Calvin, who says he practiced meditation long before he heard of TM, asserts, "Maharishi's principal business is collecting money from new acolytes. He doesn't know anything about science," but does know that cloaking his dogma in scientific jargon is the only way to gain legitimacy. In the 1960's, says Calvin, Maharishi helped hundreds of students kick drugs—"if it weren't for the rescue job he did around here he'd have absolutely no sympathy from me at all." Mael Melvin, who teaches quantum mechanics at Temple University, used to give lectures at one of the IMS New York centers, but has since disassociated himself from the movement, saying, "Maharishi is flexible in what he considers truth." Harvey Brooks, dean of engineering at Harvard, also participated in an SCI symposium. He thinks TM is fine but that it is being surrounded by a lot of mystical nonsense, and "all the scientists I know who have had some contact with SCI hold about the same view. Like virtually every scientist who has attended or spoken at SCI conferences, I was 'roped into it' by my children," Brooks wrote in a letter. Buckminster Fuller, whose name is also thrown around by the MIU people, related through his secretary that he had little knowledge and no opinions about the organization.

None of those who question Maharishi deride TM. In fact, many of them do it. In the early days of scientific research on TM, Wallace worked for a while with Herbert Benson, a cardiologist at Harvard who is perhaps the foremost TM researcher in the country. But Benson and Wallace haven't seen each other for a while. Benson will not speak for attribution but one of his professional acquaintances says he and his colleagues are disturbed at the mystical aura with which Maharishi and his followers have shrouded the practice. Anyone wanting to learn TM from IMS pays $130 for a series of three lectures, and several hours of personal instruction in meditation. There he is assigned his own mantra, custom fit to his personal nervous system. The mantra is very powerful, and therefore must be kept secret.

It has been said this is just a cute way to elicit $130 from someone. Benson says TM is only one of many ways, including prayer, to achieve what he calls the "relaxation response." He has written papers in which he says he has found that silent repetition of the word "one" while a person is exhaling achieves the same result. Maharishi's followers disagree. They say nothing achieves the same results as TM. As for the complaint that the religious overtones of TM impart an undesirable ideological tang to it, Lewis argues that Maharishi has taken meditation—practiced in many forms by many religious—out of any particular philosophical or religious construct and has liberated it as a truly nonideological practice. Many would argue with that point, but certainly it is true that most people who learn TM don't give a hoot about the Rig-Veda or Oriental mysticism.

The prospect of MIU, rising Phoenix-like from the ruins of old "flunk-out U" is certainly a sign of the times, and an indication of the scope of the relentless pursuit of inner peace going on these days.

But if MIU can become self-supporting (it is starting up with income derived from TM learners) then, assuming it gains accreditation, it will have something on many institutions of higher learning in America today.

—CONSTANCE HOLDEN

# APPOINTMENTS

**Harrison Brown**, professor of geochemistry and science and government, California Institute of Technology, also to president, International Council of Scientific Unions. . . . **Richard Trumbull**, deputy executive director, AAAS, to executive director, American Institute of Biological Sciences. . . . **Robert E. Leestamper**, president, Worcester State College, to president, Southeast Missouri State University. . . . **Howard E. Petch**, academic vice president, University of Waterloo, to president, University of Victoria, Canada . . . **Frederick S. Humphries**, vice president, Institute for Services to Education, to president, Tennessee State University . . . **Warren W. Brandt**, former president, Virginia Commonwealth University, to president, Southern Illinois University. . . . **James A. Robinson**, president, Macalester College, to president, University of West Florida. . . . **Douglas T. Kenny**, dean of arts and sciences, University of British Columbia, to president of the university. . . . **Ronald G. Petrie**, chairman, elementary education department, Utah State University, to dean, School of Education, California State College, San Bernardino. . . . **John B. Harley**, assistant dean, School of Medicine, University of North Dakota, to dean, School of Medicine, University of South Carolina. . . . **Don L. Allen**, acting dean, College of Dentistry, University of Florida, to dean of the college. . . . **Elmer Washington**, dean, natural sciences and mathematics division, Chicago State University, to dean, College of Arts and Sciences at the university. . . . **Henry J. Hermanowicz**, dean, College of Education, Illinois State University, to dean, College of Education, Pennsylvania State University. . . . **Edward C. Melby**, director of laboratory animal medicine, Johns Hopkins University, to dean, New York State Veterinary College, Cornell University. . . . **Gordon A. Haaland**, chairman, psychology department, University of New Hampshire, to dean, College of Arts and Sciences, University of Maine, Orono. . . . **Perry G. Rigby**, acting director, School of Allied Health, University of Nebraska, to dean, College of Medicine at the university. . . . **Marshall Falk**, medical director, George J. London Memorial Hospital, to dean, Chicago Medical School. . . . **Lawrence Solomon**, acting head, dermatology department, Abraham Lincoln School of Medicine, University of Illinois, to head of the department. . . . **Carlton S. Koehler**, entomologist, University of California, Berkeley, to head, entomology department, Oregon State University. . . . **Phillip J. Stiles**, professor of physics, Brown University, to chairman, physics department at the university. . . . **Charlotte C. Campbell**, professor of medical sciences–mycology, Southern Illinois University School of Medicine, to chairman, medical sciences department at the university. . . . **Roderich W. Walter**, professor of physiology, Mount Sinai School of Medicine, to chairman, physiology department, School of Basic Sciences, University of Illinois College of Medicine. . . . **James H. Korn**, associate professor of psychology, Carnegie-Mellon University, to chairman, psychology department, St. Louis University. . . . **Richard B. Knapp**, associate clinical professor of anesthesiology, New York Medical College, to chairman, anesthesiology department, West Virginia University. . . . **Henry A. Thiede**, chairman, obstetrics-gynecology department, University of Mississippi, to chairman, obstetrics-gynecology department, University of Rochester. . . . **Joseph Landin**, professor of mathematics, University of Illinois, Chicago Circle, to chair-

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sure tissue response to x, gamma, and neutron radiation. Accuracy is ± 20 percent tissue rad for mixed neutron and gamma radiations. Rate dependency is ± 10 percent rad per second. Energy dependency is ± 20 percent, 80 kiloelectron volts to 10 megaelectron volts, for x and gamma radiations and ± 20 percent for neutron radiation. Electrometer Corporation. Circle 882.

### Perfusion Unit

Perfuser two/ten is designed for perfusion of isolated animal organs. Pump flow rates of up to 150 milliliters of perfusate per minute are possible. In addition to pumping and oxygenation, the device provides heating by water bath, an efficient filter and bubble trap, sampling ports on venous and arterial sides, and reversible pumping to facilitate cleaning. The Perfuser two/ten is adaptable to a sealed atmosphere to permit insertion of components into the oxygenated perfusate. MX International, Incorporated. Circle 876.

### Long Cell for Infrared Spectroscopy

A 120-meter gas cell is available for adaptation to many popular spectrophotometers. The three-mirror, multiple, reflection, long path cell features a path length that is externally adjustable in 8-meter steps from a minimum path of 4 meters to a nominal maximum of 132 meters. The cell is vertically mounted; it is 10 inches in diameter, 90 inches high, and weighs 55 pounds. It may be pressurized to 10 atmospheres or evacuated to $10^{-5}$ torr. Wilks Scientific Corporation. Circle 879.

### pH Meter

The Digital Mini-*p*H-Meter gives readings over the 0 to 14 range with a resolution of 0.1 unit. The readings are displayed by light-emitting diodes 5/16-inch high for ease of reading in the laboratory or in the field in full sunlight or darkness. Accuracy exceeds 0.15 *p*H unit within 3 units of the standardization point and 0.2 unit over the full range. Reproducibility is ± 0.05 *p*H unit. Meter controls include a manual 0° to 100°C temperature compensator, calibration adjuster, and battery test switch. L. G. Nester Company. Circle 877.

### Literature

*Catalog 1275* features biochemical products for chromatography, immunochemistry, molecular biochemistry, enzymology, and blood studies. Miles Laboratories, Research Products Division. Circle 850.

*HP-55 Mathematics Programs* and *HP-55 Statistics Programs* each cost $10. They feature 74 and 53 programs, respectively, for the HP-55 programmable pocket calculator. Hewlett-Packard Corporation. Circle 856.

*ReUse Catalog* lists used scientific instruments of all types for sale. It is a brokerage-type operation where sellers may list and from which buyers may select items. ReUse Company. Circle 852.

*Using Low-Temperature Plasmas for Ashing Analytical Samples* is a technical bulletin that explains the technique and its advantages and outlines some applications. International Plasma Corporation. Circle 853.

*Specialty Gases* includes more than 100 items and includes sections on pure gases, mixtures, electronic materials, and sections on gas handling equipment. Union Carbide Corporation, Linde Division. Circle 865.

*Affinity Chromatography—Principles and Methods* is a 72-page book that also discusses some applications. Pharmacia Fine Chemicals Incorporated. Circle 866.

*Radiochemicals* lists labeled compounds, reference sources, radioimmunoassay products, materials for liquid scintillation counting, and many more. New England Nuclear. Circle 867.

*Aquametry Apparatus* describes a Karl Fischer titration system. Labindustries. Circle 868.

*Salt Removal and Exchange by Diafiltration* describes an ultrafiltration technique. Amicon Incorporated. Circle 869.

*Chemical Catalog* includes more than 7000 items for many research and analytical applications. Polysciences, Incorporated. Circle 870.

*Chemical Catalog, Winter 75* lists biochemicals, immunochemicals, and clinical and diagnostic products. Calbiochem. Circle 883.

*Laboratory Light Sources and Instrumentation for Photometry and Radiometry* is a 20-page pamphlet devoted to fiber optics, spectral sources, photometers, optical filters, and other accessories. PBL International, Incorporated. Circle 888.

## NEWS AND COMMENT

*(Continued from page 1180)*

man, mathematics department, Ohio State University. . . . **Samuel Bullock**, associate professor of psychiatry, Hahnemann Medical Center, to chairman, psychiatry department, Howard University. . . . **Charles A. White, Jr.**, professor of medicine, University of Iowa, to chairman, obstetrics-gynecology department, West Virginia University. . . . **Dale D. Lindholm**, professor of medicine, Tulane University, to chairman, nephrology department, West Virginia University. . . . **Eugene H. Bishop**, chairman, mechanical engineering department, Montana State University, to chairman, mechanical engineering department, Clemson University. . . . **Thomas F. McHugh**, assistant professor of education, Washington College, to chairman, education department, Vassar College. . . . **Donald R. Bennett**, associate professor of medicine, University of Utah, to chairman, neurology department at the university. . . . **Larry C. Carey**, professor of surgery, University of Pittsburgh, to chairman, surgery department, Ohio State University. . . . **Laurine E. Fitzgerald**, professor of administration and higher education, Michigan State University, to dean, Graduate School, University of Wisconsin–Oshkosh. . . . **Thomas E. Jordan**, professor of behavioral studies and research, University of Missouri, St. Louis, to dean, Graduate School at the university. . . . **John J. Sciarra**, assistant dean, College of Pharmacy, St. John's University, to dean, College of Pharmacy, Long Island University. . . . **Duane L. Aldous**, associate professor of pharmaceutical chemistry, Xavier University, to dean, College of Pharmacy at the university. . . . **Robert E. Jewett**, professor of allied health professions, Emory University, to dean, College of Medicine, East Tennessee State University. . . . **Charles E. Olson, Jr.**, professor of natural resources, University of Michigan, to dean, School of Natural Resources at the university. . . . **Edward W. Hawthorne**, chairman of physiology and biophysics, Howard University, to dean, Graduate School at the university. . . . **William M. Sangster**, professor of civil engineering, Georgia Institute of Technology, to dean, College of Engineering at the institute. . . . **J. Edward Simpkins**, director, Center for Black Studies, Wayne State University, to dean, College of Education at the university. . . . **Nat E. Smith**, associate dean for student af-

fairs, University of Illinois College of Medicine, to dean, Mercer University School of Medicine. . . . **C. Mel Adams**, professor of materials engineering, University of Wisconsin, Milwaukee, to dean, College of Engineering, University of Cincinnati. . . . **Donald F. Tapley**, professor of medicine, Columbia University, to dean, Columbia University Faculty of Medicine. . . . **Hla Shwe**, chairman, physics department, East Stroudsburg State College, to dean of science at the college. . . . **Roy B. Levow**, assistant professor of mathematics, Florida Atlantic University, to chairman, mathematics department at the university. . . . **Robert N. Berk**, associate professor of radiology, University of California, San Diego, to chairman, radiology department, University of Texas Health Science Center. . . . **Louis Kriesberg**, professor of sociology, Syracuse University, to chairman, sociology department at the university. . . . **Douglas E. Kelly**, chairman, biological structure department, University of Miami School of Medicine, to chairman, anatomy department, University of Southern California School of Medicine.

# RECENT DEATHS

**Norma J. Adamo**, 47; associate professor of anatomy, Louisiana State University; 25 October.

**Charles Aikin**, 73; former chairman, political science department, University of California, Berkeley; 24 November.

**Carl B. Allendorfer**, 63; professor of mathematics, University of Washington; 29 September.

**Rupert S. Anderson**, 76; former research physiologist, U.S. Army Biomedical Laboratory, Edgewood Arsenal; 16 October.

**Wilfred H. Baker**, 62; former professor of civil engineering, West Virginia University; 5 November.

**Ralph Colp**, 81; former clinical professor of surgery, College of Physicians and Surgeons, Columbia University; 11 November.

**LeRoy L. Constantin**, 39; professor of physiology and biophysics, Washington University School of Medicine; 7 November.

**George S. Counts**, 84; professor emeritus of education, Columbia University; 10 November.

**Rex Cox**, 86; former professor of agricultural economics, University of Minnesota; 29 October.

**Hunter Guthrie**, 73; former president, Georgetown University; 11 November.

**Jarvis B. Hadley**, 65; research geologist, U.S. Geological Survey; 14 November.

**Conrad Hammar**, 79; former professor of agricultural economics, University of Minnesota; 5 November.

**Roger G. Hart**, 46; biophysicist, bio-medical division, Lawrence Livermore Laboratory; 10 November.

**L. Emmett Holt, Jr.**, 79; former chairman, pediatrics department, New York University School of Medicine; 30 November.

**Myron R. Karon**, 42; professor of pediatrics, University of Southern California School of Medicine; 16 November.

**M. Gertrude Keckeissen**, 65; professor of psychology, College of Mount St. Vincent; 17 November.

**Robert C. Kinter**, 74; professor emeritus of chemical engineering, Illinois Institute of Technology; 15 October.

**Erich Lindemann**, 74; visiting professor of psychiatry, Stanford University School of Medicine; 16 November.

**Gerald MacCarthy**, 77; former professor of geology, University of North Carolina, Chapel Hill; 31 October.

**Ray S. Marsh**, 79; professor emeritus of horticulture, West Virginia University; 2 November.

**Robert E. McKechnie**, 68; former chancellor, University of British Columbia; 17 October.

**Imogene E. Okes**, 52; education specialist, U.S. Office of Education; 22 October.

**James R. Patrick**, 81; professor emeritus of psychology, Ohio University; 3 August.

**William B. Snow**, 79; retired professor of physical medicine, Columbia University; 16 November.

**Charles K. Trueblood**, 81; former chairman, psychology department, American University; 1 November.

**Jerome P. Webster**, 86; professor emeritus of clinical surgery, College of Physicians and Surgeons, Columbia University; 14 November.

**Howard B. White**, 62; former dean, graduate faculty of political and social sciences, New School for Social Research; 4 November.

**Irvin G. Wyllie**, 54; chancellor, University of Wisconsin–Parkside; 25 October.

**Frederick F. Yonkman**, 72; former chairman, pharmacology department, Wayne State University; 16 September.

## RESEARCH NEWS

*(Continued from page 1185)*

now at Sloan-Kettering Memorial Institute, has purified two polypeptides, thymopoietin I and II (formerly called thymin I and II) from bovine thymus gland. The two polypeptides have very similar chemical and biological properties.

The precursors of T cells are formed in bone marrow. Gideon Goldstein and Ross Basch of New York University School of Medicine found that bone marrow cells rapidly acquire surface antigens characteristic of mature T cells when they are incubated with very low concentrations of thymopoietin I or II. As little as 2 nanograms of polypeptide per milliliter of culture medium produces a maximal response. With David Schlesinger of Massachusetts General Hospital, Gideon Goldstein has now determined the amino acid sequence of thymopoietin II, which weighs 5550 daltons, and has synthesized a biologically active molecule.

### Nonspecific Thymic Polypeptide

Gideon Goldstein, Edward Boyse, and their colleagues at Sloan-Kettering have isolated yet another thymic polypeptide that induces T cell differentiation. This one, however, also induces B cell maturation and is found in every cell type, including plant cells and bacteria, that they have examined. The investigators have named the material ubiquitous immunopoietic polypeptide (UBIP). Because of its lack of specificity and its presence in organisms that have no immune systems, they do not think that UBIP functions physiologically in the differentiation of T cells. The capacity of this substance to stimulate T cell differentiation points up the caution that must be exercised in identifying physiological inducers of differentiation.

Nevertheless, there is strong evidence that an endocrine deficiency—a lack of thymosin or other thymic hormones —contributes at least partially to the etiologies of immunodeficiency and autoimmune diseases, cancer, and even the degenerative changes of old age. All this raises the as yet unproven but still exciting possibility that hormonal replacement therapy can help control these diseases just as insulin controls diabetes. It also means that the thymus gland, once thought to be about as useful as the human appendix, may well be the master gland of the immune system.—JEAN L. MARX