Viewpoint

FROM THE EDWARD S. HARKNESS EYE INSTITUTE
& THE DEPARTMENT OF OPHTHALMOLOGY, COLUMBIA UNIVERSITY

FALL 1996

FDA APPROVES EYE INSTITUTE'S NEW GLAUCOMA DRUG

Latanoprost, a revolutionary new drug to treat glaucoma has received FDA approval and should be available for use by year's end. Developed under the direction of Dr. Laszlo Z. Bito, Professor of Ophthalmology at Columbia University, Latanoprost is believed to increase the eye's natural outflow of the aqueous humor, a fluid produced in the eye to help keep its shape and to nourish the lens and the cornea. The result is a significant reduction in intraocular pressure. Taken as a single daily eye drop, latanoprost is an effective, well-tolerated and easy-to-administer treatment. The drug is expected to minimize the discomfort patients often experience with other therapies, helping glaucoma patients who suffer from varying ocular pressure, as well as those for whom taking medication several times a day is difficult.

Glaucoma is the world's leading cause of preventable blindness. Early intervention in people with symptoms of ocular hypertension and glaucoma is critical to effective treatment of these conditions. Blindness can occur in glaucoma patients when intraocular pressure increases because of higher resistance to aqueous humor outflow--with the potential of causing damage to the optic nerve. Until now, a patient's vision could usually be preserved and glaucoma managed by a regimen of eye drops taken at various intervals throughout the day to stabilize ocular pressure. However, compliance, which is integral to the success of treatment, has often varied. Glaucoma is essentially symptomless

continued page 3

INSIDE

Views from the Chair

December 1, 1996

Dear Friends, Patients, Colleagues and Alumni:

The first edition of Viewpoint is intended to keep you informed of activities at the Edward S. Harkness Eye Institute. Despite the challenges facing academic medical centers, we continue to focus on our mission of maintaining excellence in clinical services, research and training. Our outstanding faculty continues to receive recognition: in a recent listing of best doctors by New York Magazine, Columbia ophthalmologists were most frequently cited, far more than any other department in New York City. Latanoprost, a new medication discovered by Dr. Laszlo Bito, will revolutionize treatment of glaucoma. These are just a few examples of our commitment to quality patient care and the goal to prevent and cure blindness through research.

The faculty, staff and I join in wishing you a happy holiday season and a joyful and healthy new year.

Sincerely,

Stanley Chang, M.D.
Edward S. Harkness Professor of Ophthalmology
Chairman of the Eye Institute

Friends of the Eye Institute

Our thanks to the following donors who have provided generous support for Harkness Eye Institute programs during the period July 1995 to November 1996:

Mr. & Mrs. Laurence Aibel
Donna & William Acquavella
W. Banks Anderson, M.D.
Arthur Anderson LLP Foundation
E. Angel
James Banta
Sid R. Bass, Inc.
Shirley Karfiol Bernstein
Drs. Kailash & Durga Bhuyan
Mrs. John A. Bolster
Robert A. Braunstein, M.D.
Jean & Stanley Chang, M.D.
Maurine T. Coon
Peggy E. Davis
Madeline G. Dehmel
Anthony Donn, M.D.
Marta & Luis Escalante
Fight for Sight, Inc.
Annita Fioro
Fischbach Foundation, Inc.
Elayne Flamm
The Catherine & Henry J. Gaisman Foundation
Howard S. Garlick
Lewis D. & John J. Gilbert Foundation
Priscilla Goldberg
Peter Gouras, M.D.
Eleanor Graham
Gregory & Freda B. Halpern Charitable Trust

continued from page 2

until there is permanent loss of vision, and many patients have been resistant to inconvenient medications that may cause either ocular or systemic side effects.

Latanoprost is a prostaglandin, a natural cyclic fatty acid, acting in a way that is similar to hormones. In research begun in the 1970s, Dr. Bito discovered that when prostaglandins were applied topically and in small amounts to the eye, its intraocular pressure was reduced. He worked with the Swedish company Pharmacia (the company has since merged with the American company Upjohn) to develop latanoprost solution. Pharmacia & Upjohn are now manufacturing the drug, which will be marketed under the trade name Xalatan. Latanoprost is the second major pharmaceutical discovery at the Harkness Eye Institute. In the 1970's, Healon, a viscoelastic solution used in eye surgery, was developed in the laboratory of Dr. Endre Balazs.

Dr. Bito and his Harkness Eye Institute colleagues are continuing to search for compounds in the same family as latanprost that will also lower intraocular pressure. These and other basic and clinical study initiatives will ensure that Eye Institute patients continue to benefit from highly advanced research in the care they receive at Columbia-Presbyterian Medical Center.

Dr. Raymond F. Healey TTEE
Hermione Foundation
Bob & Dolores Hope Charitable Foundation
IBM Matching Gift Program
Infinitech
ITT Corporation
Ira S. Jones, M.D.
Morris J. & Betty Kaplan Foundation
Adele & Herbert Klapper
Rose M. Knochel
Jeffrey Kradin
Lillian Kurz
Estate of Clifford Lappin
Estate of Mary Lappin
Thelma Lash
Barbara Levy
Edgar Lichstein, M.D.
Joseph & Ida Liskin Foundation, Inc.
Robert Lopez, M.D.
Mandelbaum Foundation
Nancy Mann
The Margolis Foundation, Inc.
Mattituck Lioness Club
Mr. & Mrs. Alfred J. Moo-Young
Estate Of Mary P. Oenslager
Bjord & Stephen Ollendorff
The Partridge Foundation
Dr. Gladys Rashkoff
Mrs. Venkat N. Reddy
Research to Cure Cataract Foundation
Research to Prevent Blindness
Ira M. & Helen Rosenmertz
Emilio Sanchez
Justin Schulman
Seth Sprague Educational & Charitable Foundation
Mr. & Mrs. R. Sturcken
Kenneth J. Tarr
Pauline Terelmes
Mr. & Mrs. C.T. Tsitsera
Vitreoretinal Specialists, P.C.

Breaking New Ground

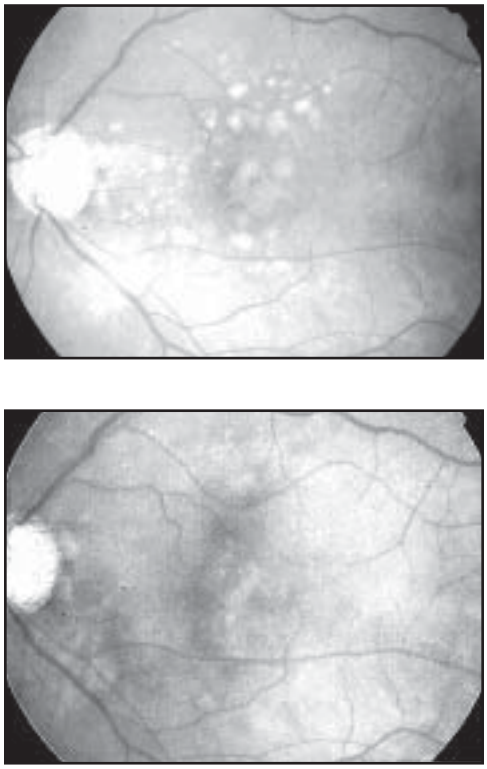
Retinal Transplantation to Treat Macular Degeneration

Let's say you wake up one morning to find blankets partially strewn across your head, covering half your face. Picking up the watch lying next to your bed, you open just your left eye--the one not buried under blankets--and suddenly realize that you are unable to decipher the numbers on the dial. Panicked, you throw off the covers, closing just the right eye first and then the left and, to your horror, discover that you see no more than a blur before your left eye. Eventually, you come to learn that your right eye has, for some time, been compensating for the left and that a condition known as age-related macular degeneration is steadily eroding your sight.

"We are at a revolutionary point in the treatment of hereditary diseases of the outer layers of the retina."

Age-related macular degeneration (AMD), the most common form of visual impairment in people over 50, affects millions world-wide. Macular disease, manifesting as "wet" and "dry" types, causes loss of ability to read or see fine detail. The macula is located in the back of the retina and is approximately 1/15 of an inch in diameter--no larger than a pinhead. In wet AMD, blood vessels from the choroid, the eye's middle layer, grow beneath the retinal space, where leakage or bleeding from these abnormal vessels can cause visual loss. Fortunately, laser treatments are sometimes effective in slowing such blood vessel growth and, therefore, prolong the patient's eyesight. In the dry type, which affects the majority of patients, macular tissue simply begins to malfunction, causing loss of central vision; for this type of AMD, there has, until now, been no therapeutic remedy.

Now, however, doctors at Columbia University and the Karolinska Institute in Stockholm have taken a first encouraging step to replace diseased maculas in patients afflicted with dry macular disease. In a unique collaboration between Dr. Peter Gouras, Professor of Ophthalmology at Columbia University, and researchers in Sweden, fourteen patients with AMD have been followed for more than a year after receiving fetal retinal tissue transplantations. Doctors are encouraged by preliminary findings, which show convincingly that retinal pigment epithelium transplantation is feasible in the human eye.



Top, the retina of a patient with age-related macular degeneration before transplantation; below, the same patient's retina after transplantation.

According to Dr. Gouras, "We are at a revolutionary point in the treatment of hereditary diseases of the outer layers of the retina." He and his colleagues are currently working to refine techniques used in the "unimaginably delicate" retinal transplantation microsurgery, which require computer-guided, laser-controlled movements to create room beneath the retina for transplanted retinal cells. They are also planning further clinical trials for AMD, as well as for the treatment of Usher's Syndrome, a hereditary disorder characterized by congenital deafness and gradual loss of vision; Sorsby's Fundus Dystrophy, a kind of macular degeneration that resembles AMD; and Stargardt's disease, a rapidly progressive form of macular degeneration that occurs in children--all conditions that lead to blindness.

This pioneering research in retinal transplantation continues the Harkness Eye Institute's legacy as a leader in international transplantation. During the 1930s, the first corneal transplant in the United States was performed at the Institute, an historic moment that has been repeated successfully many times over in the ensuing decades.

Startling and dramatic changes have taken place in Armenia since Dr. John Merriam's first visit there in January 1993. Former hostilities have ended, subways and busses are running, the country's power plant has partially reopened, food and fuel supplies have improved, and economic privatization is well under way. This former Soviet Republic is rapidly becoming westernized, and while there is no McDonald's as yet, a Pizza DiRoma opened recently and English is gaining importance as the language of choice.

Restoring Sight in Distant Places

CPMC Doctors Help Armenian Relief Efforts

But in early 1993, Armenia was in the throes of political turmoil and severe economic deprivation. Adjusting to independence after more than 70 years of Communist domination, the country was in the midst of an undeclared war with neighboring Azerbaijan. Serious shortages of food, energy and medical care, as well as factory closings and a rising tide of nation-wide unemployment were a part of daily existence for most of the country's 3.5 million citizens. Added to that, the lasting effects of a violent 1988 earthquake that resulted in a shut-down of the country's nuclear power plant--Armenia's main source of energy--further complicated the rigors of everyday life and all but paralyzed activity within the country.

Dr. Merriam, Associate Clinical Professor of Ophthalmology at Columbia University, went to Armenia as part of a CPMC medical relief team, to provide desperately needed care to the victims of Armenian disasters--both natural and man-made. Organized by Dr. Edgar M. Housepian, Professor of Neurological Surgery at the Neurological Institute, the group also included Drs. James Correll, Professor Emeritus of Neurological Surgery, Ohannes Nercessian,

Gasoline was in short supply in Yerevan in January 1993. En route to the hospital, the bus ran out of fuel!

Assistant Professor of Orthopaedic Surgery, Steven Shulman, Assistant Professor of Anesthesiology, and John Downey, Chairman Emeritus of Rehabilitation Medicine, as well as four CPMC registered nurses and a physical therapist. The Fund for Armenian Relief (FAR) provided support for the trip, and various organizations donated medical equipment and supplies.

A Bleak Environment

The severity of power shortages gripping the country was apparent even as the medical team's plane was landing in Yerevan, the Armenian capital. Dr. Merriam vividly recalls his nighttime flight from Paris because of the plane's descent onto a barely visible runway, dimly illuminated by a few blue generator-powered bulbs. The group soon discovered that customary means of transportation were generally unavailable. No trains were running and travel by bus or private car was unreliable because of the fuel shortage, which left most Armenians walking through snow-covered streets to get from place to place. The extremely cold winter was a constant presence, and even the hotel where the Americans stayed had neither heat nor running water to offset these harsh conditions. In effect, the entire country had been thrown back into another century!

continued page 8

continued from page 7

Treating the Wounded

During his first week in Armenia, Dr. Merriam, the only ophthalmologist in the group, treated 60-70 soldiers who suffered from a range of war-related eye injuries. He operated in the Republican Eye Hospital--an aging facility, which also lacked heat, had no dependable source of electrical power, and would have failed to meet western standards of hygiene. With bone chilling temperatures prevailing inside as well as outdoors, the medical team wore layers of sweaters under their scrubs to protect against the cold and appreciated the times when patient-treatment and surgeries provided extra warmth, because it required them to huddle in groups.

Dr. Merriam examined the late Vasken I, Catholicos of the Armenian Church, with a Soviet slit lamp.

News of the American team's presence quickly spread, and by their second week in Yerevan, whole families asking for medical care would appear at their hotel. Altogether, the group, which also included six physicians from NYU Hospital and Cornell Medical Center, examined more than 500 patients and performed 41 operations during the January stay.

ARMENIAN HOSTS HONORED THE OPERA HOUSE FOR SPECIAL DANC

"We were particularly touched by the dedication of the Armenian physicians, who performed admirably in spite of limited resources, and the genuine warmth and appreciation of so many of the people we met--doctors, officials, and patients," says Merriam. He recalls one of the trip's many highlights when government officials opened the city's opera house in order to honor the visiting Americans with special dance and symphonic performances. Another memorable event was a trip to an Armenian monastery to meet with the aging Catholicos, Armenia's religious leader.

These two brothers each suffered chemical and thermal burns of their eyes and lids. Dr. Merriam performed reconstructive plastic surgery on the more severely injured eyes in January 1993 and corneal transplants in October 1993.

EIR AMERICAN GUESTS BY OPENING THE YEREVAN CE AND SYMPHONIC PERFORMANCES.

New Initiatives

Dr. Merriam has made two more visits to Armenia since his initial trip, continuing to perform surgeries and provide medical care to Armenian patients. He has also initiated discussions with government health officials to improve the country's organ donation system, which collapsed with the end of Communist rule. Once transplant legislation is in place, he hopes to work toward establishing a much-needed eye bank in the country. "I'm sure that various outside groups will be involved--we need an architect for design and others to help with physical construction." Then he adds with great modesty, "as long as they want me, I hope to keep lending my own assistance."

Scientists Probe Eye Exposure After Chernobyl

Following the horrific nuclear accident that occurred in Chernobyl in April 1986, Soviet and Ukrainian workers--many of them young army conscripts--were sent to the disaster site to extinguish continuing fires and to help contain the spread of radioactive contaminants. Most of the so-called "liquidators" were exposed to extremely high levels of radiation, resulting in a serious impact on their health, including the formation of cataracts. This tragic experience offered an opportunity that, while of little comfort to the victims, allowed for researchers to gather data of unprecedented precision on the ocular effects of radiation on humans.

Dr. Basil V. Worgul, who directs Columbia's Eye Radiation and Environmental Research Lab (ERERL), heads the international consortium of researchers formed in the aftermath of Chernobyl to monitor radiation's damage to the eyesight of those involved with this nuclear disaster. For nearly a decade, he has been traveling between the U.S. and the Ukraine to direct the investigation. After the explosion, at least 130,000 of those assigned to clean-up and maintenance duties were exposed to measurable levels of radiation, offering researchers a unique laboratory for studying the effects of human exposure to nuclear contaminants. Their misfortune provided what Dr. Worgul terms, "an excellent opportunity to gain fundamental knowledge, and, perhaps, the data to set important new radiation safety guidelines." These researchers have designed a three-pronged scientific initiative. Their first objective is to collect data on the onset and progress of cataracts in the affected population, in order to determine excess risk of cataract development as a function of dose. Secondly, the scientists will use the most sophisticated imaging technology to evaluate cataract progression and immortalize the obser-

vations for future comparison and re-analysis. Finally, the investigators hope to establish a repository of affected lens tissue as a reference for evaluating people who may suffer radiation exposure in the future.

For the past 40 years, ERERL has been studying how environmental agents may cause injury to the eye. They are focused, in particular, on the formation and maturation of cataracts. In the 1950s, Dr. George R. Merriam, Jr. of Columbia University and Dr. Elizabeth Focht of New York University conducted the vanguard study that first established a relationship between cataract formation and radiation dosage. Their pioneering work led to the development of both national and international standards of ocular radiation safety, which are still in use today.

Dr. Worgul, a world authority on radiation effects to the eye, has been director of ERERL since 1986. He appeared on the CNN documentary, "Chernobyl--Ten Years Later," and participated in a 1995 World Health Organization conference on Chernobyl held in Geneva. In 1993, Dr. Worgul was inducted into the National Academy of Sciences of Ukraine in recognition of his research and his commitment to obtaining as much knowledge as possible from this tragedy.

To contain further contamination, this "shelter" was constructed over the nuclear reactor site.

Viewpoint On
Training the Specialist

Training tomorrow's leaders in the field of ophthalmology is a vital aspect of the Harkness Eye Institute's mission. Each year, the Institute accepts three new residents for training in the specialty over a three-year period. Residents provide treatment to patients in the Institute's clinics and in the emergency room, consult with staff on care for hospital patients, and assist attending physicians with surgical procedures. In return, the faculty trains residents in surgical technique and patient management. After completing the three-year residency program, graduates may be awarded additional specialized training in the form of a fellowship, or seek employment as general ophthalmologists.

According to Residency Director Dr. Jeffrey G. Odel, important changes are making the Harkness Eye Institute's already strong resident training program even more effective. Residents are benefitting from innovations that include biweekly organizational meetings, pathology lectures by Dr. George M. Howard, Associate Clinical Professor of Ophthalmology, visiting lecturers at Grand Rounds, and basic science courses given throughout the residency period. Future programmatic changes will address the effects of managed care as they relate to ophthalmologic research, training and patient treatment.

In June 1996, Drs. Glenn Weiss, Gregory Butler and Aryan Shayegani completed their resident training at Harkness. Dr. Weiss is working with a group of community ophthalmologists in Rockland County, Dr. Butler has a fellowship from Yale University to study glaucoma, and Dr. Shayegani received a fellowship in corneal surgery from the Johns Hopkins University's Wilmer Eye Institute.

New residents, Drs. Jerry Underdahl, Nancy Fan Paul, and Sandeep Jain.

Three new residents joined the Department on July 1. Dr. Nancy Fan Paul was an undergraduate at Harvard University before beginning studies at Columbia's College of Physicians & Surgeons. As a medical student, Dr. Fan Paul undertook research on night vision with faculty member Dr. George Florakis. Dr. Jerry Underdahl, a graduate of St. Olaf's College in Minnesota has a Masters degree in Public Health from Yale University and an M.D. from P&S. His area of expertise is epidemiology and infectious disease. Dr. Sandeep Jain received considerable prior medical experience that includes medical school and opththalmologic training in India as well as at the Johns Hopkins Wilmer Eye Institute.

CONTINUING MEDICAL EDUCATION CALENDAR

CLINICAL EDUCATION SERIES

Saturday, January 11, 1997
AUTOMATED VISUAL FIELD EVALUATION

Saturday, March 15, 1997
OCUPLASTICS UPDATE

Saturday, April 5, 1997
ADVANCES IN MEDICAL MANAGEMENT OF GLAUCOMA

Saturday, May 3, 1997
TREATMENT OF DIABETIC RETINOPATHY

Saturday, June 7, 1997
SMALL INCISION CATARACT SURGERY: AN UPDATE

Friday, June 6, 1997
COMBINED ALUMNI MEETING
Edward S. Harkness Eye Institute,
Harlem Hospital Center, St. Luke's-Roosevelt Hospital Center;
The New York Yacht Club

For information call (212) 305-2725

Harkness Eye Institute faculty and former housestaff joined graduates of St. Luke's Roosevelt Hospital Center to celebrate Alumni Day 1996, last Spring. During scientific sessions at Columbia-Presbyterian's Clark Conference Center, 30 alumni and staff addressed 125 participants, covering topics that included excimer laser, vitreo-retinal surgery, pediatric eye disease and cataracts.

In Focus
Alumni Day

Left to right, Dunnington Memorial Lecturer Dr. Bradley Straatsma ('57); past Department Chairman Dr. Anthony Donn; honored alumnus, Dr. Ira Snow Jones, and Department Chairman Dr. Stanley Chang.

The meeting began with greetings from Stanley Chang, M.D., Edward Harkness Professor of Ophthalmology and Chairman of the Eye Institute; James Newton, M.D., Chairman of the Department of Ophthalmology at St. Luke's Roosevelt; and Herbert Pardes, M.D., Dean of the Faculty of Medicine at Columbia University. The First John Dunnington Memorial Lecture was given by Bradley Straatsma, M.D. (R.1957) who discussed the "Diagnosis of Choroidal Tumors." Dr. Dunnington, who was Chairman of the Department of Ophthalmology from 1938-1959, is largely credited with transforming the Eye Institute into a major international center for eye care and research. More than a dozen Eye Institute residents went on to become chairmen of Ophthalmology departments throughout the country during this remarkable period of the Institute's history. Dr. Straatsma, who is editor of the *American Journal of Ophthalmology* was one of those residents.

At day's end, alumni, their families and Eye Institute staff enjoyed a New York Harbor dinner cruise. During the festivities, Dr. Chang recognized two alumni for their outstanding contributions to the Institute: George Merriam, Jr., M.D., who retired in 1993, completed his residency at the Eye Institute in 1948; and Ira Snow Jones, M.D., a 1951 residency graduate who remains an active Department member .

FACULTY INSIGHT
CAMPAIGN TO ESTABLISH ANTHONY DONN CHAIR

This coming year will mark Dr. Anthony Donn's 50th anniversary of association with Columbia-Presbyterian Medical Center. In commemoration of the occasion and to honor the man and the important contributions he has made to his field, the Department of Ophthalmology has mounted a campaign to endow the Anthony Donn Chair in Ophthalmology.

Dr. Donn began his medical studies at P&S after graduating from Yale University in 1947. His commitment to CPMC has been unwavering from student days, through internship, residency, and finally, a progression of academic and hospital appointments. He was Harkness Professor of Ophthalmology, Department Chairman and Director of the Harkness Eye Institute from 1989 until last year.

Anthony Donn, M.D.

While the creation of an endowed chair is the University's highest recognition of faculty achievement, it is also a lasting legacy of support for the department in which it is held.

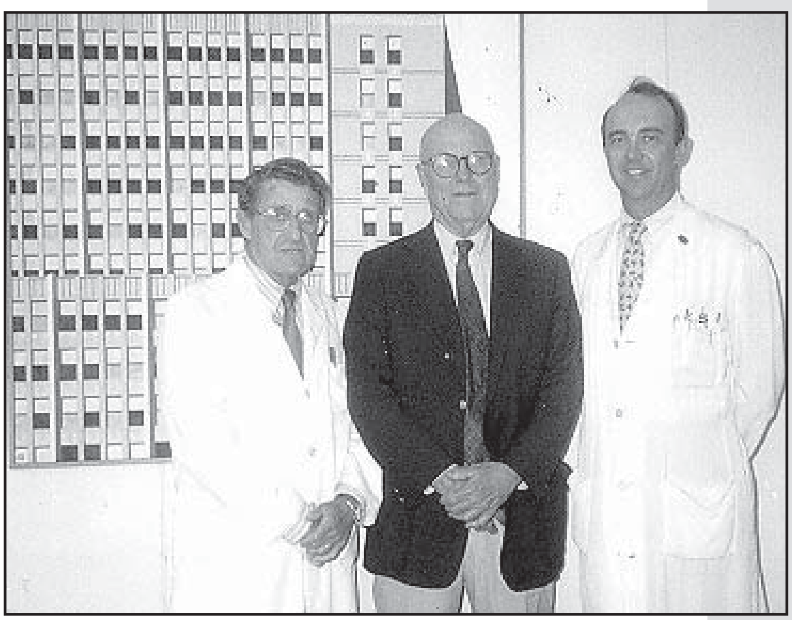
VISIONARY GIVING

Over the decades, research initiatives at the Eye Institute have contributed milestone advances redefining state-of-the-art eye care. While opportunities for important discovery in eye disease diagnosis and care have never been better, cutbacks in government funding now threaten the Institute's potential to meet new and continuing challenges.

Talented and dedicated Harkness Eye Institute investigators need private funding to accomplish their goals for continued advancement in eye disease research, education and treatment. You will notice that this first edition of *Viewpoint* includes an envelope through which you may indicate your interest in providing assistance to sustain critical ophthalmological programs at Columbia. For more information about how you can best support the Eye Institute, or if you would like to learn more about the advantages of planned giving, please call Susan Taylor at (212) 781-2100.

Columbia University in the City of New York
EDWARD S. HARKNESS EYE INSTITUTE
635 West 165th Street
New York, NY 10032

Address Correction Requested



Last May, renowned artist, Emilio Sanchez, presented Drs. Harold Spalter and John Merriam one of his original paintings, " in gratitude for all the things Harkness has done for me over the years." Shown here, (l-r), are Dr. Spalter, Mr. Sanchez and Dr. Merriam in front of the painting, which Mr. Sanchez says was the "first painting I was able to do after my operation."