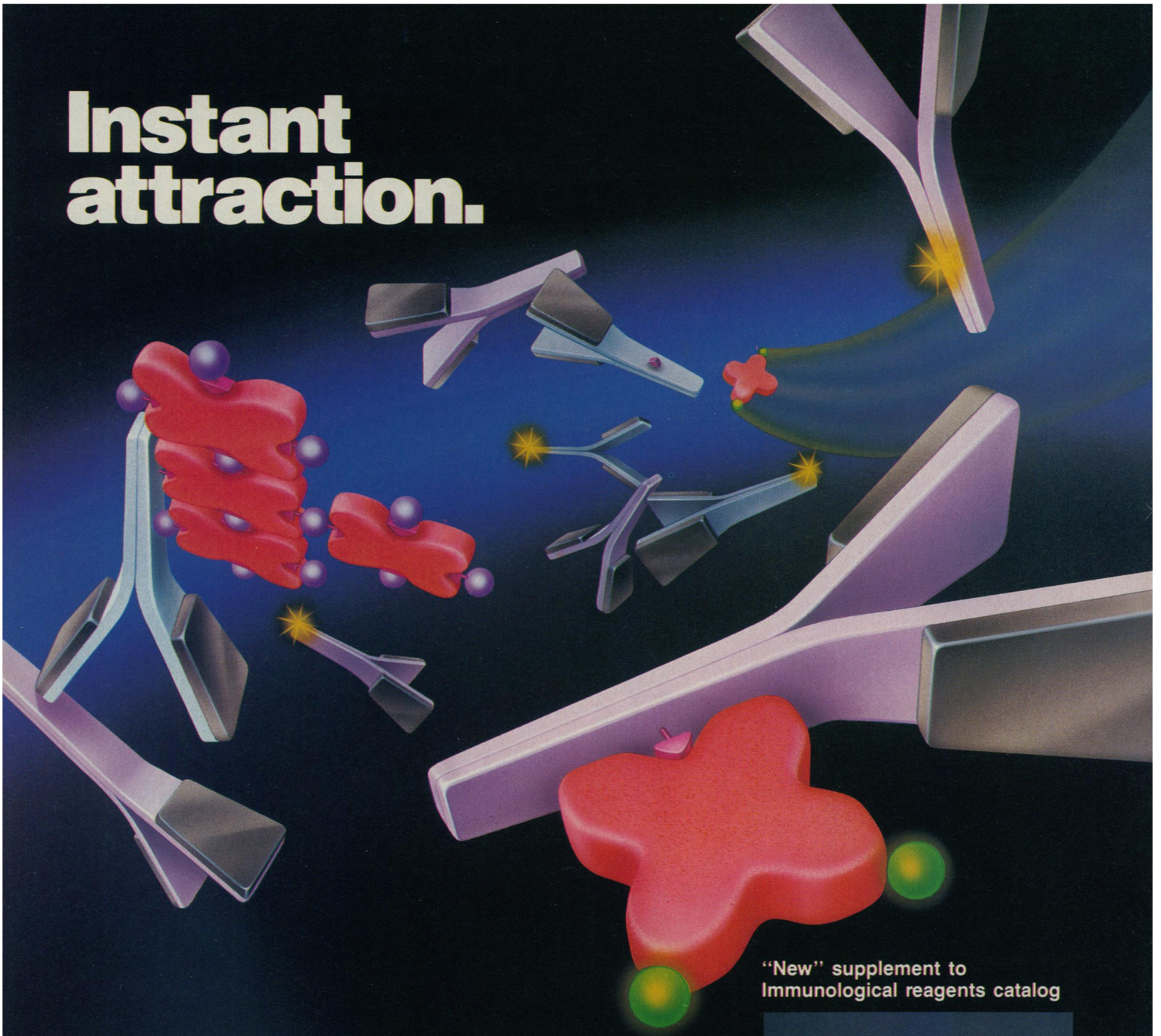

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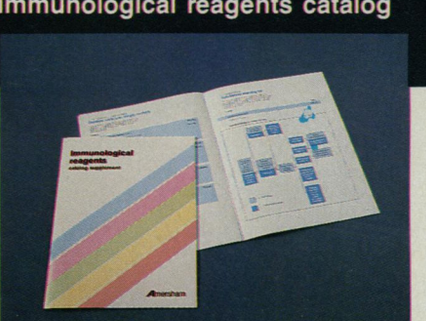

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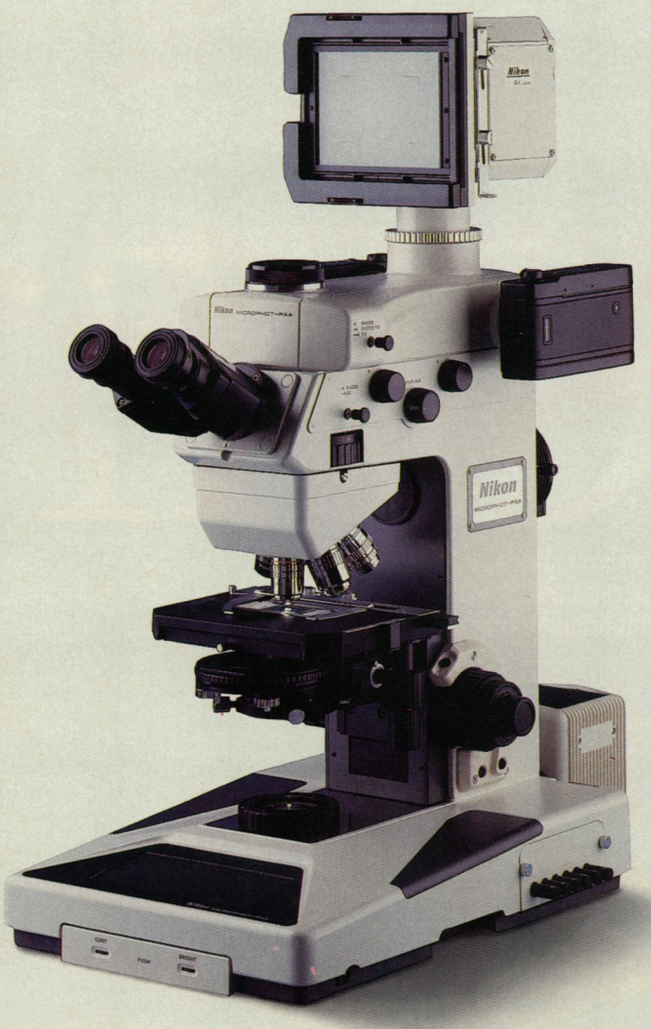

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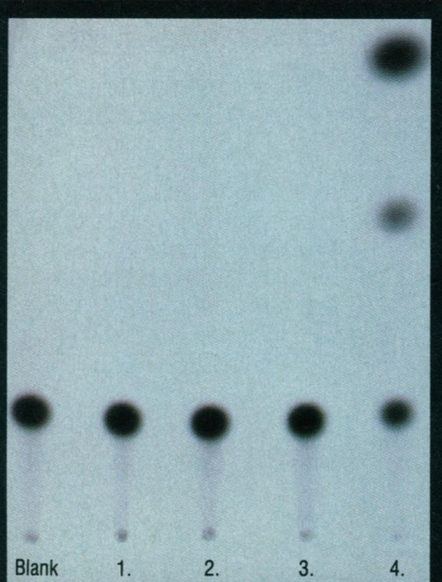

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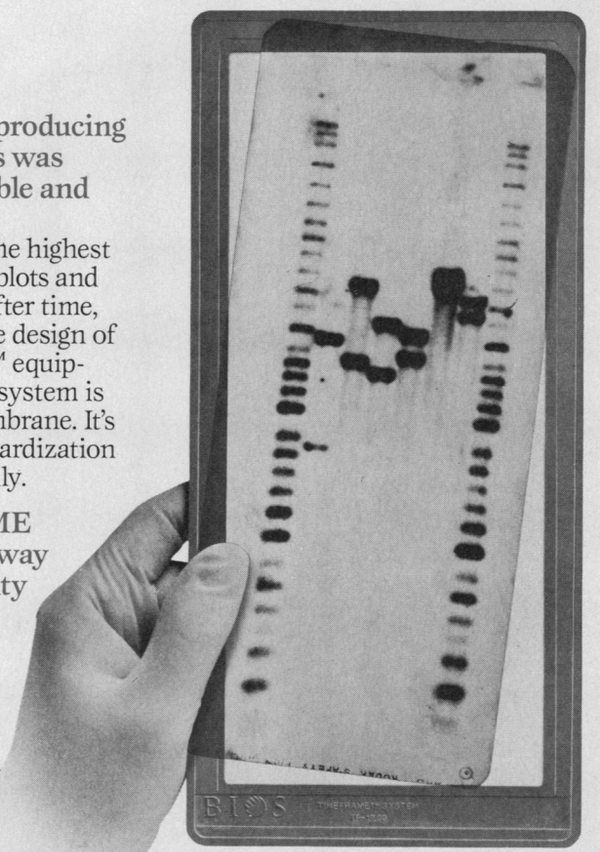

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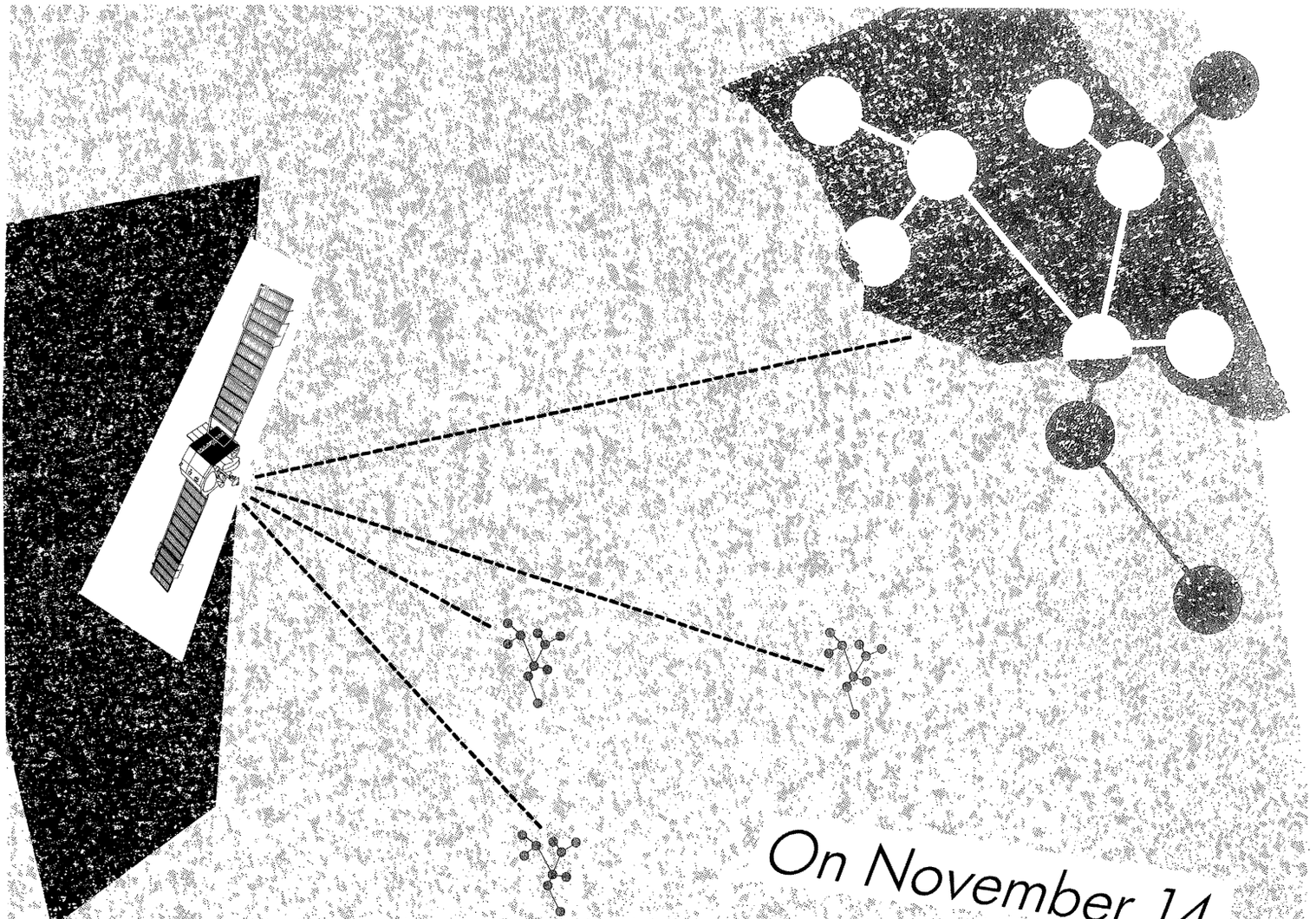

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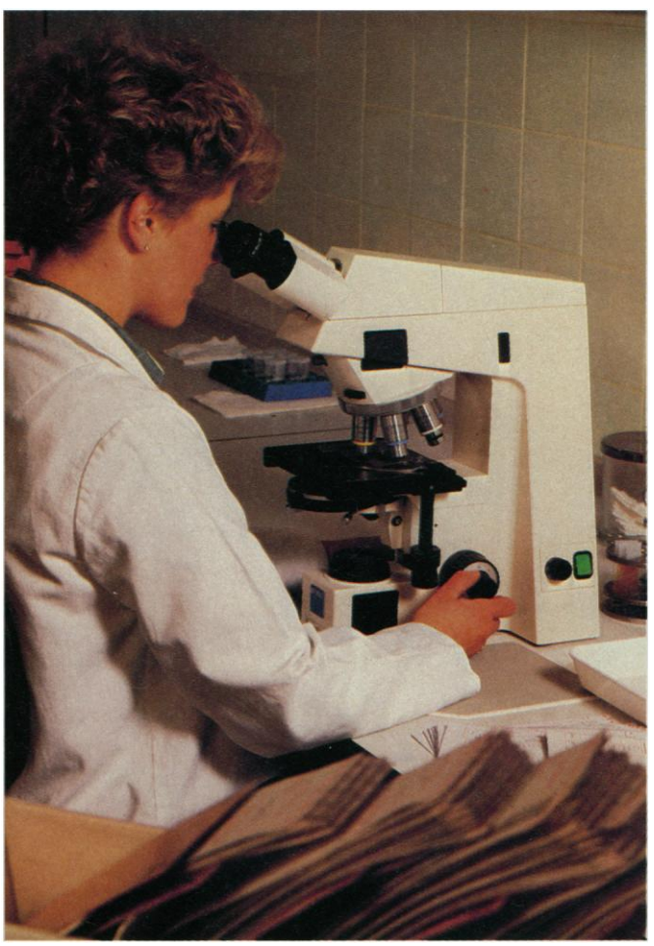

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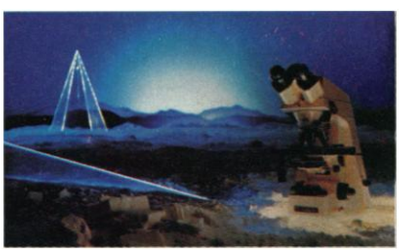

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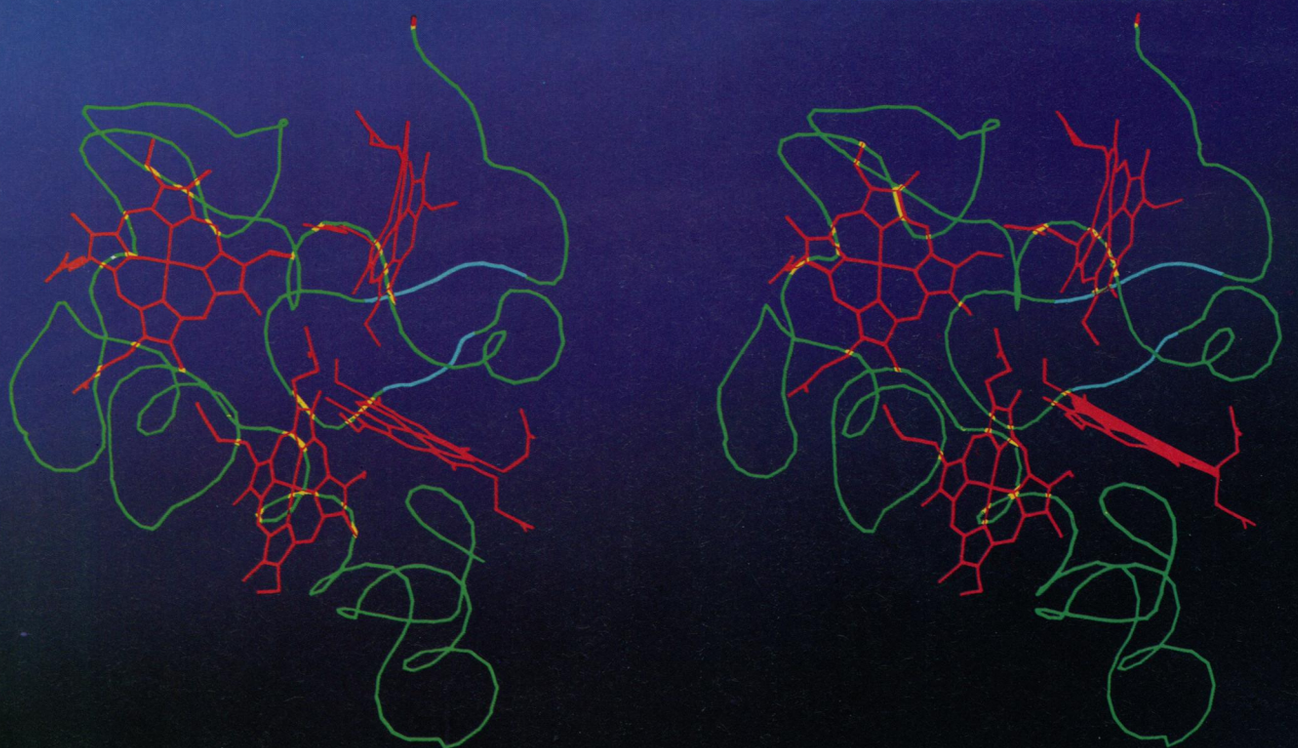

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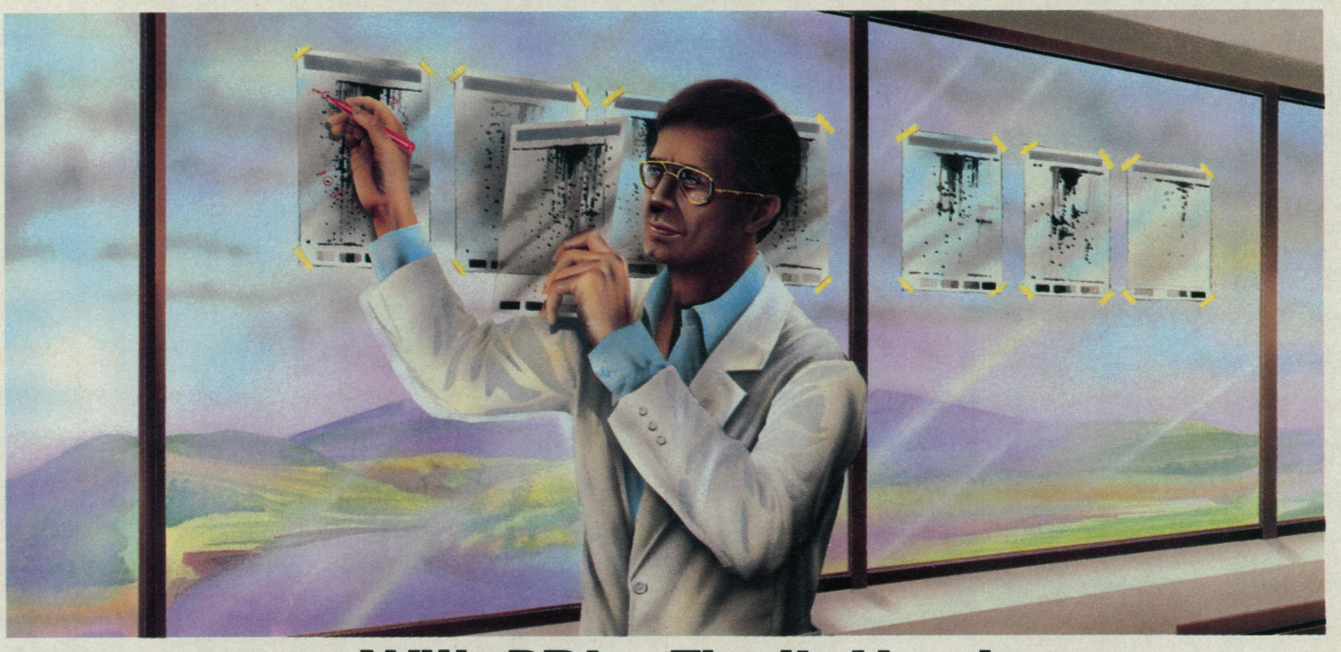

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See us at The Human Genome 1 Conference, Booth 411.

Congressional Science and Engineering Fellowships 1990-91

PROGRAM: Fellows spend one year working as special assistants on the staffs of members of Congress or congressional committees, working in legislative areas requiring scientific and technical expertise. The program includes an orientation on congressional and executive branch operations and a year-long seminar program on issues involving science and public policy. Fellows receive stipends from their sponsoring societies.

PURPOSE: To provide a unique public policy learning experience, to demonstrate the value of science-government interaction, and to make practical contributions to the more effective use of scientific and technical knowledge in government.

CRITERIA: A prospective Fellow must be a postdoctoral to mid-career scientist or engineer; demonstrate exceptional competence in some area of science or engineering; be cognizant of many matters in nonscientific areas; demonstrate sensitivity toward political and social issues; and perhaps most important, have a strong interest and some experience in applying personal knowledge toward the solution of societal problems.

SPONSORS: Twenty-one national professional scientific and engineering societies sponsor or co-sponsor Congressional Science and Engineering Fellows:

- Acoustical Society of America
- American Association for the Advancement of Science
- American Chemical Society
- American Geophysical Union
- American Institute of Biological Sciences
- American Institute of Physics
- American Physical Society
- American Psychological Association
- American Society for Agronomy/ Crop Science Society of America/ Soil Science Society of America
- American Society of Mechanical Engineers
- American Society for Microbiology
- American Society of Plant Physiologists
- American Society of Zoologists
- American Veterinary Medical Association
- Biophysical Society
- Engineering Society of Detroit
- Geological Society of America
- Institute of Electrical and Electronics Engineers
- National Society of Professional Engineers
- Office of Technology Assessment
- Society for Research in Child Development

Applicants for these fellowships should apply directly to the appropriate professional society. Stipends, application procedures, timetables, and deadlines vary by society. For further information about the program, contact each society directly. A list of the societies, with mailing addresses and contact people, is available from:

Congressional Science and Engineering Fellowship Program
American Association for the Advancement of Science
1333 H Street, NW, Washington, DC 20005

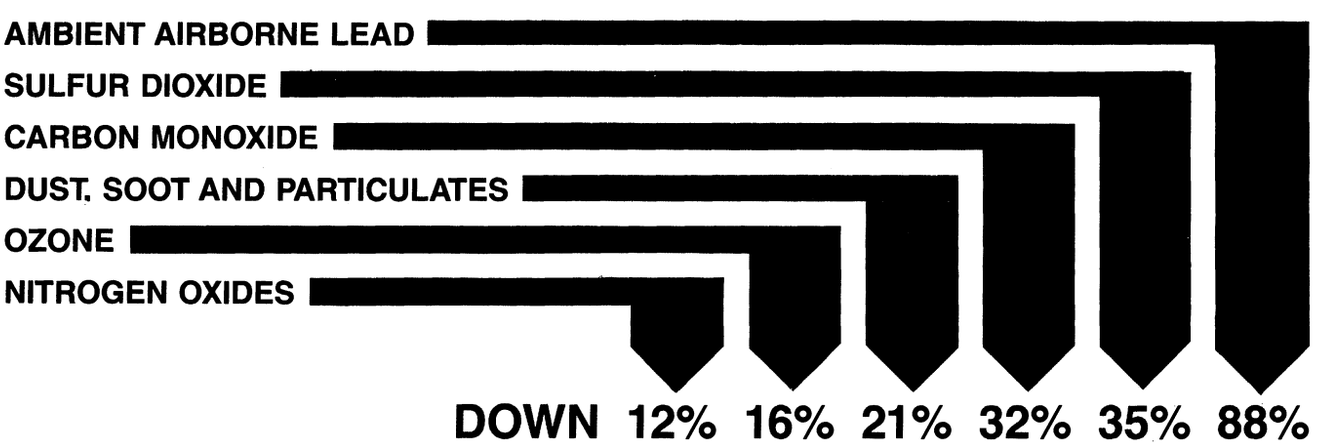
Minorities and persons with disabilities are encouraged to apply.

A HEALTHY ENVIRONMENT REQUIRES A HEALTHY ECONOMY

The economic strength of the United States is precisely why we have the world's best environmental protection record. Our national prosperity means we can afford to make ecological concerns a national priority.

Americans spend more than $32 billion annually to control air pollution alone. That's why Congress, in renewing the Clean Air Act in coming months, needs to strike a careful balance between additional improvements in air quality—which everyone supports—and preserving American jobs and competitiveness. This balance can be accomplished with realistic goals and proper management. Short-sighted legislative "fixes" do not usually provide the best solutions.

Our nation is the world leader in air pollution control. Through compliance with the Clean Air Act, our nation's air quality has improved dramatically. According to the U.S. Environmental Protection Agency, from 1978 to 1987, the levels of:



More needs to be done. We must continue to develop efficient pollution control technologies. We must provide an adequate planning period so that we know the effect compliance will have on consumer prices, jobs and the environment. Before we enact costly legislation, we must determine whether such action will be effective and compatible with other environmental goals.

The Clean Air Working Group is a broad-based, national coalition of nearly 2,000 industries, small and large businesses and trade associations working with the government to create effective clean air policies. Our members, who employ millions of Americans, support reasonable policies that will keep Americans working as we continue to clean the air.

A HEALTHY ECONOMY CAN ENSURE A HEALTHY ENVIRONMENT

For Further Information, Contact: **William D. Fay, Administrator, The Clean Air Working Group**
818 Connecticut Avenue, N.W., Washington, D.C. 20006

CAWG CLEAN AIR WORKING GROUP

X International Symposium On Drugs Affecting Lipid Metabolism

November 8-11, 1989 Houston, Texas

A. M. Gotto And R. Paoletti, *Chairmen*

Plenary Lectures

Gotto: Status of Control of Atherosclerosis and Lipids

New Developments in Factors That Affect Risk
- **Utermann:** Genetic Factors Affecting Lipoproteins
- **LaLouel:** New Approaches in Genetic Analysis
- **Motulsky:** Genetic Basis of Atherosclerosis

Cell-Cell and Cell-Lipid Interactions
- **Vanhoutte:** Platelets
- **Fogelman:** Monocyte-macrophages
- **Ryan:** The Endothelium and Responses to Signals
- **Deuel:** Vascular Growth Factors

Pathogenesis of Lipoprotein Disorders
- **J. Patsch:** Enzymic Regulation of Triglyceride and HDL Metabolism
- **Mahley:** Lipoprotein Remnant Disorders
- **Bierman:** HDL and Reverse Cholesterol Transport

Drugs Affecting Lipid Metabolism
- **Havel:** Drugs Affecting Cholesterol Synthesis
- **Eisenberg:** Drug Effects on Hypertriglyceridemia and Lipoprotein Metabolism
- **Assman:** Drugs Affecting HDL
- **Steinberg:** New Anti-atherosclerotic Drugs

Recent Advances in Therapy
- **Grundy:** New Perspectives on the Role of Fatty Acids
- **V. Brown:** Dietary Factors in Lipid Control
- **Paoletti:** Thrombosis, Lipoproteins and Drugs
- **Bilheimer:** Clinical Management of Hypercholesteremia
- **Gotto:** Future Directions in the Treatment of Atherosclerosis and Lipid Disorders

Special Lecture: **Smirnov:** Control of Atherosclerosis in USSR

Symposia, Workshops, and Roundtables

MERCK SYMPOSIUM: A Five Year Basic Perspective on HMG-CoA Reductase Inhibitors
Powell, Illingsworth, Tobert, Lefer, Grundy

WORKSHOPS:

Lipid Absorption, Synthesis and Secretion
Small, Greten, Spector, Davis, Baggio, Pownall, Weinberg

Receptors and Intracellular Cholesterol Homeostasis
Beisegel, Innerarity, Stanley, McPherson, Schneider, Calandra

Molecular Biology of Lipoproteins
Taylor, Brewer, Baralle, Leff, Getz, W. Patsch

HDL Receptors and Reverse Transport of Cholesterol
Ailhaud, Oram, Schmitz, Phillips, van Berkel, Rosseneu, McLean

ROUNDTABLE: National and International Cholesterol Campaigns
Goodman, Stein, Assman, Fernandez-Cruz, Jacotot, Lewis, Mancini, Nestel, Smirnov, Horlick

SQUIBB SYMPOSIUM: Frontiers in Cholesterol Metabolism and Intervention
Scott, Gregg, Tanaka, Karanewsky, Biller, Lusis

WORKSHOPS:

Fibrates
Davigon, Catapano, Lazarow, Newton, Knopp, Manzato, Vergani

Cyclooxygenase/Lipoxygenase
G. Gallis, Yamamoto, Weksler, Schror, Parthasarathy, FitzGerald

Diets
Nestel, Lenzi, Miettinen, Katan, Carmena, Foreyt, Lewis

Modified Lipoproteins and Their Receptors
Avogaro, Gianturco, Via, Corsini, Dresel, Freeman

MERRELL DOW SYMPOSIUM: Antioxidant Drugs
Steinberg, Yagi, Jackson, Daugherty, Esterbaur, Haberland, Houglum

WORKSHOPS:

NonInvasive Techniques
Bond, Blankenhorn, Lees, Poli, Seidel, Palabrica

Clinical Trials Methodology and Endpoints of Measurement
Levy, Tyroler, Walldius, Descovich, Naito, Schaefer

ω-3 and ω-6 Fatty Acids
Conner, Drevon, C. Galli, P. Weber, Field, Nordoy

Intracellular Regulatory Effects of Cholesterol
Endo, Luskey, Sinensky, Schonfeld, Schwandt, Clarke, Rine

ROUNDTABLE: What is the Future of CHD Prevention and the Role of Lipid Regulation?
Gotto, Paoletti, Lichtlen, Carlson, Fuster

PARKE-DAVIS SYMPOSIUM: An Update on the Interrelationships of HDL and Atherosclerosis
Lewis, Assman, Castelli, Gotto, Olsson, Huttunen, Schaefer

WORKSHOPS:

Animal Models
Kritchevsky, Chapman, Rudel, Attie, Armstrong, Weinstein

Intravascular Dynamics of Lipids and Drugs
Dujovne, Hunninghake, Shepard, Simons, van Tol, Berglund

Cell Biology, Atherosclerosis and Ca^{++} Antagonists
Harmony, Betz, Bernini, Henry, Dicorleto, Hajjar

Triglyceride Metabolism and Fatty Acid Utilization
Bensedoun, Olivecrona, Chan, Schotz, Hayden, Verger

ROUNDTABLE: Control of Lipid Disorders in Latin America
Olivera, Ahumada, Alfaro, Arteaga, Boskis, Brusco, Lerman

SANDOZ SYMPOSIUM: Atherogenesis: Prevention and Control
Blankenhorn, Thompson, Bond, Kwiterovitch

WORKSHOPS:

Regression: Human and Animal Studies
G. Weber, Cornhill, A. Yamamoto, Erikson, Clarkson, Wissler

Antidiabetic Drugs and Lipids
Crepaldi, Taskinen, Mancini, Steiner, Chisolm, Garg

Thrombosis and Fibrinolysis
Collen, Meade, Marcus, Tremoli, Bradley, Mann

ACAT Inhibitors, Resins, and Intestinal Lipid Absorption
Sirtori, Dietschy, Suckling, Chang, Ockner, Largis

For Registration Information contact
Ms. Lynne K. Tiras, International Meeting Managers, Inc.
4550 Post Oak Place, Suite 248, Houston, Texas 77027 USA
Phone (713) 965-0566, Telex 205734 IMMI UR, Fax (713) 960-0488

IMPORTANT DATES

Hotel Reservation Deadline
October 1, 1989

Social Activities Deadline
October 1, 1989

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Multiwell microtitre plate DNA sequencing system	RPN 1590
Multiwell [α-^{35}S]dATPαS sequencing nucleotide	SJ 1590

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