VIEWPOINT

THE DEPARTMENT OF OPHTHALMOLOGY Columbia University
The Edward S. Harkness Eye Institute

Summer 2001

Rees and Acquavella Scholars Appointed

Even as he enjoyed a successful career on Wall Street, Homer Rees struggled for years with glaucoma. Mr. Rees, onetime vice president of J. P. Morgan and chairman of Prudential Capital Corporation, knows firsthand the seriousness of his disease.

"I've lived with glaucoma for over 20 years," said Mr. Rees, who established the new Homer McK. Rees Scholar in Glaucoma Research. He has been retired for eight years, and for most of his retirement, glaucoma, a degenerative eye disease, has been slowly impairing his vision. He received early care from Columbia's Dr. John Espy and was later treated by Dr. Max Forbes at the Harkness Eye Institute. As his condition deteriorated,

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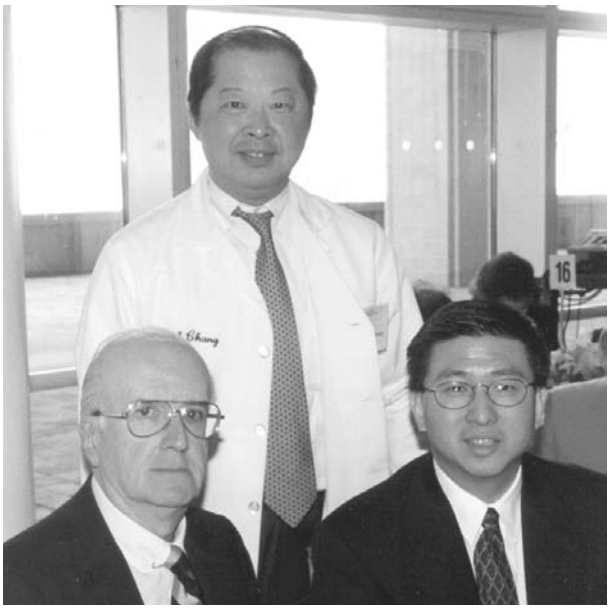

Dr. Stanley Chang with Mr. Homer Rees and Dr. James Tsai

Miranda Wong Tang Endows Assistant Professorship in Cornea Research

Miranda Wong Tang, a member of the Department of Ophthalmology's Board of Advisors, has provided funding to support the creation of a new assistant professorship at Columbia. The Miranda Wong Tang Assistant Professorship will be used to advance the work of a talented, young investigator, interested in corneal disease research and treatment.

"I believe that the success of any medical institution depends on its commitment to research, teaching and patient care," says Mrs. Tang, explaining her motivation for creating the assistant professorship. Noting that Department

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EATING RIGHT FOR HEALTHY EYES

Views from the Chair

Dear Friends:

It's been a productive spring, and I'm delighted to have this opportunity to share news of our latest developments with you.

First, we are pleased to welcome Dr. James Tsai and Dr. Melanie Sohocki, who join our faculty on July 1. Appointed Homer McK. Rees Scholar and director of the Glaucoma Service, Dr. Tsai brings ingenuity and experience to the challenge of advancing glaucoma research and care. As William Acquavella Scholar, Dr. Sohocki, a talented and dedicated researcher, will work to further our understanding of the genetic components of retinal diseases, an important step in finding new avenues for treatment of macular degeneration and other retinal disorders.

I'm equally pleased to acknowledge opportunities for growth created by two new endowed faculty positions. Such endowments are the lifeblood of an academic medical center and help to sustain high caliber research, teaching and care. Special thanks to Mrs. Miranda Wong Tang, whose generous support for the Miranda Wong Tang Assistant Professorship will help to enhance the Department's work in corneal research. We are also grateful to Dr. Laszlo Bito for his help in promoting basic research in the Department through the Laszlo Z. Bito Professorship. Finally, our Board of Advisors and circle of friends continue to grow. Their commitment and generosity help to sustain many of our most promising programs, and we're deeply gratified by their support.

With special thanks to all our friends and best wishes for a healthy, enjoyable summer.

Sincerely,

Stanley Chang

Stanley Chang, M.D.
Edward S. Harkness Professor
Department of Ophthalmology Chairman

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New Professorship Promotes Cornea Research, cont.

Miranda Wong Tang

Chairman Stanley Chang has been successful in bringing to Columbia "a fresh breed of doctors who have the energy and dedication to conduct groundbreaking research and are committed to their patients," she adds, "These factors have worked to raise the quality of care."

According to Mrs. Tang, her involvement with the Department of Ophthalmology has grown since Dr. Chang, her friend for more than ten years, became chairman. "His visionary leadership coupled with strength brought to the Department by members of the Advisory Board, are helping to ensure the quality of Columbia's ophthalmology programs. The new assistant professorship will provide further assistance by promoting the study of corneal disease prevention and treatment, rounding out specialty areas already in place. I believe the position will enhance Columbia's reputation as a pioneer and leader in all areas of ophthalmology research."

Rees and Acquavella Scholars Appointed, cont.

Rees had to undergo surgery in his right eye.

Glaucoma has not slowed Homer Rees down; he is currently serving as interim director of the Bruce Museum of Arts and Sciences in Greenwich, Connecticut. His gift, he said, marks "a combination of the successful outcome of surgery and appreciation of the excellent care that I received from Dr. Forbes." Mr. Rees, a member of the Department of Ophthalmology's Board of Advisors, donated $300,000 to sponsor a Glaucoma Scholar, in hopes that research at Columbia can put an end to the disease that has damaged his right eye.

Dr. James Tsai: An Interest in Tracing Glaucoma's Causes

Dr. James Tsai, the newly appointed Homer McK. Rees Scholar, has dedicated his career to fighting the enigmatic disease. A graduate of Amherst College and Stanford Medical School, Dr. Tsai completed a residency in ophthalmology in Los Angeles's Doheny Eye Institute. He underwent glaucoma training in Miami and London before becoming a professor at Vanderbilt University in Nashville six years ago. At Columbia, Dr. Tsai will be an associate professor of Ophthalmology and director of the Glaucoma Service.

"This is an opportunity to really contribute to the development and further the advances of glaucoma research," said Dr. Tsai, whose research has focused on surgical and retinal management of complicated glaucomas. He plans to analyze the wound healing processes associated with glaucoma surgery, in order to improve the success rate of the treatment. He is also interested in the many possible factors that can cause glaucoma, like ocular blood flow and genetics. "We're really just at the tip of the iceberg, starting to understand that controlling eye pressure is critical, but it's not the only risk factor we have to be concerned about," said Dr. Tsai. He predicts that the next five or ten years will bring major advances in understanding the physiology of the disease. He looks forward to setting up a glaucoma center at Columbia, with state-of-the-art diagnostic and therapeutic capabilities that will be a resource for internists, ophthalmologists and glaucoma specialists.

Supporting Dr. Tsai's goals seems especially worthwhile to Mr. Rees, who has recently gotten a taste of the difficulties of nonprofit work. "I now have a heightened appreciation for the problems of managing nonprofit organizations," he said. "On Wall Street, the driving force was making money. It's very refreshing to work with people whose principal motivation is tied to other sources of satisfaction."

"There are no guarantees with research," Mr. Rees said. "All you can do is keep trying."

Dr. Melanie Sohocki: Drawn to Research in Eye Disease Genetics

As a high school student, Dr. Melanie Sohocki got a first glimpse of what would become her life's work. She was helping in the office of a retina specialist, and every day she watched patients deal with severe vision problems. Touched by their struggle and intrigued by the study of genetics, Dr. Sohocki embarked on a path of study that could someday save thousands of lives. Now, she is about to join Columbia as the first-ever William Acquavella Scholar in Retina Research. The Scholar's position is a gift from William Acquavella, a New York art gallery owner who serves on the Department of Ophthalmology's Board of Advisors. His gift of $500,000 for the new scholar is not his first contribution to Columbia; last year, he installed an exhibition of Cezanne watercolors in his gallery to benefit the Department.

As an art enthusiast, Bill Acquavella has a unique appreciation for the gift of good vision. Through her research, Dr. Sohocki is trying to make sure no one is ever robbed of that gift.

Dr. Sohocki got her Ph.D. at the graduate school of biomedical sciences at the University of Texas in Houston. There she began work on identifying genes linked with inherited retinal disorders. One of the genes she identified turned out to be associated with Leber's Congenital Amaurosis, a form of childhood blindness.

"Because of the human genome project, we're identifying many new genes associated with inherited blindness," said Dr. Sohocki, who was promoted to associate professor last year at the University of Texas. She explained that there are over 120 different genes for inherited retinal disorders recognized, but less than half have been found. Locating each of them involves a complicated mapping strategy.

"Because of the human genome project, we're identifying many new genes associated with inherited blindness."

At Columbia, she hopes to study the functions of mapped genes in order to understand what might be lacking in patients with certain eye diseases. "One huge benefit of the Ophthalmology Department at Columbia is that they have a very strong clinical program in addition to research. It's going to be a big team effort," Dr. Sohocki said. "The people in Ophthalmology have been so wonderful and supportive."

From Inside the Laboratory to A Treatment Near You

A Commitment to Visionary Research

Edward S. Harkness

He is not known to have suffered from any unusual eye problems, but philanthropist Edward S. Harkness had a clear interest in helping those who did. The benefactor, who in 1928 donated land to build Columbia-Presbyterian Medical Center, saw fit to include a hospital devoted to eye care as part of its overall plan. By 1931, Mr. Harkness had made a $5 million pledge for construction of an eye institute at the corner of 165th Street and Fort Washington Avenue. His gift also provided support for ophthalmology research.

Today, the Department of Ophthalmology's commitment to understanding the basic processes that cause, prevent and treat diseases of the eye continues. In recent years, laboratory research at the Eye Institute has yielded groundbreaking approaches that include advances in laser technology; improved surgical techniques for cataract, corneal and retinal surgery; and the discovery of a new glaucoma treatment.

Biomedical advances could not occur without the painstaking work of talented investigators, devoted to the search for new information. In Columbia's Department of Ophthalmology, Drs. Jorge Fischbarg, David Maurice and Abraham Spector are among the researchers, whose laboratory explorations hold new promise for vision preservation.

Ocular Water Ways

It may not seem like all that compelling a subject, but the question of how water traverses ultra-thin layers of tissue within the eye is a topic of endless fascination to Dr. Jorge Fischbarg. "Eighty-to-ninety percent of the eye is comprised of water," he says by way of explanation. "Fluid movement is fundamental to ocular function."

Among Dr. Fischbarg's important findings is the determination that water transport does indeed occur across epithelial tissue within the eye's lens, a layer of cells in the part of the eye

that directs light rays toward the retina. His lab also co-discovered the presence of fluid movement in epithelial cells of the eye's conjunctiva, or mucous membranes.

More recently, however, the basis of fluid movement through the corneal endothelium,

Dr. Jorge Fischbarg

the cornea's innermost layer of cells, has been absorbing this Professor of Physiology, Cellular Biophysics and Ophthalmology's attention. "I've returned to a first love," he confesses. "Despite occasional diversions, I've actually been interested in the endothelium for the past 30 years."

For several of those years, he and other researchers had been investigating whether a process called local osmosis explained the phenomenon of fluid transport across the endothelium. Under the premise, specialized cellular water channels within the endothelium served as a conduit for fluids, which were driven from cell to cell by osmotic pressure. The widely held theory seemed to hold water—so to speak—until, says Dr. Fischbarg, "certain chinks in its armor began to appear." Apparently, normal water transport activities were not curtailed in knockout mice, specially bred without a water channel-producing gene. Researchers also found that people with certain rare genetic disorders that preclude normal water channel functioning showed no related illness.

Undaunted, Dr. Fischbarg began to examine another theory to explain endothelial water transport. Electroosmosis, the movement of charged molecules along a charged surface, is hardly a new concept, he says. The process—one that is commonly used in water and soil treatment—has often drawn the attention of medical researchers, but has never been fully examined as a basis of cell-to-cell fluid transport. But now, Dr. Fischbarg's latest research suggests that electroosmosis may be the force that drives fluids across the minute crevices between endothelial cells.

Of what import is this finding? Electroosmosis could play an important part in maintaining many bodily processes, as disparate as lung secretions, intestinal absorption, tear production and kidney function. "If our theory is right," says Dr. Fischbarg, "it may provide a fresh approach to treating the symptoms of

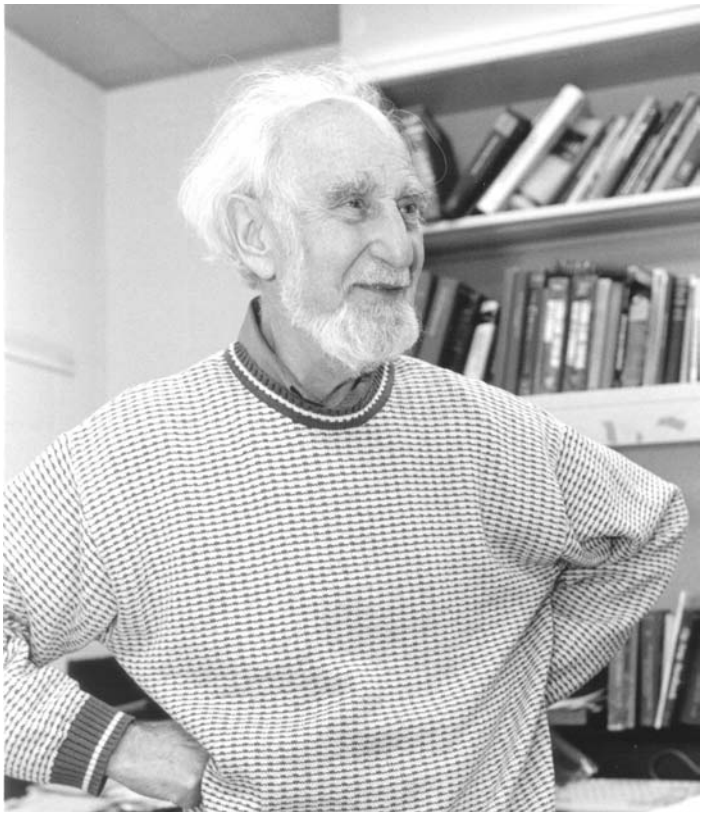
fluid transport systems gone awry—as they affect vision as well as other aspects of health."

Eyes on Corneal Repair

Why devote a lifetime to studies of the cornea? For Professor of Ocular Physiology David Maurice, the attraction to this particular patch of ocular tissue is a question of simplicity. "Corneas are so nice, so smooth, so completely transparent," he lovingly observes and then adds, "When I started my research, there were many gaps in our understanding. I guess I was drawn to filling them in." Now, even after more than half-a-century of laboratory investigation, says Dr. Maurice, his interest in the cornea's delicate structure and functioning continues to grow.

Many of Dr. Maurice's recent studies have involved the cornea's response to injury. Interested in learning how individual corneal cells react to even mild disturbances through the hours and days following injury, he was determined to do so in a way that's never been done before. Researchers, he explains, are often hampered by the short life span of isolated corneas. But calling himself an experimentalist at heart, Dr. Maurice designed and fashioned a unique device to observe and track microscopic changes in the corneal cells of live mice over a period of many days. The studies have revealed important insights into the healing process, including some surprises.

"Most scientists believed that when injury occurred, white blood cells, called leukocytes, made a beeline for the damaged area. But, unexpectedly, we've noticed that many of these cells either linger or wander about without ever getting to the wound. We don't know whether this curious lag delays or promotes healing, but understanding questions about the speed and direction of leukocyte movement will help us to develop ways of

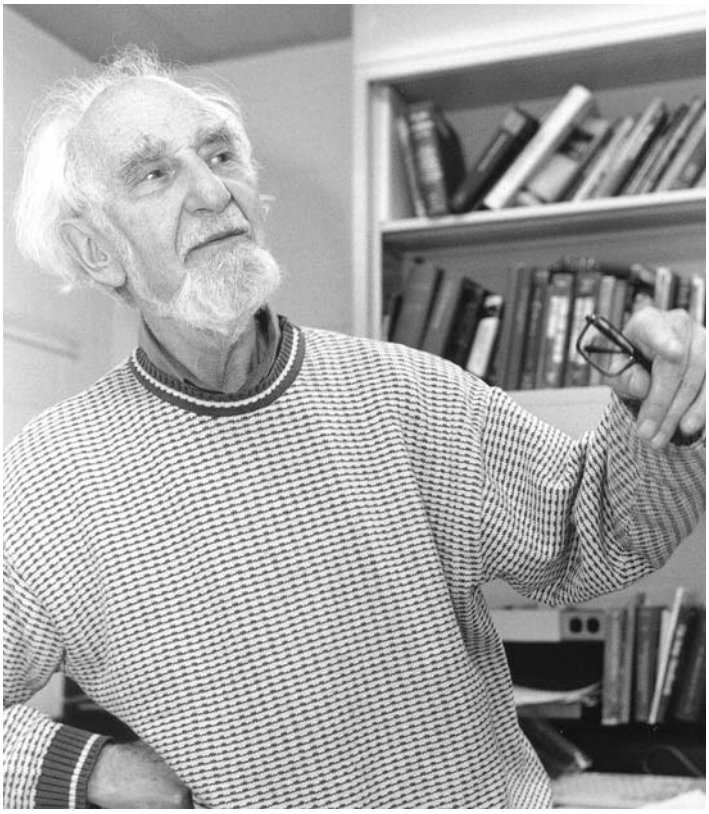


enhancing injury repair mechanisms."

Another finding by Dr. Maurice and colleagues Drs. Jin Zhao and Takayuki Nagasaki has raised new questions about the role of tears in corneal wound healing. Factors in tear fluid may be the direct cause of cell death that occurs when the cornea is injured. "Surprisingly," says Dr. Maurice, "we discovered that cell degeneration did not take place when tissue

was protected from tears." Nevertheless, he cautions, more research is needed to determine whether tears and ensuing cell death help or hinder corneal healing.

The cornea's ability to rebound from injury can affect the success of laser vision correction of refractive errors and other eye surgeries, as well as recovery from accidental eye trauma and many corneal diseases. The study of cell migration to an injury, says Dr. Maurice, may yield important information to prevent scarring, unwanted blood vessel growth, and other complications that impede quick and complete healing when tissue is damaged. The cornea, he adds, is also an excellent model that should provide insight into wound healing throughout the body.



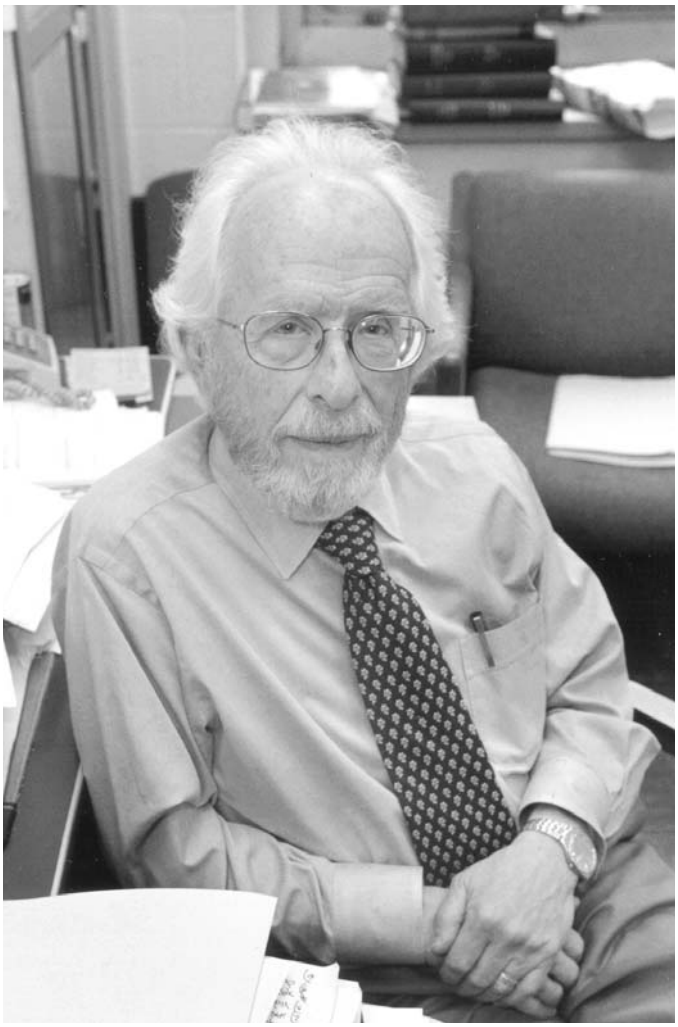
Dr. David Maurice

Clearing the Cataract Cloud

Name the diseases associated with oxidative stress and you list some of humanity's most devastating scourges: cancer, Lou Gehrig's disease, Parkinson's, Alzheimer's and other ravaging afflictions. Oxidative stress occurs when oxidative agents, such as free radicals or peroxides, are generated by natural, disease or environmental processes. Cataracts, the clouding of the eye's lens that affects about half of us as we age, have also been linked to oxidative stress.

Malcolm P. Aldrich Professor of Ophthalmology and Director of Research Abraham Spector has targeted much of his work to understanding the eye's lens. Trained as a protein chemist, he became interested in ocular research after discovering that the eye's lens had a particularly high concentration of protein. He has since applied his interest to studies of cataract development and prevention.

The leading cause of sight loss worldwide, cataracts account for approximately 42 percent of all blindness. In developing countries, Dr. Spector explains, there are simply not enough surgeons to perform cataract removing procedures. In the United States, where cataract surgery is relatively safe, each year about two percent of the two million cataract patients—some 40,000 people—develop serious, vision-threatening complications from surgery. These include retinal



Dr. Abraham Spector

detachment and severe corneal edema, requiring corneal transplantation. As the population of older people grows, says Dr. Spector, the personal and economic consequences of cataracts as a major disease will also increase.

The escalating problem, both in the United States and other countries, he says, calls for a medical rather than surgical solution. Toward that end, he is leading efforts to identify genes that contribute to defending the lens against oxidative stress. "By age 80," he says, "half the population has cataracts. But, of course, the flip side is that the other half doesn't!" His laboratory is trying to learn what genetic factors contribute to the cataract-free group's ability to maintain clear, healthy lenses.

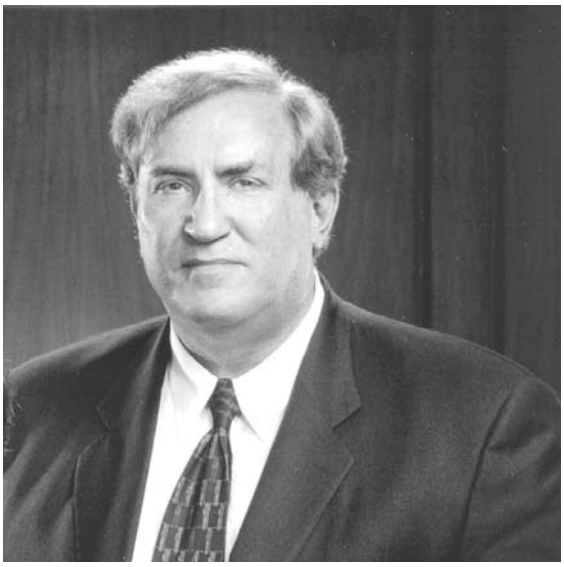
So far, the researchers have examined one-third of the mouse genome in lens epithelial cell lines developed by Dr. Spector to resist oxidative stress. He and his colleagues have identified about 100 genes in these resistant cells that may shield against cataracts. Once this phase of their search is complete, the investigators plan to select genes that play a particularly significant role in cataract prevention and examine ways of enriching them or their gene product.

"Diseases like macular degeneration and cataract are complex and may have more than one initiating factor," says Dr. Spector. "But, little by little, we're chipping away at these and other eye problems of aging."

Joel Hoffman's Way of Saying "Thanks"

When Joel Hoffman arrived at Columbia two years ago with a serious tear in his retina, he was not sure if his vision could ever be fully restored. Today Mr. Hoffman has excellent vision, and he is doing his part to make sure children of the future are not threatened by blindness or serious eye diseases. The Joel Hoffman Scholar in Pediatric Ophthalmology is a promising step forward in curing childhood eye problems. For Mr. Hoffman, it is a way of saying thank you.

"I'm fortunate in many ways," said Mr. Hoffman, who graduated from Columbia University in 1967, earned a New York University M.B.A., and is also a Certified Public Accountant. His thriving real estate business owns six million square feet of commercial real estate. But in November of 1997, Mr. Hoffman was diagnosed with a giant retinal tear in his eye. A Long Island specialist, Dr. Paul Svitra, repaired it, but said he was at risk for the same condition in his other eye. When another retinal detachment turned up two years later, Dr. Svitra suggested he see Columbia's Dr. Stanley Chang, under whom the specialist had trained. "If you don't do the retinal surgery right, you can go blind," Mr. Hoffman said. Soon after, Dr. Chang performed the much-needed operation with a successful outcome.



Joel Hoffman

"Having had some good luck in business and because of my great appreciation for Columbia, I try to give something back to the school," said Mr. Hoffman, whose "something" includes a scholarship at the undergraduate school, a $100,000 contribution towards retinal research, and $500,000 to endow the Joel Hoffman Scholar. He has a close relationship with Columbia; he remembers fondly his days on the school's basketball team and has gotten to know Dr. Chang professionally and personally. "I have tremendous respect for him and what he's trying to accomplish," Mr. Hoffman said. "I'm also fortunate to see as well as I do. I'm really just paying back."

New Professorship Honors Researcher By Reinvesting in Research

Xalatan is the most widely prescribed glaucoma treatment in the world. The drug's existence, not to mention its overwhelming success, can in large part be attributed to the persistent efforts of Dr. Laszlo Bito, a retired professor of Ophthalmology at Columbia.

Often called the "sneak thief of sight," glaucoma, the leading cause of preventable blindness in the United States, has been diagnosed in more than two million Americans. Successful glaucoma treatment depends on preventing increased pressure from causing irreparable damage to the optic nerve. Xalatan works by increasing the eye's natural outflow of aqueous humor, the fluid that nourishes the eye's cornea and lens, to reduce intraocular pressure (IOP). Unlike other medications that require multiple applications throughout the day, Xalatan needs just a single daily dose and produces fewer side effects.

Earlier this year, the Department of Ophthalmology announced the establishment of a chair in Dr. Bito's honor. "The Laszlo Z. Bito Professorship in Ophthalmology," says Department Chairman Stanley Chang, "will serve as a lasting tribute to Dr. Bito and his sight-saving achievement. It will also help to advance the kind of diligent scientific investigation that led to Xalatan's development."

The story of how Xalatan got "discovered" begins in Dr. Bito's Columbia University laboratory nearly three decades ago. A native of Budapest, Bito had come to the United States in 1956, graduated from Bard College three years later, and earned a Columbia Ph.D. in 1963. He soon became interested in eye research—specifically the effects of prostaglandins, a group of hormone-like substances on the aqueous humor. Although prevailing opinion held that administering prostaglandins to the eye caused an undesirable increase in IOP, the researcher surmised the opposite to be true. "Prostaglandins," he now explains, "are produced by virtually all body tissues. That told me they couldn't be all bad." Years of research proved him right.

The Long Road to Success

Likening his journey of discovery to a roller coaster ride, Dr. Bito describes twists and turns that caused years of delay. One of his early setbacks occurred when he and fellow scientist, Dr. Carl Camras, first explored prostaglandins' effects on rabbits. To their dismay, the investigators found that the drug lost potency after being used for just a few days. Only later did they realize that rabbit eyes, designed to protect against predators,

Dr. Laszlo Bito

produced exaggerated reactions that were inaccurate predictors of prostaglandins' effects on human eyes. Subsequent research on monkeys and cats showed that prostaglandins did indeed supply long-term IOP reduction.

Further obstacles, says the tenacious scientist, "only showed there was more work to be done." Experimenting on his own eye, he saw that the drug produced redness and irritation. "For me this was a challenge. I knew we had to find a way to maintain the drug's efficacy while eliminating unacceptable side effects."

In 1982—nearly 20 years after he began studying prostaglandins—Dr. Bito filed for a patent. Soon after, he teamed with the Swedish company, Pharmacia, the only manufacturer willing to work with him to refine and develop the drug. By 1988, the collaboration produced latanoprost, a prostaglandin derivative that is the main component of Xalatan. Eight years later, after extensive clinical trials, the FDA approved Xalatan for treatment of glaucoma.

A New Chapter

Now living in Budapest, Dr. Bito has achieved yet another noteworthy success—this time as the author of best-selling ***Abraham and Isaac*** as well as other novels. "There is life after prostaglandins," he pronounces, adding that writing, lecturing, and book tours occupy time once spent inside the lab.

Of the Bito Professorship's value in promoting innovative research, he says, "Senior investigators need to maintain a long-term perspective—an outlook made difficult when there is pressure to produce immediate results. Independent funding is the best mechanism to assure good research."

Years of Excellence: John Wilson Espy, M.D.

At the start of Dr. John Espy's career, cataract surgery required a week-long hospital stay, and contact lenses were the latest development in eye care. That was the early 1960's when the Harkness Eye Institute had 100 beds, most of which were usually filled. Today, only outpatient surgery is performed at the Institute, and there is not even one overnight bed. This dramatic change is typical of the major medical strides witnessed by Dr. Espy, clinical professor of Ophthalmology, during his long affiliation with Columbia.

In 1960, he came to Columbia for a three-year residency—the last trainee appointed by John H. Dunnington. On-call residents were responsible for monitoring over 100 patients, writing the next day's orders, and assisting and performing surgery. Things got busy after 2 p.m. the start of the surgical schedule. "The operating rooms lay fallow until then," Dr. Espy said. After his residency, Dr. Espy went into practice with Dr. Maynard C. Wheeler and shared an office with him. In 1968, he opened the Lexington Avenue office where he still practices today.

Dr. Espy's expertise is in the anterior segment of the eye, external disease, cataracts and contact lenses. When contacts debuted in the 1960's, he began a contact lens clinic, where he taught residents how to fit lenses. The clinic opened in 1963, and Dr. Espy directed it for more than 25 years. During that time, it moved from the Vanderbilt Clinic to the lower level of the Eye Institute.

"There is a great deal of promise in discoveries about genetically modified disorders and corrective gene therapy."

According to Dr. Espy, the development of lasers played a critical role in revolutionizing eye care. CATs, MRIs, ultrasonography and other screening tools have also made diagnosis and treatment more reliable and effective. Still, Dr. Espy said, the health profession as a whole needs to adjust itself to changes in structure. HMOs have led to a rise in hospital-based medicine and a move away from solo practitioners.

"The new system is necessary but difficult for people who've been practicing for years," Dr. Espy said. He believes that eventually there will be a two-tiered system, with a smaller percentage of patients receiving

distinctly private care, while the vast majority will be under HMO plans.

Looking Ahead

As someone who has witnessed revolutions in eye care, Dr. Espy is optimistic about what the future holds. "A major concern for eye health over the next few years is age-related macular degeneration (AMD), he said. "AMD is the most common vision problem as patients live longer." He predicts that soon it will be possible to help AMD patients through macular translocation (moving parts of a patient's own macula), retinal transplantation, or an electronic device that transmits visual impulses directly to the brain. "There is also a great deal of promise," he adds, "in discoveries about genetically modified disorders and corrective gene therapy."

"John Espy's unique historical perspective is an invaluable resource for the department," says Dr. Stanley Chang, chairman of Ophthalmology. "He is an outstanding clinician and teacher, and we hope he continues to lend his knowledge and expertise to our programs for years to come."

Dr. John Espy

Nutrition for Healthy Vision

The key to healthier eyes may be as close as your refrigerator. Medical research has made great strides in improving vision problems, but sometimes, extra help from special foods and vitamins can make a world of difference. Here are some vision nutrition tips recommended by doctors:

• **Scientists have discovered that fruits and vegetables contain compounds** that may prevent macular degeneration and cataracts. Some great ones to incorporate into your diet are watercress, spinach, broccoli, corn and peaches.

• **Chemical compounds called cartenoids are essential to the retina.** According to Dr. Jim Dillon, the best way to get them is in cooked tomatoes, green and orange plants, and fruits.

• **Vitamins are never as effective as nutritious foods.** "In general, the healthier way to get all your vitamins and minerals is in the form that nature provides them, in the right proportion and right chemical form," said Dr. Cynthia MacKay. "We can't improve on nature."

• **Starches like potatoes and turnips do not improve eye health;** stick to green and yellow vegetables.

• **High dietary intake of cartenoids called lutein and zeaxanthin** are associated with higher macular pigment density, which protects against macular degeneration. Vitamins are now being supplemented by lutein.

• **Be careful when taking vitamins.** "Too many vitamins can be toxic to the eye. Vitamins can act as a drug in high amounts," Dr. MacKay said. Vitamins A, D, E, and K are the most potentially harmful; water-soluble vitamins like C, B12, and folic acid are less toxic. Metals like zinc and selenium can be toxic to the eye in large doses.

•Smoking is a risk factor for many diseases, including eye diseases. Incidence of macular degeneration is two-and-a-half times greater among patients who smoke.

• Eat healthy foods all the time, even ones not known to help vision. "The healthy body has a healthy eye," Dr. MacKay said. Some patients who aren't vegetable lovers prefer to get their cartenoids from blended juice drinks.

• As with any health regimen, be cautious. Dr. Ted Smith had this advice: "The caveat with all these things is, of course, everything in moderation." He added that the research on vitamins and cartenoids and their effect on vision indicates a correlation between the products' use and better vision; there is no proven "cause and effect" relationship.

See your doctor once a year so that any problems can be caught and treated early.

Organizations Lend a Hand to Benefit Eyes

When leading organizations decide which research institutions deserve their support, they make sure to ally themselves with the best. It is no surprise that some of the most successful vision organizations in New York have built strong partnerships with Columbia's Department of Ophthalmology. Through the help of groups like Research to Prevent Blindness, Foundation Fighting Blindness, and Fight for Sight, the Department is making great strides in clinical trials and research and building bridges with industry.

"Columbia has always been a world leader in research," said Diane Swift, executive director of **Research to Prevent Blindness (RPB).** The organization is the largest voluntary non-government agency that supports eye research in the United States. During Columbia's long relationship with RFB, the school received about $2 million in grant support from the agency.

Funding from **Foundation Fighting Blindness (FFB)** has helped Columbia pursue FFB's goal: finding causes, treatments, preventions and cures for retinal degenerative diseases.

"Columbia presented research proposals that passed our peer review analysis and rigorous scrutiny by a 100-member advisory panel," said Executive Director Vivian Holmes. Since 1971, the Foundation has raised $150 million for research and is consistently ranked by the National Health Council for the percentage of dollars it spends on research.

For 55 years, **Fight for Sight** has funded 2,600 student and post-doctoral fellowships and grants-in-aid, with the goal of using ophthalmology research to help prevent blindness. Their funding gives a leg up to young researchers and pilot research projects. "We fund selected children's eye clinics that serve disadvantaged children," said Executive Director Grace Fisher. Columbia is among the 165 leading eye centers and universities worldwide that receive their support.

"You want to support research where there is excellent research being done."

Through partnerships with Columbia, all three organizations guarantee that their research dollars are well spent. "You want to support research where there is excellent research being done," RPB's Swift said. "We're happy to be associated with Columbia."

Planned Giving for Columbia Health Sciences

GIVING Well

Creating a Charitable Gift Annuity for Ophthalmology

Giving Well *is the Columbia University Health Sciences planned gifts program that can assist you in making the type of gift to the Department of Ophthalmology that will best accomplish your personal financial and charitable goals.* ***Charitable Gift Annuities*** *are among the planned giving options available through the* ***Giving Well*** *program. Here are some commonly asked questions and their answers about this popular type of planned gift:*

Q: What is a Charitable Gift Annuity?

A: A charitable gift annuity is a simple arrangement that provides a secure lifetime income for you and/or someone you choose, while providing a substantial gift to achieve your philanthropic goals.

Q: What are the advantages of a Charitable Gift Annuity for me?

A: A charitable gift annuity provides you with a sizeable income tax charitable deduction, guaranteed lifetime annual income, and reduced capital gains taxes (if you use appreciated securities).

Q: How much income can I expect to receive from a Charitable Gift Annuity?

A: Income payments are based on age. For example, a 60-year-old donor will receive annual lifetime income, partially tax free, equal to 6.4 percent of the gift. A donor who is 75 years old when making the gift will receive partially tax-free annual lifetime income equal to 7.9 percent of the gift amount. Income to joint donors is based on both their ages.

Q: Is any portion of my Charitable Gift Annuity gift tax deductible?

A: Yes, in addition to lifetime income, in the year you make your gift, you will receive a charitable tax deduction for a portion of its value. The amount of your deduction will be based on you age and the amount of your gift.

Q: How do I purchase a Charitable Gift Annuity?

A: To establish a gift annuity, you enter into a simple agreement with Columbia University to donate cash or marketable securities in exchange for our promise to pay you and/or another individual an annual lifetime income.

For more information about Giving Well, please contact:

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