VIEWPOINT

The Department of Ophthalmology Columbia University
at The Edward S. Harkness Eye Institute

Spring 2000

Kurland Family Establishes Anne S. Cohen Professorship in Pediatric Ophthalmology

Dr. John Flynn, the first Anne S. Cohen Professor.

R. Duff Kurland and his wife, Carol Nusinow Kurland, have pledged $2 million to establish the Anne S. Cohen Professorship in Pediatric Ophthalmology at Columbia University. The Kurland gift is made in appreciation for eye care Mr. Kurland received as a child at Columbia's Eye Institute. The new chair, named in memory of Mr. Kurland's grandmother, Anne S. Cohen, will support expansion of the Department's programs in pediatric eye care, research and teaching.

John T. Flynn, M.D., a nationally recognized leader in pediatric

continued on p. 10

Keeping the Outlook Bright for Young Eyes

A baby is born. We listen anxiously for the first cry and then carefully count fingers and toes. We delight in recognizing her father's nose, her mother's dimples and her uncle's coloring. Breathing a sigh of relief when the medical staff says she is healthy, we usually leave the hospital with a mixture of joy and nervous anticipation of what lies ahead.

continued on p. 4

INSIDE:

Views from the Chair

Dear Friends:

I am delighted to share our excitement about two important new steps in the progress of the Department of Ophthalmology. First, we are deeply grateful for the many benefits we anticipate the Department will derive from Mr. and Mrs. R. Duff Kurland's generous gift establishing the Anne S. Cohen Professorship in Pediatric Ophthalmology. We also feel most fortunate to have attracted Dr. John Flynn, one of the nation's leaders in children's eye research and treatment, as a member of our faculty. Dr. Flynn will bring us invaluable expertise as a new Vice Chairman of the Department of Ophthalmology, Chief of the Division of Pediatric Ophthalmology, and the first distinguished Anne S. Cohen Professor.

Columbia-Presbyterian Medical Center has long been one of the premier children's eye care facilities in the United States. This issue of Viewpoint introduces some of our excellent Columbia specialists in the diagnosis and care of children's vision disorders and describes the extraordinary challenges they face. Healthy eyes should never be taken for granted and many very young children are at risk of severe vision loss because of problems for which remedies are still in development or yet to be found. But, I believe that with our expert skills in pediatric ophthalmology at Columbia we will be able to develop new treatments for these threatening eye conditions, so that every child can look forward to a lifetime of healthy sight.

With many thanks for your interest and support. Please accept my best wishes for a healthy, happy summer,

Sincerely,

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

The Edward S. Harkness Eye Institute Advisory Board

The Edward S. Harkness Board of Advisors was formed more than a decade ago to work with Columbia's Department of Ophthalmology in securing funds for its research and clinical endeavors. The Board, which is currently chaired by Louis V. Gerstner, Jr., meets semiannually. There are 35 Board members, many of whom became involved because of their experiences as patients of faculty members in the Department of Ophthalmology.

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Friends Nurture Growth of Research Programs

The Department of Ophthalmology is grateful to Mr. James Shinn for his gift of $25,000 to support retina research. The Department also wishes to express appreciation for the following anonymous gifts: $100,000 toward macular degeneration research; $230,000 for cornea research; and $250,000 to support general research projects.

Young Eyes from page 1

With luck, our baby's development will proceed according to schedule. She'll begin to smile at about six weeks, sit up by six months, and start to move around independently within the first year of life. Although her eyesight is fuzzy at birth, she will soon be able to make out faces 12 to 15 inches away, clearly enough to recognize the person holding her. Between one and two months old, she will be able to focus both eyes and track a moving object; by four months she will have some depth perception; and, by the time she's eight months old, our baby can spot a familiar face across the room.

But what if things go awry? In the United States, as many as one in 20 children may suffer abnormal eye development. Already at risk for developing serious eye ailments that can become even worse if not caught in time, these children may face permanent loss of sight.

Columbia-Presbyterian's Babies and Children's Hospital is the only institution of its kind in New York City devoted exclusively to children ranging from infants to adolescents. The hospital collaborates with the Department of Ophthalmology's Division of Pediatric Ophthalmology to offer the most sophisticated specialty care available for children's eye disorders. In addition to the new Department Vice Chairman and Pediatric Opthalmology Division Chief, Anne S. Cohen Professor of Ophthalmology John T. Flynn, M.D., specialists include: Division Director Pamela F. Gallin, M.D., and Drs. Howard M. Eggers, Antonio M. Gonzales, Steven A. Kane, Hugh M. Moss, Carolyn R. Lederman and Martin E. Lederman.

Warning Signs of Vision Problems for Children's Eyes:

- **One eye wandering out of alignment**
- **Closing one eye and focusing only with the other**
- **Habitual squinting**
- **Frequently looking sideways out of the corner of the eye**
- **Complaining about blurring, double-vision, and headaches**
- **Rubbing eyes frequently**
- **Avoiding vision-dependent activities**

Seeing Depends on Looking

When young eyes veer off track—usually within the first nine years of life—without undergoing expert examination and diagnosis, they may never be able to achieve the visual sharpness expected in an adult. One

of the most often seen childhood disorders, amblyopia, also known as "lazy eye," occurs when only one eye develops normally. It affects two to three percent of the population and is the most common cause of preventable monocular blindness in adults younger than 45. Refractive errors, blurry vision in one eye that causes unequal focus; cataracts, which cloud the lens; and strabismus, misaligned eyes, can all lead to amblyopia.

Columbia's pediatric ophthalmologists agree that preventing blindness caused by amblyopia calls for early intervention. "Areas in the brain that control sight continue their formation throughout infancy and early childhood," says Associate Clinical Professor of Ophthalmology and Division Director of Pediatric Ophthalmology Dr. Pamela F. Gallin. She also adds that "without receiving normal visual stimulation from both eyes, brain cells will not keep their ability to process images." As proof, she refers to Nobel Prize-winning experiments from the 1970s in which kittens and monkeys, whose eyelids had been sewn shut just after birth, were later proven to lack the mature brain cells associated with processing visual images. Neurobiologists David H. Hubel, M.D., and Torsten N. Wiesel, M.D., who carried out the

Dr. Pamela F. Gallin

ground-breaking research, further showed that if sight deprivation continued long enough—about four-to-six months for monkeys—the animals became irreversibly blind.

Professor of Clinical Ophthalmology Howard M. Eggers, M.D., whose speciality is neurophysiology and infant development, reiterates the advantages of early treatment. He points out that making sure both eyes are healthy in childhood is like "sight insurance" that offers "vision coverage" in case one eye is injured or diseased later in life. "If the problem is unrecognized or neglected when it first appears," he says, "many aspects of vision we take for granted, like motion detection

and depth perception, can be compromised for life."

Both clinicians say that, fortunately, amblyopia's underlying causes can usually be overcome successfully. To correct such problems, the muscles of the patient's weak eye must be balanced so it can work in tandem with its partner. Covering or blurring vision in the "good eye" by using drops or an eye patch, or darkening one lens in a pair of glasses, forces use of the underperforming eye and helps to build stronger neural connections. In some cases, surgery may be needed to remove cataracts or other obstructions, or to realign the eyes. Often, a combination of these treatments is required to equalize vision in both eyes.

Looking for signs of any defects in the development of tiny eyes.

Hazards for Preemie Eyes

The blood vessels of the retina usually develop in an orderly way during gestation, but in premature infants growth may be random and uncontrolled, causing bleeding and detachment of the retina. "The more premature the baby is," explains Dr. Steven A. Kane, a specialist in retinopathy of prematurity (ROP) at Columbia, "the more likely that ROP will develop."

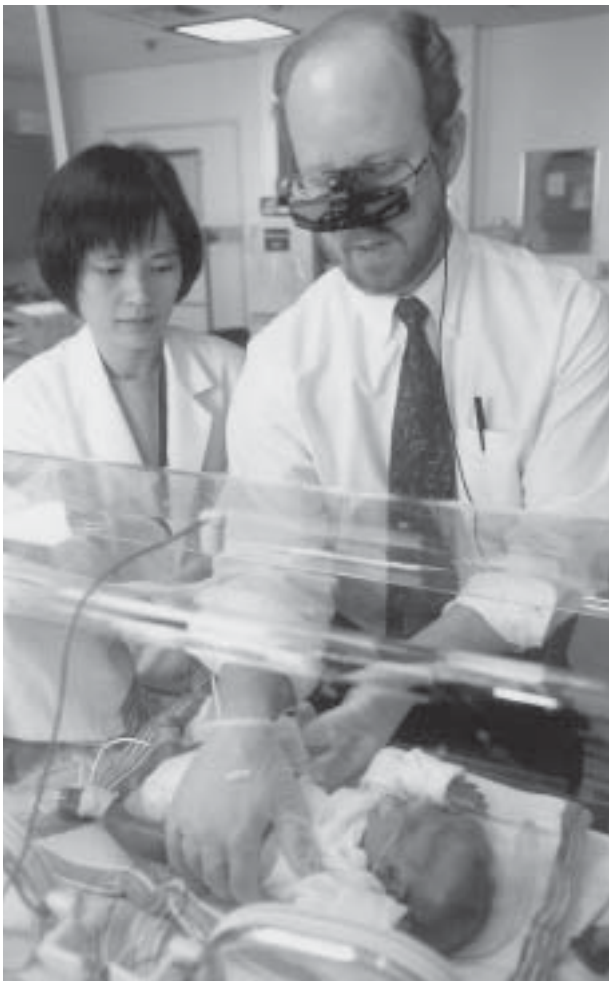
During his weekly rounds in the neonatal intensive care unit at Babies and Children's Hospital, Dr. Kane meticulously examines the delicate eyes of tiny "preemies" for the erratic blood vessel growth of incipient ROP. When such signs are found in time, it may be possible to keep these children safe from eventual blindness.

Careful monitoring, carried out from the time of birth until retinal vascularization is complete, may be all that is needed to ensure against damage from ROP, since capricious blood vessel growth often resumes normal development without intervention. But, for the approximately ten

percent of preterm infants in whom abnormal vascular growth begins about a month after birth, emergency laser surgery may be necessary to ward off permanent retinal detachment. Associate Professor of Clinical Ophthalmology Robert Lopez, M.D., who has been treating ROP for the past ten years, explains that even with this option there is no guarantee of stopping the potential assault on sight. Although laser treatment is usually successful, some children will go on to develop partial — or even total — vision loss in one or both eyes. Those infants for whom surgery is successful can be more prone than normal to strabismus, severe myopia, glaucoma and other complications. One change in treating these children that Drs. Lopez and Kane and many of their colleagues in the field are considering prescribes much earlier intervention than that recommended in the past.

"Ironically," says Dr. Lopez, "the revolutionary improvements in neonatal care that allow very low-birth-weight babies to survive has resulted in increasing the incidence of ROP-related problems." But, he adds, such children often make amazing adjustments. "It's a joy to see how well they develop and how successfully they can adapt to their condition."

Dr. Steven Kane brings his expertise to the neonatal clinic.



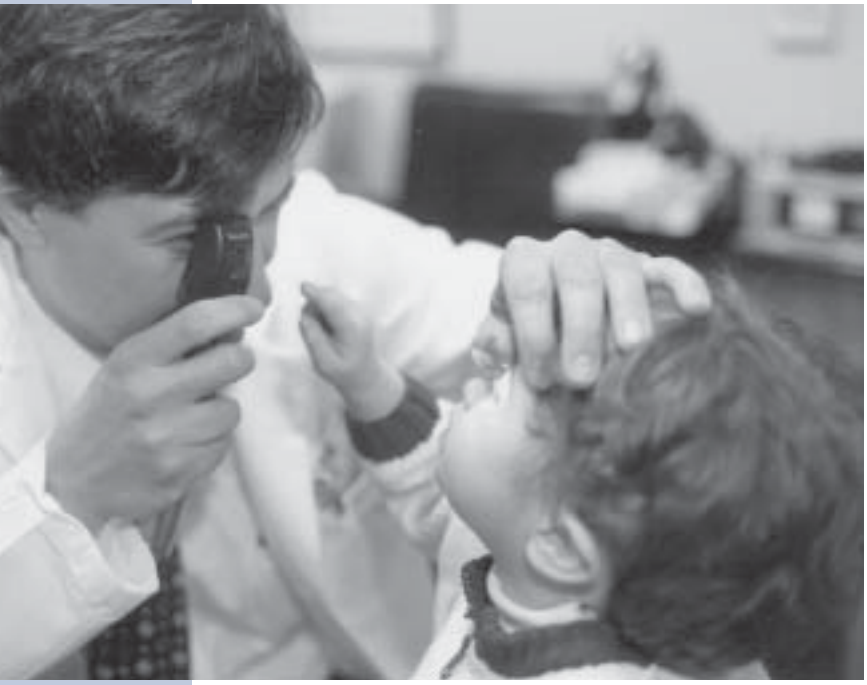
Expertise and Love Team Up To Save Brave Little Boy's Eyesight

Although Eileen Brouwer's first pregnancy and delivery seemed normal, there was no doubt that from the beginning something was terribly wrong with her baby's eyes. His corneas, which should have been crystal clear, were a milky white, so opaque that little light could

penetrate his eyes. The prognosis seemed grim. Physicians at the hospital where Kirk Brouwer was born told his parents that he would never be able to see. So, four days after his birth, desperate to save their baby's vision, the Brouwers sought help at Columbia from Dr. Pamela Gallin in the Division of Pediatric Ophthalmology.

"She wasted no time in assembling a team of experts to evaluate our son's condition and begin treatment," says Kirk's grateful father, Ken. Among the skilled clinicians from the Department of Ophthalmology enlisted for this challenging task were Drs. George J. Florakis, Arthur M. Cotliar and Robert Lopez. They have been carrying out a coordinated plan of treatment to save the little boy's eyesight ever since.

Dr. George Florakis and Kirk Brouwer examine each other.



Kirk was born with two extremely rare and complex eye disorders, sclerocornea and Peters' anomaly. Sclerocornea, which typically flattens and clouds all but the central portion of the cornea, is also associated with glaucoma in many patients. Peter's anomaly is characterized by the same opacity at the cornea's center and sometimes causes abnormalities of the lens and other structural defects in the eye. In addition to his initial eye problems, Kirk, at age two, has already had glaucoma, developed cataracts, and experienced a wide range of other vision deficiencies. To overcome these attacks on his eyesight, the toddler has undergone more than 20 surgeries, including seven corneal transplants. "Infants and children are more prone to transplant rejection than adults," says surgical team chief Dr. Florakis, explaining why Kirk has needed so many transplants. In spite of his little boy's history of difficulties, however, Ken Brouwer can happily say, "the great news is that my son can see."

Kirk's battles are still far from over. Corneal rejections, an ongoing dependence on antibiotics, steroids

and other medication, and recurring threats of glaucoma and other complications remain a reality in his young life. In spite of these drawbacks, the Brouwers are optimistic and convinced that their "smart, happy child" will continue to benefit from today's rapid advances in research and technology.

Meanwhile, the young patient, his parents and his doctors are enjoying each other. "Kirk and his family are amazing," say both Drs. Gallin and Florakis. And, according to the Brouwers, "Columbia doctors have taken a special interest in Kirk. They're giving him wonderful care, and they've given us tremendous support and — most important — a reason to hope."

Orthoptics: Flexing the Eye's Muscles

An expert in the field, Professor of Clinical Ophthalmology Sally Moore has been using orthoptics to help evaluate and treat patients at Columbia-Presbyterian's Harkness Eye Institute for more than 40 years.

Orthoptics, which means "straightening of the eyes," uses prisms and other optical devices, as well as eye training, to gain equal proficiency for vision in both eyes. The specialty, which evolved in Europe, particularly in England, with

Sally Moore uses prisms as orthoptic tools, allowing her to determine precise distances between muscles that control eye movement.

the invention of stereoscopic technology in the 19th century, did not become a recognized discipline until the 1930s. Some of its principles date back as far as the 7th century when a Greek physician, Paulus Aegineta, proposed placing a perforated mask in front of the eyes in order to correct an imbalance in binocular function.

Ms. Moore collaborates with Department of Ophthalmology physicians at Columbia in treating patients ranging from the very young

to the elderly. Most of her work involves cases of strabismus, double vision, cataracts, retinal detachment and Graves' disease. She is also often asked to use orthoptic techniques to render a second opinion in assessing an eye condition, or to provide finely tuned eye measurements prior to surgery.

Pediatric ophthalmologists at Columbia are strongly in favor of vision screening for children and recommend the American Academy of Pediatrics and American Academy of Ophthalmology vision checkup timetable, scheduled at four developmental stages:

1. for newborns: prior to discharge from the nursery, check for infections, structural defects, cataracts or glaucoma;

2. by six months: at a well-baby examination, ensure eyes are properly aligned;

3. by three or four years: check for visual acuity and abnormalities that may affect learning;

4. age five and up: give annual medical check-up or school evaluation of visual acuity and function.

Flynn from page 1

ophthalmology, who is a new Vice Chairman of the Department of Pediatric Ophthalmology and Chief of the Division of Pediatric Ophthalmology, has also been appointed the first Anne S. Cohen Professor. Dr. Flynn is a magna cum laude graduate of Notre Dame University and received his medical degree from Northwestern University Medical School. In 1965, he joined the faculty of the University of Miami School of Medicine, where he became Professor of Ophthalmology in 1980. During that time, Dr. Flynn held appointments at Miami's Anne Bates Leach Eye Hospital and Jackson Memorial Hospital and at the Bascom Palmer Eye Institute / Anne Bates Leach Eye Hospital's Ophthalmology Research Foundation, where he was also a member of the Medical Board.

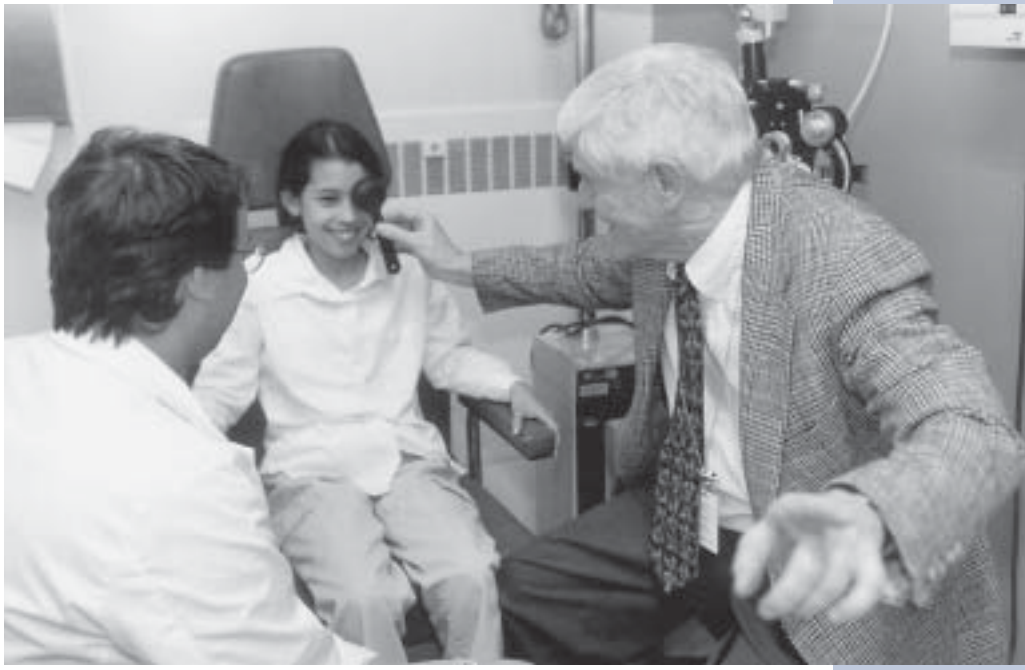
Although he calls himself an "ordinary, blue-collar, lunch pail type of guy who just happens to like kids," Dr. Flynn's credentials belie this modest self assessment. He is the recipient of a Gold Award, the highest honor given by the American Academy of Pediatrics, a Senior Award for Distinguished Service from the American Association for Pediatric Ophthalmology and Strabismus, and two Outstanding Teacher Awards from the University

of Miami School of Medicine. Dr. Flynn is in demand as a lecturer, nationally and internationally, on pediatric eye disorders including the very serious condition, retinopathy of prematurity (ROP), and those problems of uncoordinated eye movement like strabismus that are first apparent in early childhood. He has published more than 150 peer-reviewed articles in this important area of study.

In his new Columbia role, Dr. Flynn is determined to reinforce existing strengths in the Division of Pediatric Ophthalmology programs for research, patient care and resident training. His first major task is funding areas that are key to achieving his mission. Instrumentation for screening the vision of infants and children, electronic equipment for the transmission of digitized images used in consultations with off-site specialists, and the design and implementation of studies to help create improved treatment of ROP top his list of objectives. Dr. Flynn underscores the urgency of this work, explaining that, "Of the four million children born in the United States each year, 400,000 of them are premature." He goes on to say that at least 28,000 of those infants, usually with a birth weight of less than two pounds, two ounces, "are at risk of becoming visually impaired because of ROP."

Dr. Flynn is a passionate advocate for improving general access to healthcare for children, whom he calls "our capital for the future." He emphasizes the necessity of prompt treatment for vision problems in the young. Ignoring those problems, he says, can mean the difference between enjoying a lifetime of healthy eyesight or enduring increasingly severe impairment of vision over the years.

Dr. John Flynn shows one of his young patients that an eye exam can be fun.



Lawrence A. Yannuzzi, M.D., Receives Foundation Award

Columbia Professor of Ophthalmology Lawrence A. Yannuzzi, M.D., is the 1999 recipient of the Retina Research Foundation's Award of Merit. Announced at the Retina Society's December meeting, held on the Hawaiian Island of Maui, the prestigious $50,000 research award will be divided to support his work at Columbia and Cornell Universities.

With more than 250 scientific papers, ten text books, and three CD ROMS on his specialty, Dr. Yannuzzi has earned worldwide recognition for his distinguished contributions to the complicated field of retinal disorders. Because he is expert in diseases of the macula, including diabetic retinopathy and macular degeneration, Dr. Yannuzzi has helped to develop many of the most important diagnostic and therapeutic advances in retinal disease. He has pioneered the development and use of nonsteroidal anti-inflammatory drugs to treat macular edema, the development and use of laser and drug treatments for encouraging new blood vessel growth in retinal disease, and the development, use, and interpretation of intravenous angiography for ocular imaging.

In addition to his position on the Columbia faculty, Dr. Yannuzzi is vice chairman of Ophthalmology and chief of Retinal Services at Manhattan Eye, Ear & Throat Hospital. After graduating from Harvard College and Boston University School of Medicine, he completed his internship in medicine at University Hospital in Boston and his residency in Ophthalmology at Manhattan Eye, Ear & Throat Hospital, where he also received retinal specialty training. He is the founder and director of Manhattan Eye, Ear & Throat Hospital's Vitreoretinal Fellowship program and its LuEsther T. Mertz Retinal Research Center. Dr. Yannuzzi is also founder and head of The Macula Foundation, Inc., an organization dedicated to supporting clinical research and education in macular diseases. Since its founding in 1982, The Macular Foundation has given more than $20 million in awards to institutions, both in the Unites States and worldwide.

A past investigator for the National Institutes of Health, Dr. Yannuzzi has been an instructor and spokesman for the American Academy of Ophthalmology and an editor of several peer-reviewed journals in his field. He is co-author of the textbook, "Retina-Vitreous-Macula," which received a 1999 award as best new textbook of the year from the Professional Scholarship Publishing Division of the American Association of Publishers Inc. Dr. Yannuzzi has been honored with many other prestigious awards, including the Gass Medal and the Paul Henkind Award from the Macula Society, the Paul Chandler Lectureship from Harvard, the Chris Zweng Award from Stanford, the Distinguished Alumnus Award from Boston University Medical School and a lifetime achievement award from *Ophthalmology Times*. But, Dr. Yannuzzi considers his years of working with Columbia's Dr. Stanley Chang and Dr. Yale Fisher to train American and international retinal fellows as his most important achievement. "In mentoring them," he says, "so that they gain the kind of concentrated experience and opportunity needed both to excel in our subspecialty and to make the occasional meaningful scientific contributions, I have found the greatest personal academic satisfaction."

The "Vision of Light" Dinner Dance

Seeking to raise support for children suffering from eye diseases, Columbia's Department of Ophthalmology and the International Research Foundation for Children's Eyecare, Inc., will join in sponsoring an event on September 19, 2000, to benefit pediatric ophthalmology. The gala event, a dinner dance honoring Nobel Laureate Torsten N. Wiesel, M.D., president emeritus of Rockefeller University, Stanley Chang, M.D., Chairman of the Department of Ophthalmology at Columbia, and former Ambassador to Sweden, the Honorable Franklin S. Forsberg, will take place at New York City's Waldorf-Astoria Hotel.

Torsten N. Wiesel, M.D., and Stanley Chang, M.D.

The International Research Foundation for Children's Eyecare, Inc., was established in 1993 by Princess Marianne Bernadotte of Sweden to promote and fund eye disease research that will generate strategies to prevent poor vision and blindness in the young. The Foundation's "Vision of Light" dinner dances have already helped to raise millions of dollars for significant grants to a number of pediatric ophthalmalogic research institutions in many countries.

Eye Institute Board of Advisors members Howard Clark, Jr., and Helen and Martin Kimmel will co-chair the event, and board member Candace Van Alen will serve as International Chairman.

Ambassador Franklin Forsberg, Princess Marianne Bernadotte, Mrs. Ann Forsberg, and Prince Sigvard Bernadotte.

Columbia Renaming Children's Diagnostic Clinic to Honor Fight for Sight Founder Mildred Weisenfeld

When Mildred Weisenfeld was diagnosed in 1946 with the degenerative eye disease retinitis pigmentosa, she was shocked to learn that scientific research into the causes and treatment of vision disorders was nearly nonexistent. Determined to correct this situation, Ms. Weisenfeld founded the National Council to Combat Blindness, later known as Fight for Sight. The organization has since become an international leader in working for the preservation and restoration of sight. In addition to its research program, Fight for Sight has established children's eye clinics for thousands of disadvantaged young people. The group has provided more than half a million dollars for research and clinical programs at Columbia. Ms. Weisenfeld, who died in 1997, will be commemorated by Columbia for her lifetime of leadership in supporting children's vision research and care by renaming The Harkness Eye Institute's Children's Diagnostic Clinic in her memory. The Mildred Weisenfeld/Fight for Sight Children's Diagnostic Clinic will be dedicated at a ceremony honoring Ms. Weisenfeld.

GIVING Well

When you give to support the Department of Ophthalmology, you not only help to advance research and care for eye disease, but can also gain favorable tax advantages for yourself. Through the Columbia Health Sciences Giving Well program, we can show you how to plan a gift that will reduce income, estate and capital gains taxes; we can also describe gifts that will pay you income for life, or help you establish a trust. Finally, we can work with you and your attorney to draft a bequest. Ask for our brochure describing ways we can help you to give well... and wisely. Please contact: Elia Desruisseaux, Director of Planned Giving, Columbia University Health Sciences, 100 Haven Ave. Suite 29D, New York, NY 10032. Call: 212-304-7200 **or** TOLL FREE 1-888-277-9375. Email: givingwell@columbia.edu

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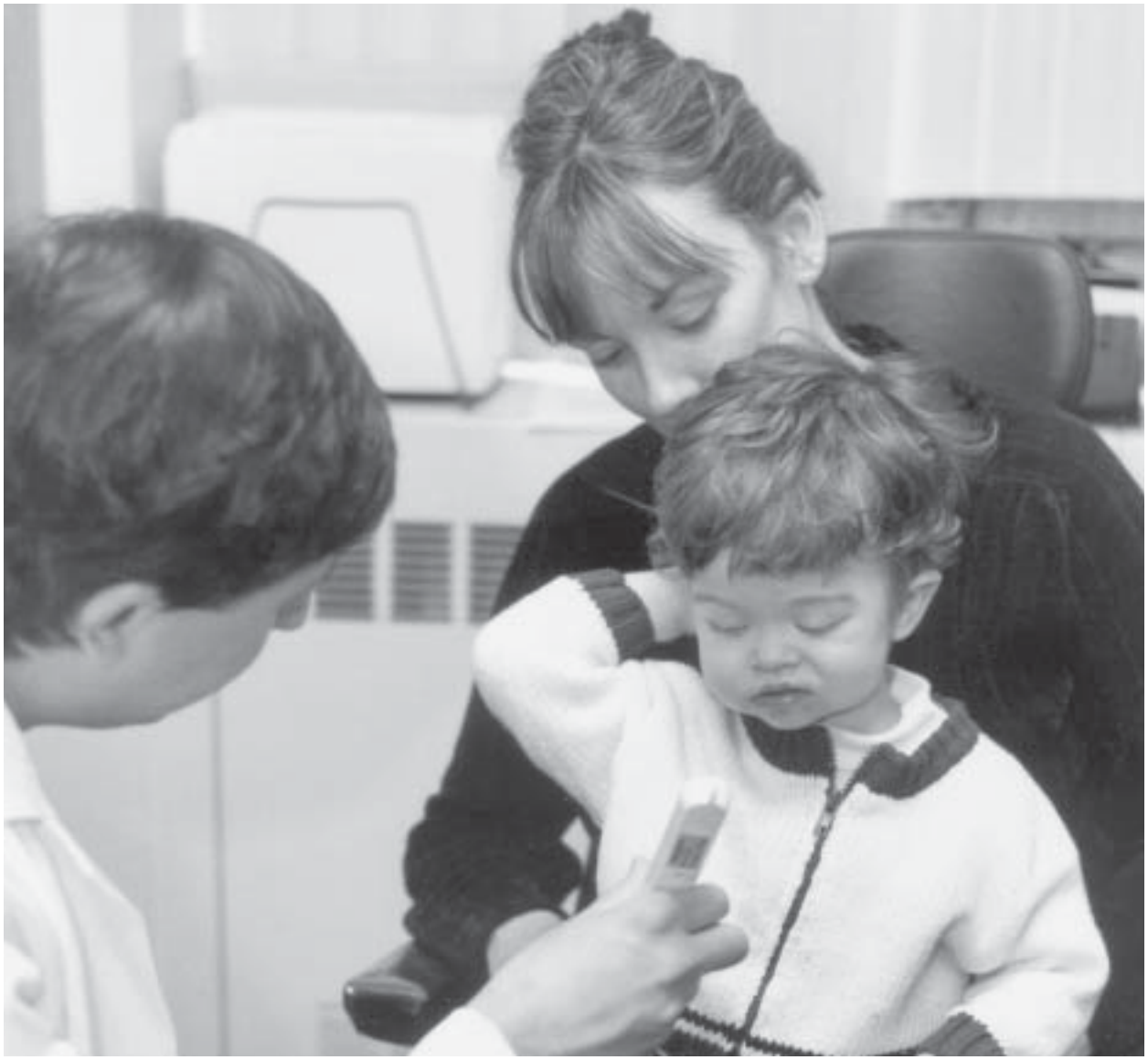

Kirk Brouwer, age two, has undergone more than 20 surgeries to correct multiple vision disorders; read about his remarkable story on page 7.