Faced with a serious eye injury, there was a time when an ophthalmologist was forced to simply treat the wound, close it, and hope for the best. Those days have passed, however, thanks to the tools and techniques now being utilized by surgeons in the UAB Department of Ophthalmology.

But it’s not just about equipment, according to Department Chair Lanning B. Kline, M.D. It’s also about skill: “We’ve assembled a team of ophthalmic surgeons who can handle any type of eye injury that comes their way,” he says. “From the eyelids to the optic nerve, we’re able to provide comprehensive management of ocular trauma.”

**Five Front Lines**

When a patient is brought to the emergency room for an eye-related injury, it is often an ophthalmology resident who conducts the initial examination. At the UAB Medical Center, residents can quickly reach any of the five hospital emergency rooms on their watch, whether it be located at University, Children’s, the Veterans Administration, Cooper Green, or the Callahan Eye Foundation. “They will first determine the extent of the injury and then call in the appropriate specialist on our staff,” says Kline.

If there is damage to the eyelids, for example, the resident will most likely contact John Long, M.D., who specializes in repairing lacerated eyelids or ruptured tear ducts. “Frankly, ours is the only full-time, fully staffed, around-the-clock emergency room system in the state,” he says. “We essentially run a level-one trauma center for eyes.”

Although most of the injuries happen at home or are due to recreational or work-related mishaps, Long has noticed a new and disturbing statistic: “We’re starting to see injuries caused by airbags as they inflate in automobile accidents,” he says. “While they’re certainly saving lives, airbags are also causing loss of vision in a significant number of cases.”

Penetrating or perforating injuries of the eye often damage the cornea, in which case Robert Phillips, M.D., may be brought in. It is in this area that remarkable surgical advancements have been made.

(continued on page 2)
Creating a Window

Less than 20 years ago, ophthalmologists had to wait for damaged or transplanted corneas to clear before they could see to operate on the retina, by which time this tissue was often beyond repair. But since 1982, thanks to a procedure called temporary keratoprosthesis (TKP), all that has changed.

“I did my fellowship at the Duke Eye Center where two of their faculty members had just developed the TKP procedure, and we decided to give it a shot here in 1983,” says Phillips. “We were one of the first places outside of Duke to try it, and we actually ended up using it more than they did.”

The TKP procedure involves removing the damaged cornea and replacing it with a clear, artificial cornea made of the same material as a contact lens. This allows for “direct visualization” of the vitreous and retina, facilitating the repair of damaged structures.

The technique is useful in non-emergency situations as well, as in the case of a woman injured in a bombing at the Kenyan Embassy in Nairobi last year. The only survivor of the blast was recently brought to UAB where a team of ophthalmologists used the TKP procedure to make repairs to the retina and vitreous—and with excellent results.

“Fifteen years ago she would have lost both of her eyes,” says Phillips, who adds that he and his colleagues have now performed more than 200 of the procedures. “Now she has a reasonably good chance of recovering some of her vision.”

Retinal Records

Douglas Witherspoon, M.D., a vitreoretinal specialist who often operates with Phillips, agrees. “The back four-fifths of the eye is made up of the vitreous, the retina, and a portion of the optic nerve, and not that long ago it wasn’t possible to do anything with that part of the eye,” he says. “Now we can operate inside the eye with fiber optic illumination and tiny instruments and high-powered microscopes. Due to tremendous progress with our surgical techniques they’ve got the wrong surgeon. If they’re 51, I’ll do what I can to make them the best-looking 51-year-old they can be.”

As an ophthalmologist who specializes in both reconstructive and cosmetic eyelid surgery—also known as a “blepharoplasty”—Long is in a position to observe changes that are occurring in the field.

“Plastic surgery, like the rest of medicine, is becoming increasingly subspecialized,” he says. “Twenty or 30 years ago, when you needed this...
IN THE SPIRIT of fostering a stronger relationship between the UAB Department of Ophthalmology and its alumni, an outstanding program is being assembled for this year’s Annual Clinical and Research Symposium to be held at the Callahan Eye Foundation Hospital the weekend of May 12-13. In addition to a ceremony honoring the first department chair and Eye Foundation Hospital founder Alston Callahan, M.D., guests include renowned ophthalmologists Richard L. Anderson, M.D., J. Donald Gass, M.D., and M. Bruce Shields, M.D.

RICHARD L. ANDERSON, M.D., FACS, is president of Oculoplastic Surgery, Inc., in Salt Lake City, Utah. A prolific writer with more than 236 scientific papers, 72 book chapters, and two books to his credit, Anderson has served on the editorial boards of the Archives of Ophthalmology and Ophthalmic Plastic and Reconstructive Surgery, and is currently on the editorial board of the Archives of Facial Plastic Surgery. Anderson is also responsible for having developed many of the techniques currently used in oculoplastic and facial surgery. During his Saturday morning lectures, Anderson will speak on “Advances in Oculoplastic Surgery” and the “Management of Thyroid Eye Disease.”

J. DONALD GASS, M.D., an international expert in macular disease, is a longtime faculty member of the Bascom Palmer Eye Institute in Miami who is now with the Vanderbilt Eye Center.

M. BRUCE SHIELDS, M.D., is currently the Marvin L. Sears Professor and chairman of the Department of Ophthalmology and Visual Science at the Yale University School of Medicine. A member of the Subspecialty Day Committee and the Glaucoma 2001 National Scientific Advisory Board of the American Academy of Ophthalmology (AAO), Shields is also on the board of directors of the American Board of Ophthalmology. He serves on the editorial boards of the American Journal of Ophthalmology, EyeNet (AAO), and co-editor of the International Glaucoma Review. Shields will present two Friday lectures: “Neuroprotective Agents: Glaucoma Drugs for the 21st Century?” and “Mitomycin C as an Adjunct to Trabeculectomy: The Double Edged Sword.”

Vanderbilt University Medical Center. A former director of the American Board of Ophthalmology, Gass was recently named one of the 10 most influential ophthalmologists of the 20th century by the American Society of Cataract and Refractive Surgery. Other honors include the establishment of the Gass Medal for Outstanding Contribution in Macular Disease by the Macula Society in 1987, and receiving the 1999 Mildred Weisenfeld Award for Excellence in Ophthalmology from the Association for Research and Vision in Ophthalmology. An author of three books—one now in its fourth edition—Gass will give a two-part address: “Update on Current Concepts of Macular Diseases.” He will be the first Helen Keller Lecturer at the Annual Clinical and Research Symposium.

Type of procedure you simply went to a general plastic surgeon. In the 21st century, you’ll find more physicians who specialize in certain areas.”

Long says there is a groundswell of support for subspecialization among his colleagues at UAB, even outside of ophthalmology. In fact, along with Peter Waite, M.D., D.D.S., professor and chair of the Department of Oral and Maxillofacial Surgery in the School of Dentistry—and also president of the American Society of Cosmetic Surgery—and dermatologist Gary Monheit, M.D., he is planning to hold a national conference at UAB this year. Long plans for a multidisciplinary approach to facial surgery, inviting physicians from a variety of fields.

“The subject of discussion will be cosmetic surgery for the 21st century, and we’ll cover topics like blepharoplasty, liposuction, face lifts, nose surgery, hair transplants, all of the different facets of cosmetic surgery,” he says. “With experts in the field discussing cosmetic surgery, it will be an interesting forum to introduce and discuss ideas.”

Long feels strongly about the benefits of subspecialization. “An ophthalmologist understands the relationship between the eyeball and the eyelid,” he says. “A cosmetic eyelid surgeon understands the relationship between the eyelid and the face. Ophthalmology provides insight into eyelid surgery that is not found in other fields.”
Stem Cell Deficiency

RICHARD ABBOT, M.D., professor of ophthalmology at the University of California at San Francisco, was visiting professor of the UAB Department of Ophthalmology at Grand Rounds in December, 1999. The following case focusing on stem cell deficiency was discussed at the conference:

CHIEF COMPLAINT: A 34-year-old myopic woman presented complaining of tired eyes and blurred vision for three weeks with or without use of her four-month-old, daily wear soft contact lenses.

PAST OCULAR HISTORY: She had worn contact lenses almost continuously for 22 years but had been refitted with new lenses which were worn 10 hours a day for four months. When fit, peripheral, superficial corneal neovascularization had been noted OU.

PHYSICAL EXAMINATION: Acuity best corrected to 20/60 OD and 20/30 OS. The contact lenses were free of deposits and fit and moved well OU. Irregular, superior corneal epithelium (see illustration) was seen, which, stained with fluorescein dye, was contiguous with areas of corneal neovascularization and extended centrally OU.

DIAGNOSIS: Limbal stem cell deficiency.

DIFFERENTIAL: Atopy, trachoma, HSV, and carcinoma are all associated with epithelial changes and superficial corneal neovascularization. Impression cytology reveals goblet cells in the cornea of patients with a stem cell deficiency.

TREATMENT: Immediate and permanent discontinuation of contact lenses.

OUTCOME: Five months after discontinuing her lenses, acuity had improved to 20/30 OD and 20/25 OS. The areas of epithelial irregularity had concomitantly receded OU, and further improvement was expected over the ensuing months.

OTHER TREATMENT OPTIONS: If a stem cell deficiency is unilateral, corneal epithelial stem cells can be transferred from the fellow eye with or without amniotic membrane grafting. Successful stem cell transplantation from another donor generally requires systemic immunosuppression.

Cynthia Owsley, Ph.D.

A Closer Look at Age-Related Vision Loss

EVERYONE EXPECTS to experience some loss of vision as they age, and most simply accept it as an inevitable consequence of the passing years. But maybe it’s avoidable, according to Cynthia Owsley, Ph.D., a professor and researcher in the UAB Department of Ophthalmology.

“We’ve known for a long time that older adults don’t see well at night, but we don’t really know why,” she says. “So if you want to develop an effective treatment, you first have to figure out the why.”

A graduate of Wheaton College, in Massachusetts, Owsley earned her doctorate in experimental psychology from Cornell University. She is known nationally for her research on vision and aging, “looking at the visual deficits older adults have and what we can do to solve these problems.”

Funded by the National Institutes of Health, one of her current research focuses is night vision, in which older adults at the onset of age-related macular degeneration are examined using light sensitivity testing and dark adaptometry.

An extension of this research is the subject of driving and the elderly, which Owsley is addressing with a number of ongoing projects. One, which is funded by General Motors, allows her to determine whether counseling high-risk elderly drivers with vision problems will lead to a change in their driving behavior. Another will lead to a means of educating police officers about ways to identify older problem drivers and how the situation can best be addressed.

“We’ve also just finished a large study on the effects of cataract surgery on elderly drivers’ safety,” she says. “It appears that having cataract surgery reduces an individual’s crash rate by 50 percent, which is very exciting.”

And the list goes on: As co-director of the Roybal Center, where research into applied gerontology is conducted, Owsley is helping develop a driving simulator that will be used to test the reflexes of elderly drivers.

“I wear a lot of different hats,” says Owsley, who also holds an appointment in the university-wide Vision Science Research Center, “but I think it’s important to diversify your research. For me, all of this represents a really nice balance.”
Andrew Mays, M.D.

AS A GRADUATE OF the University of Alabama School of Medicine who completed his residency at the Callahan Eye Foundation Hospital at UAB, Andrew Mays, M.D., is in an ideal position as director of the residency program in the Department of Ophthalmology.

“Yes, I’d say that helps a great deal,” he says. “I see the program director as a liaison between the faculty and the residents, so I think it’s helpful if that individual is relatively young. And it’s definitely helpful if that person has trained here at UAB and is already familiar with how the residency program works.”

Mays—who returned to UAB in 1996 after completing a glaucoma fellowship at the University of Florida—says his greatest challenge since accepting the position in 1998 has been the department’s decision to drop the number of individuals accepted into the program from six to five residents each year. That means there are fewer residents at a given time—15 as opposed to the former 18—to cover the same amount of territory.

“Our decision follows the national trend toward streamlining residency programs,” says Mays. “Unlike some professions, we’re concerned about the number of graduates we’re producing. Quality is more important than quantity.”

In addition to exposure to general ophthalmic care, the residents receive excellent training in a variety of specialized areas, according to Mays. These include glaucoma, oculoplastics, retinovitreous, cornea, pediatrics, neuro-ophthalmology and anterior segment. In their first year they are taught ophthalmic pathology.

“UAB is a terrific place to train because all our hospitals are centrally located,” says Mays. “The Callahan Eye Foundation Hospital has a 24-hour, seven-day-a-week emergency room, but we cover any of the eye emergencies at the VA, UAB, Cooper Green, or Children’s Hospital.

“Our program has a strong clinical surgical emphasis,” he says. “And since we have such a high surgical volume, the residents who finish the program are expected to be excellent surgeons.”

UAB department of ophthalmology

TO PROVIDE our readers a glimpse into projects and personalities in the department, we will profile a member of the research and academic faculty in each issue of Vision (below, in bold).

Academic Faculty
Michael Callahan, M.D.  Professor
Martin Cogen, M.D.  Assistant Professor
Jeffrey Crain, M.D.  Assistant Professor
Frederick Elas, M.D.  Associate Professor
Richard Feist, M.D.  Assistant Professor
Christopher Girkin, M.D.  Assistant Professor
Wade Jooner, M.D.  Assistant Professor
Arthur Kelly, M.D.  Assistant Professor
James Kimble, M.D.  Associate Professor
Lanning Kline, M.D.  Professor and Chair
Virginia Lolley, M.D.  Instructor
John Long, M.D.  Assistant Professor
John Mason, M.D.  Assistant Professor
Andrew Mays, M.D.  Assistant Professor
Robert Morris, M.D.  Associate Professor
John Parker, M.D.  Assistant Professor
Robert Phillips, M.D.  Associate Professor
James Powell, M.D.  Assistant Professor
Carol Rosenstiel, O.D.  Assistant Professor
Harold Skalba, M.D.  Professor
Milton White, M.D.  Assistant Professor
Douglas Witherspoon, M.D.  Associate Professor

Research Faculty
Christine Curcio, Ph.D.  Associate Professor
Ramon Dacheux, Ph.D.  Professor
Clyde Guidry, Ph.D.  Assistant Professor
Greg Jackson, Ph.D.  Assistant Professor
Timothy Kraft, Ph.D.  Assistant Professor
Cynthia Owlsley, Ph.D.  Professor
Shu-Zhen Wang, Ph.D.  Assistant Professor

Clinical Faculty
James Byrne, M.D.  Clinical Instructor
Alston Callahan, M.D.  Clinical Professor
Britton Carter, M.D.  Clinical Instructor
William Cox  Adjunct Assistant Clinical Professor
David Davidson, M.D.  Assistant Clinical Professor
Susan Eiland, M.D.  Assistant Clinical Professor
Greer Geiger, M.D.  Assistant Clinical Professor
Christopher Kelly, M.D.  Clinical Instructor
James Kelly, M.D.  Clinical Instructor
Ferenc Kuhn, M.D.  Associate Clinical Professor
Elmar Lauaczech, M.D.  Clinical Professor
Ralph Levene, M.D.  Clinical Professor
Angela Lewis, M.D.  Assistant Clinical Professor
Michael Massey, M.D.  Assistant Clinical Professor
Marc Michelson, M.D.  Assistant Clinical Professor
John Morgan, M.D.  Assistant Clinical Professor
John Owen, M.D.  Clinical Instructor
Roswell Pfister, M.D.  Clinical Professor
Elsie Cox Pratt  Adjunct Instructor
Wayne Taylor, M.D.  Clinical Instructor
Donald Turnbull, M.D.  Associate Clinical Professor
Darrell Wolfley, M.D.  Associate Clinical Professor
IN ITS CONTINUING EFFORTS to promote research, teaching, and indigent care related to the human eye, the Alabama Eye Institute (AEI) has donated $2.5 million to establish an endowed chair in the UAB Department of Ophthalmology.

“We have a deep commitment to the activities of the Department of Ophthalmology and the Callahan Eye Foundation Hospital at UAB,” says Hartwell Davis, Jr., who is AEI chair. “We hope this gift assists UAB in its continuing efforts to attract and retain the highest-quality faculty and to maintain the highest level of eye-care programs possible.”

Known as the Alabama Eye Institute, Inc., Endowed Chair of Ophthalmology, the position will be held by the departmental chair, currently Lanning B. Kline, M.D. A native of Edmonton, Alberta, Canada, Kline spent his undergraduate years at the University of Alberta before graduating from the Duke University School of Medicine. He completed his internship at Duke University, his residency in the Department of Ophthalmology at McGill University, Montreal, Canada, and a fellowship in neuro-ophthalmology at the Bascom Palmer Eye Institute in Miami. After joining the UAB faculty in 1979, Kline was named chair of the department in 1998.

The gift is much appreciated and an example of the strength of AEI’s commitment, according to UAB President W. Ann Reynolds, Ph.D. “UAB and the Alabama Eye Institute, and its predecessor the Eye Foundation, have for years collaborated in a number of efforts to ensure that people in this state have usually free of charge or at a reduced fee. “Lexington Memorial Hospital provides significant support,” says Slyman, “including lab work, X rays, scans, and admissions at no charge to the patient.”

Opened in 1992, the DMMC serves a population that a recent United Way study shows has grown to more than 15,000 uninsured individuals. “This is a volunteer-intensive program,” Slyman says, “and all of the professionals involved serve without any reimbursement of any kind.” The clinic operates five days a week, he adds, with a current active patient list of more than 5,000 people. Since it

Among James Slyman’s many honors is the Outstanding Humanitarian Award from the American Academy of Ophthalmology.

James Slyman, M.D.

IT WAS IN 1989, while participating in a local shelter program in Lexington, North Carolina, that James Slyman, M.D. (1978-’81), grew concerned by the lack of basic health-care services available to the area’s homeless. And the problem ranged far beyond his ability to help as an ophthalmologist: “Getting the individuals care for dental caries, foot problems, cuts, and minor ailments such as bronchitis and flu-like illnesses was frustrating due to the lack of health-care access to those without the means to pay,” he says.

Turning to the numbers, Slyman was alarmed to find that as many as 20 percent of the children in Davidson County, where he lives and practices, were sinking deeper into poverty, and that as many as 12,500 individuals lacked health insurance in that same area—33 percent of them children. He decided to do something about it.

“I started by putting together a grassroots committee of community leaders who would listen to my concerns,” says Slyman, “and these were physicians, businessmen, attorneys, and reporters. At the end of the meeting they all agreed the issue deserved the community’s attention, but they doubted I would be able to get much help from the medical community.”

Eleven years later, Slyman is medical director of the Davidson Medical Ministries Clinic (DMMC), which provides primary care to those who lack medical insurance. He also formed a network of specialists, including ophthalmologists, general surgeons, urologists, podiatrists, dermatologists, and neurologists, who will see patients on a referral basis, spreading the health usually free of charge or at a reduced fee. “Lexington Memorial Hospital provides significant support,” says Slyman, “including lab work, X rays, scans, and admissions at no charge to the patient.”

Opened in 1992, the DMMC serves a population that a recent United Way study shows has grown to more than 15,000 uninsured individuals. “This is a volunteer-intensive program,” Slyman says, “and all of the professionals involved serve without any reimbursement of any kind.” The clinic operates five days a week, he adds, with a current active patient list of more than 5,000 people. Since it
Callahan Eye Foundation Hospital

PEDiatric OPhtHALMOLOGY presents its own set of challenges. The equipment is essential, of course, but perhaps it’s even more important to put young patients at ease so that examinations can proceed smoothly. Recently completed renovations to the pediatric clinic in the Callahan Eye Foundation Hospital will help achieve this goal.

“What we wanted to do was create a relaxing environment that would engage the children’s interest while at the same time alleviating their fears,” says Sunni Beasley, assistant administrator of the nursing service. “We use toys and videos as visual effects that draw the children’s gaze so the physician can examine them more easily. Sounds simple, but that’s really one of the best techniques for examining pediatric patients.”

These improvements were only one phase of a larger project funded by gifts totaling some $250,000 from the Alabama Eye Institute and the Quarterback Club. The gifts provided new equipment and more efficient work areas in the Lions Eye Clinic.

Last year alone, the clinic attended to more than 5,400 needy patients, including 800 children.

“The adults are screened and referred to us by the Alabama Sight and Vocational Rehab,” says Beasley of the clinic’s Medicare- and Medicaid-approved patients. “And the children mostly come to us from Children’s Rehabilitation Services of Alabama.”

The children undergo a comprehensive eye examination, including measurement of color vision, stereopsis, strabismus, and visual fields, according to Clinic Supervisor Gail McFall. “We also offer vision correction through glasses or contact lens and even surgical intervention, when necessary,” she adds.

Beasley says the outpouring of gifts has been heartening and has also involved much more than money. “Sarah Ann Higgins, a social worker who attended our opening reception, actually volunteered her time to paint undersea murals on the walls of the play area to make it colorful and interesting for the children,” she says. “I think parents like knowing their children are being examined in a clinic specifically designed for them.”

The Alabama Eye Institute is a philanthropic organization formed by the proceeds of the sale of the Callahan Eye Foundation Hospital to UAB. It is governed by a board of independent business, medical, and community leaders.
techniques, what we do now looks nothing like what we did 15 or 20 years ago.”

Beyond surgery, Witherspoon—and with colleagues Robert Morris, M.D., and Ferenc Kuhn, M.D.—has made a great contribution in the field of ocular trauma by establishing the United States Eye Injury Registry. Begun some 18 years ago, the registry is the largest in existence and is endorsed by the American Academy of Ophthalmology.

“Prior to that time there was really no good epidemiologic data on eye injuries, so we needed to develop some mechanism to track injuries,” he says of the database, which compiles statistics regarding injuries resulting from sports, motor-vehicle accidents, industrial injuries, even fireworks. “You need some way of measuring the effects of medical and surgical therapy to make certain your intervention is actually helping.”

There is a Web site in the works, according to Witherspoon, that will allow ophthalmic surgeons and researchers to access the registry’s database and also to contribute information of their own. A software package is also in development: “It’s a custom package that’s far and away the best software of its type for this kind of problem,” he says.

Vast Experience

With ocular trauma patients referred from a multi-state area including Alabama and portions of Mississippi, Tennessee, and Georgia, surgeons in the UAB Department of Ophthalmology are equipped to address all aspects of ocular trauma.

“We have vast experience in this area and we’re very proud of it,” says Witherspoon. “We’ve been working on this for many years, and we look forward to continued progress in the future.”

alumni notes

• R. MITCHELL NEWMAN, M.D. (1993-'96), is currently practicing general and neuro-ophthalmology at the Columbia Eye Clinic, a group practice with three locations in and around Columbia, South Carolina. His colleagues in the practice include Ed Mintz, M.D. (1990-'93), general ophthalmology, and Charles Finley, M.D. (1995-'98), glaucoma.

• RICKI D. DOBBS, M.D., O.D. (1983-'86), lives and practices in Montgomery, Alabama. He will travel in June to work with medical missionary Glen Smith, M.D., at his clinic in Turkana, Kenya. Dobbs will be accompanied by his son, Matt, who is a premed student at Furman University.

• BRAD SCHUSTER, M.D. (1986-'89), lives with his wife and two sons in Denver, where he is chairman of the national glaucoma subcommittee for Kaiser Permanente. He is also an assistant clinical professor of ophthalmology at the University of Colorado Health Sciences Center.

• REBECCA JONES, M.D. (1991-'94), currently practices at the DeHaven Eye Clinic in Tyler, Texas. Her husband, Mark, who completed his doctor of ministry degree at Samford University, is director of the Baptist Student Ministry at Tyler Junior College.

• JOHN Y. KOH, M.D. (1991-'94), is Ophthalmology Residency Program director at Sinai-Grace Hospital of Detroit. He is also clinical assistant professor of ophthalmology at Wayne State University School of Medicine and recently entered private practice with another cosmetic surgeon. He lives with his wife, Renee Coleman, and their newborn daughter, Anna Kim, in Southfield, Michigan.

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