



SANDUK RUIT

Raised in a poor and isolated village in the highlands of eastern Nepal, Sanduk Ruit has journeyed far to become a highly skilled eye surgeon with a reputation that extends well beyond his own country. In another, more important sense, however, he has stayed close to home. He has tirelessly worked among his people, forsaking the opportunity to pursue a lucrative practice elsewhere. Even more important, he has dedicated himself wholly to building a remarkable ophthalmologic institution, the Tilganga Eye Centre, which has demonstrated that the best medical service need not exclude the poor in the less developed parts of the world.

It is a remarkable achievement. In one of the world's poorest countries, Sanduk Ruit has built for the world a successful model for scientifically advanced, socially responsive medical care.

SANDUK Ruit was born on September 4, 1954 in the tiny, remote village of Olanchungola in the district of Taplejung in northeast Nepal. Located at an elevation of eleven thousand feet in the foothills of the world's third highest mountain, Mt. Kanchenjunga, Olanchungola is a study in ironic contrast. It is in one of Nepal's most beautiful areas because of the stunning Himalayan landscape, its high mountain lakes, dense forest of rhododendron, oak, and pine, and diverse wildlife. Yet Olanchungola is a poor, neglected village. At the time Ruit was growing up, the villagers subsisted on very little agriculture, small-scale livestock raising (mostly yaks and goats), and petty trading. The village had no electricity, and the nearest school was some eleven days' walk away. People lived in little wood-and-mud dwellings, huddled in the snowy cold that blanketed the village for eight to nine months in a year.

Ruit's family was relatively better off by local standards. His mother was the daughter of the village headman, a simple and practical woman who resolutely took care of her husband and looked after the children. His father, Sonam Ruit, made a living on the barter trade between Nepal and Tibet, dealing in articles like salt from Tibet in exchange for rice and grains from Nepal, and, later, in Tibetan precious stones and antiques. Ruit narrates that his father, who may have descended from ancestors in Tibet or southern China, was a very religious man with strong moral values formed in his practice of a Tibetan form of Buddhism, following the teachings of Padmasambhava, also known as Guru Rinpoche.

As a trader, his father was frequently away from home, traveling on foot, and at times going as far away as Calcutta (now Kolkata), which was about twenty days away on foot, unless one also traveled by truck or train. Despite such absences, however, Ruit recalls an ordinary childhood. The second to the eldest of three brothers and three sisters, he grew up surrounded by caring relatives from both his father's side and his mother's.

Sonam was a determined person who decided early on that he was going to give his children an education. For about four years until he was seven, Sanduk Ruit had his first literacy lessons, in English and Nepali, tutored by a person his father got from the district customs office who came to their house once or twice a week.

IN 1961, when Ruit was seven, his father took him to attend a Jesuit missionary school called St. Robert's School in Darjeeling, an old town in the Indian state of West Bengal. Darjeeling was about twelve days' walk across the high pass at the Indian border from Ruit's village. Ruit remembers sleeping nights in caves and climbing up and down steep mountains in the long trek to Darjeeling. With his family scrimping to pay for his tuition and board, the boy from Olanchungola stayed in the school's boarding house, Bellarmine Hostel, a two-story "old English-type" building. His stay at St. Robert's would last for seven years.

Discipline in the all-boys' school, which had around five hundred students, was strict (the school was run by Jesuits and local lay people). Students wore uniforms and were taught the Christian doctrine and made to recite Christian prayers. Catholicism, however, was not imposed. In this setting, the young Ruit managed to have some fun, playing and watching soccer games, and occasionally going to the cinema. But Darjeeling, Ruit recalls, had "few attractions." He remembers his stay in the Indian town as a lonely time. He was separated from his family: his father was able to visit him only once a year, and in the years he was at St. Robert's, he visited his village only five times. Winters in Darjeeling were harsh (though he had a distant uncle in Darjeeling with whose family he would spend the winter vacation). Ruit remembers finding solace by spending a lot of his time reading in the library. In Darjeeling, he cultivated an early interest in geography, fascinated by the lure of other places and other cultures.

His studies were interrupted by the Sino-Indian War that broke out in 1962, the result of border disputes in the Himalayas. Schools in the border region were shut down as the Indians and the Chinese waged war at the border. Because of its proximity to the disputed areas in the Himalayas, Darjeeling experienced bombing runs. "Every night we had blackouts," Ruit recalls.

In 1968, he returned to Nepal, to Kathmandu where he attended a small and inexpensive boarding school, Vanasthali School, and earned his School Learning Certificate (SLC). He was in Vanasthali for about two years and was sick most of the time, perhaps because of the bad food in the school hostel. After Vanasthali, he moved to Tri-Chandra College in Kathmandu where he completed his intermediate education.

In his last year in Vanasthali, his family moved from their village to the town of Dhankuta, which was relatively closer to Kathmandu and which therefore allowed Ruit to visit his family more frequently. His father had by this time changed his business to trading in medicinal herbs. The family, however, subsequently moved to Kathmandu, where Ruit's siblings pursued their own education. (His eldest brother earned a bachelor's degree in business management and is now working in the United States.)

It was while his family was in Kathmandu, and just before Ruit got his SLC, that his youngest sister died of untreated, drug-resistant tuberculosis because no "second-line" medicines were available. The death disturbed Ruit so much that he said to himself, "That's what I have to do now. Get into medicine and see what this problem is all about." Prior to the tragedy—Ruit says, smiling—his ambition was to be a "flyer," a traveler or member of an expedition, going to distant places and meeting people.

His aptitude for science in school helped pave the way for his medical studies. In 1972, he was selected by the Ministry of Education for a scholarship in medicine, and since there were no medical schools in Nepal, he was nominated to go to one of the prestigious medical schools in India, the King George Medical College in the city of Lucknow in Uttar Pradesh. King George was a premier medical school that attracted students not only from India and Nepal but also from Malaysia, Thailand, and South Africa. Ruit stayed at King George (now part of the Chhatrapati Shahuji Maharaj Medical University) for seven years, living in a university hostel.

He enjoyed his medical studies very much, Ruit says. From this point on, he would devote his life wholly to the practice of medicine.

After earning his bachelor's degree in medicine in 1978, Sanduk Ruit went back to Nepal and worked as a general medical officer in the Bir General Hospital in Kathmandu, a government posting that was part of his having been a recipient of a government scholarship. As a medical officer, he did a lot of everything and

was often sent to the field where he had the occasion to participate in the early “eye camps” (moveable rural eye clinics) that were then conducted.

In the 1970s, the government ran eye camps but these were few and far between and accounted for less than eight hundred cataract surgeries per year. The standard procedure then was intravascular cataract extraction with five sutures without intraocular lens implants. The procedure was complicated, required the patient to use thick glasses afterwards, and often led to limited improvements in vision as well as serious complications.

In 1978-79, Ruit participated in the National Survey of Blindness as one of the general medical officers working with a team of expert ophthalmologists. Jointly funded by the World Health Organization (WHO) and local nongovernmental organizations, the survey was a great learning experience for the young Ruit. The survey revealed that 80 percent of the cases of blindness in the country—of which 70 percent was due to cataract—was avoidable but that the problem had remained largely unaddressed because the quality of surgery was very bad, and treatment procedures complicated and rudimentary.

BLINDNESS was a major problem in Nepal. Cataract is the most common cause of blindness worldwide, and the Himalayan region has the highest reported rate of cataract blindness anywhere in the world. The reason for this high incidence is unknown, but researchers suspect genetics, diet, and the intense ultraviolet radiation at high altitudes. The problem was aggravated by the lack of ophthalmic facilities and skilled medical manpower in the region.

Ruit appreciated the fact that blindness was not just a simple medical problem. Its emotional and economic ramifications affected individuals, families, and communities. It meant, Ruit says, “a shortened life expectancy, decreased income, decreased employment, decreased social standing, decreased authority-making within the family, and an increase in the family burden.”

Ruit’s decision to specialize in ophthalmology came out of his participation in the National Survey of Blindness. He remembers in particular his experience assisting Dr. N. C. Rai, a senior ophthalmologist, on a surgical mission to western Nepal in 1979, during which he saw the long line of patients waiting to be served. The experience impressed on him the gravity of the problem of blindness. He was struck as well, while working in the eye camp, by how quickly people could be helped, their lives changed, in so short a period of time if only the expertise and equipment were available. He later said, “It was an overwhelming experience to see that a small effort could make a huge impact on the lives of the poor rural people.”

As a result of the survey, the Nepali Prevention of Blindness Program was launched in 1980. The program was started by Dr. Ram Prasad Pokhrel, a Nepali ophthalmologist recently returned from the United Kingdom, and Dr. Nicole Grasset, who was the program director of the National Survey of Blindness. London-educated Dr. Pokhrel was then at the head of the movement to develop the eye care infrastructure in Nepal. A remarkable Frenchwoman from Switzerland, Dr. Grasset had just finished a successful campaign for the eradication of smallpox in India and had decided to devote herself to the fight against blindness.

Working as a medical officer for the program, Ruit participated in conducting eye camps in rural Nepal. He was dismayed, however, by the lack of equipment and training for modern cataract surgery. But it was while he was involved in these activities that he received a WHO fellowship to do postgraduate work in ophthalmology at India’s top medical college, All India Institute of Medical Sciences (AIIMS) in New Delhi. Ruit earned his MD in ophthalmology in 1984, after three years of residency, during which he polished his skills in microscopic surgery (the use of surgical microscopes was not yet common at the time).

In 1984, he went to work as a junior resident in the Nepal Eye Hospital, which was established in 1982 as Nepal’s first eye hospital. His interest in cornea and cataract surgery was further developed at the Nepal Eye Hospital when he came under the mentorship of Dr. Richard Litwin. An American surgeon, Litwin worked for many years teaching cataract surgery in India, Nepal, and other parts of Asia. He is the first person to perform cataract surgery, using intraocular lens implants, in Nepal.

A turning point came in 1985 when he met Fred Hollows, a New Zealander based in Sydney who was working as a WHO consultant on a trachoma survey in Nepal. (Trachoma was Hollows' interest at this time as he had done work on the problem among Australian aborigines.) Assigned to assist Hollows (who stayed in Nepal for about five years), Ruit worked with Hollows on medical missions in western Nepal. This started a strong friendship between Ruit and the New Zealander he calls "a wonderful soul mate."

The years that followed opened up opportunities for Ruit to further develop his medical skills. He was, he says, "extremely hungry for modern technology" at the time and wanted to learn all he could about the latest in medicine in more advanced countries. In 1986-87, he went on a short-term fellowship in microsurgery to the Wilmer Eye Institute at Johns Hopkins University in Baltimore and also took a summer course in epidemiology at the University of Michigan. Then he went on another short fellowship to the Amsterdam Medical Center in the Netherlands (a center for modern cataract surgery), eager to see and learn from the famous eye surgeons Jan Worst and Cornelius Binkhorst, who were then leading the way in intraocular lens surgery.

Then, in 1987, shortly after Ruit married his wife Nanda (a surgical nurse in the eye hospital where he worked), he went to Sydney for a fellowship at the Prince of Wales Hospital that Fred Hollows helped arrange. For fourteen intensive months, Ruit worked with Hollows, learning modern cataract surgery and mastering the techniques for implanting intraocular lenses.

For Ruit, Hollows was a mentor and friend who not only taught medical techniques but also took medicine as a high social calling. The two shared the same views on medicine and life: that people living in developing countries should have access to affordable and quality medical care, that no one in the world should be needlessly blind. Of Fred Hollows, Ruit says: "He was a good teacher. I would have been in a different place if I hadn't met Fred, would have been earning a lot of money, but it would have been boring. My life now is very full." Hollows returns the compliment, saying: "If I've done nothing in my life but encourage Ruit, I'll have died a happy man."

Together, they dreamed of taking the latest in cataract surgery to Nepal and other parts of the developing world. To accomplish this, Hollows and Ruit—together with Gabi Hollows (Fred's wife) and Tim McCartney-Snape (a world-renowned Australian mountaineer)—established in 1988 the Nepal Eye Program Australia (NEPA), based in Sydney, to support and raise funds for the Prevention of Blindness Program in Nepal.

At this time, modern cataract surgery, using intraocular lens (IOL) implants, was uncommon in developing countries. The first successful intraocular lens implant was done in London in 1949, but widespread acceptance of this method in cataract surgery did not come until the 1970s. Until then most cataract operations in developing countries involved removing the whole lens from the eye, including the thin capsule which contained it. Because the natural lens of the eye had been removed, the patient was left with no focusing mechanism and needed "Coke bottle-thick" glasses that afforded poor quality vision. It was not until a plastic lens made from polymethyl methacrylate was developed (the lens used to be made of glass), and with further developments in lens design and surgical techniques, that IOLs became more accepted.

In countries like Nepal, however, the use of IOLs was not deemed realistic or feasible. There were three big obstacles to its being used: the cost and complexity of the surgical technique, cost of high-quality IOLs, and cost and complexity of the equipment used. Hollows and Ruit were determined to challenge these conditions by demonstrating that the modern technique was not only feasible for countries like Nepal but also more effective and resource efficient than the traditional method.

BACK in Nepal from Australia, Ruit launched into his new mission. He had left government service and was a private practitioner affiliated with the Nepal Eye Hospital. With NEPA's support, he conducted eye camps

in rural Nepal, pioneering in doing eye surgical operations “in the bush.” He became the first Nepali doctor to perform cataract surgery with intraocular lens implants.

He worked with a small team of paramedical personnel and one doctor, a gifted local ophthalmologist named Reeta Gurung. Help also came from Rex Shore, a retired ambulance driver from Sydney who loved Nepal and was so impressed by Ruit’s work that he volunteered to help in the eye camps, acting as NEPA coordinator and Ruit’s de facto executive assistant.

The team did five to seven eye camps a year and, because of the modest funding available, rode public buses and stayed in cheap teahouses. They performed surgical procedures in school buildings, conscripted local volunteers as assistants, used portable generators for electricity (and flashlights when the generators failed), and experimented with sterilization procedures by using pressure cookers. They used ordinary microscopes in the beginning (and in the process, also did research-and-development work for Scan Optics, an Australian manufacturer of optical equipment, in developing low-cost microscopes).

The camps conducted by Sanduk Ruit were the first to introduce the use of intraocular lenses in cataract surgery in Nepal. Before this, people who had cataract surgery were given crude, thick glasses that allowed only a poor quality of vision with terrible distortions in peripheral vision that made life on uneven mountain trails difficult, a fact that seriously mattered to rural people in Nepal’s rugged terrain.

Sometime in mid-1988, Ruit called up Hollows in Australia, telling him they had started using implants in the camps. Hollows replied, astounded: “You did what?” Ruit replied, “We’ve done implants in the camps.” Excited, Hollows immediately made plans to fly to Nepal, where together with Nicole Grasset, he joined Ruit in a workshop camp in southern Nepal. Enthusiastic about the work that had been accomplished, they discussed the prospects of manufacturing intraocular lenses in Nepal. The cost of imported IOLs was an important obstacle to their being used in the country. At the time, only the rich could get these implants by flying to India or Thailand for surgery. The cost of an IOL at the time was about a hundred U.S. dollars though the raw material cost just about fifty cents per piece. Manufacturing it locally seemed imperative.

Word about Ruit’s eye camps quickly spread, drawing the attention of world experts and the International Agency for the Prevention of Blindness (IAPB). Among those who came to observe Ruit’s work, and who was impressed, was Alfred Sommer, an internationally renowned ophthalmologist from the Johns Hopkins University School of Medicine.

There were those in the medical establishment, however, who were critical of the surgical innovations he was making “in the bush.” The experts worried about the “primitive” operating conditions and said there was a need to do randomized clinical trials. The use of intraocular implants in Nepal was considered a “mad concept” because it was too expensive, the expertise did not exist, and the needed equipment and facilities were not available.

Skepticism over Ruit’s methods, in part, spurred an international cataract conference in Kathmandu in which experts debated the merits of intracapsular (the conventional method of giving glasses) against intraocular lenses in countries like Nepal. The debate at the conference, which took place at the Yak and Yeti Hotel in Kathmandu, was so heated that Ruit and Hollows walked out of the meeting. Hollows was upset that “American imperialists” were withholding a technique to poor people just because operating conditions allegedly did not meet the dictates of developed nations and there was skepticism about making advanced Western technology accessible to poor countries.

Ruit and Hollows, however, were on their way to proving the critics wrong.

IN 1992, NEPA came under the umbrella of the Fred Hollows Foundation (FHF), which was launched on September 3 of that year. Hollows and his wife Gabi, with the help of friends and colleagues like Michael Linskey, a public relations expert, established the foundation. It was formed to support, among others, the

building of intraocular lens manufacturing laboratories in Nepal and other developing countries. (As a development aid organization, the Australia-based foundation has since supported eye care projects in more than thirty countries.)

Hollows, Ruit, and their colleagues saw the need for an autonomous center in Nepal that would address the blindness problem by using a three-pronged approach: (1) adopt and simplify Western microsurgical techniques for local conditions, (2) make intraocular lenses affordable, and (3) bring down the cost of accessory equipment, like microscopes. For these purposes, they got together a representative group of people successful in their respective fields to form a Board of Trustees for the planned center. Work was begun to establish what was later called the Fred Hollows Intraocular Lens Laboratory in Kathmandu, which would produce cheap, high-quality lenses and thus make Nepal self-sufficient in this medical technology. At the same time, NEPA began raising funds for the establishment of a surgical facility equipped with modern operating facilities and trained medical personnel.

The construction of a building began in 1992. Land was donated by the Pashupatinath Area Development Trust, and various forms of assistance came from NEPA, the Australian Embassy, through Ambassador Les Douglas, a Buddhist organization called Ananda Sangh (founded by the Third Jamgon Kongtrul Rinpoche), and the trustees of the new eye center.

In June 1994, the Tilganga Eye Centre (TEC) was opened in Kathmandu. The facility included, in the same compound, the Surgicentre, the Fred Hollows Intraocular Lens Laboratory, and an eye bank. The late King Birendra Bir Bikram Shah Dev and four hundred guests, including Gabi Hollows, attended the center's opening. Fred Hollows had passed away the year before at the age of sixty-four. Gabi, paying tribute to her husband, said on the occasion: "I think that we will be creating a precedent in international ophthalmology. It will show that everyone has a right to sight."

Early on, TEC was also involved in the Himalayan Cataract Project USA (HCP), which Ruit cofounded with Geoffrey Tabin. Founded in 1994, HCP began after Ruit met Tabin, a professor of surgery at the University of Vermont College of Medicine. An avid mountaineer (he is the first ophthalmologist to reach the summit of Mt. Everest), Tabin first worked with Ruit when the Fred Hollows Foundation sent him to join Ruit's team at a cataract camp in Jiri, a small town in the mountains of Nepal. Of the experience, Tabin wrote:

Every patient we operated on in Jiri was totally blind before surgery. When we removed the bandages the following day, all of them could see, many for the first time in several years. The atmosphere at our eye camp was like that of a religious revival meeting. The joy was infectious. I was a convert.

Inspired by the work Ruit and his team were doing in Nepal, Tabin initiated the HCP as a charitable foundation to train doctors and nurses in microsurgery and lens implantation throughout the Himalayan region. Since then, HCP has helped TEC fund projects empowering local physicians to alleviate the suffering caused by blindness, including skills-transfer education, research, and the creation of a network of eye care facilities. In conjunction with TEC and the Fred Hollows Foundation, HCP continuously conducts high-volume cataract surgery camps in the Himalayan region. (Tabin is now based in the Moran Eye Center at the University of Utah and visits Nepal regularly as well as other places where HCP has projects, which include Bhutan, Tibet, India, Pakistan, southern China, and North Korea.)

Since TEC's establishment, the Himalayan Cataract Project and the Fred Hollows Foundation have been its most active international partners.

THERE were challenges as TEC moved forward. In the same way that Ruit's innovations in the rural eye camps were met with skepticism by the medical establishment, TEC's entry into IOL manufacturing ran

into resistance from multinational companies worried that the Fred Hollows manufacturing laboratory was “undermining” the market. There were moves to harass, regulate, and block the entry of TEC IOLs to other countries. TEC, of course, was interested in spreading the benefits of cheaper IOLs to the developing world while preventing their commercialization. Ruit recognized the difficulties of dealing with the market as well as the need to establish clear protocols for the distribution of the TEC-manufactured IOLs in a way that would protect and preserve the center’s mission of social access. For TEC, the focus is always on affordability, in comparison to the products of leading multinational companies, combined with uncompromised quality.

Given the limited resources available and the ambitious and pioneering nature of its goals, it was not clear in the beginning how far the Tilganga Eye Center could go. Its international partners, the Fred Hollows Foundation and the Himalayan Cataract Project, were then also in the early stages of formation.

The center started with just two ophthalmologists, Sanduk Ruit and Reeta Gurung. Educated in Leningrad and London, Gurung joined the TEC team in 1993 and would assume the role of TEC Deputy Medical Director and Ruit’s “right hand.” Gurung remembers that the early days of TEC were uncertain. “We didn’t have money in the first place. There were only the two of us [surgeons]. In the back of my mind I thought, ‘What would we do if we didn’t get patients?’ And then, ‘What would we do if we do get them?’”

In the space of ten years, however, TEC would rapidly evolve from being a small eye clinic to a model tertiary eye hospital. Its surgical staff has grown to include ten ophthalmologists, handling 450 to 500 patients daily. Its innovative programs on several fronts have won it international renown as an integrated eye care facility with a broad social mission. Ruit has expressed this mission well:

The primary focus is to deliver extremely high quality eye care. We always believe that vision and sight are such [essential] things that you can never say that there are children of a lesser god. There has to be one standard of care for everybody and every patient should be able to see very well.

TEC is organized as a nonprofit, community-based, nongovernmental institution dedicated to providing ophthalmic care to the people of Nepal and neighboring countries. Managed in efficient corporate style, its Board of Directors represents a cross-section of the Nepali community: industrialists, businessmen, a social worker, lawyer, filmmaker, and eye surgeon.

TEC has six divisions: the Surgicentre, the Fred Hollows Intraocular Lens Laboratory, the Nepal Eye Bank, an education and training department, a research unit, and an outreach unit.

The Surgicentre is a modern, full-service ophthalmic facility that delivers state-of-the-art eye care to patients. With a staff of sixty members, it handles an average of two thousand patients per week. In 2001, for instance, a total of 126,469 patients were examined and 8,572 major operations were conducted. In just around ten years since its establishment, the center has expanded to include subspecialty clinics dealing with vitreo-retinal, cornea, oculoplastic, glaucoma, pediatric, and uvea-related problems. In this period, TEC has served a million patients. Over eighty-two thousand operations have been performed.

The Surgicentre generates 100 percent of its running costs through patient fees. A cost-recovery scheme utilizes tier pricing and cross-subsidy where poorer patients receive indirect assistance from those who can afford to pay for treatment. This scheme has allowed TEC to serve those who could not otherwise avail themselves of its services. Of the patients treated or operated at the Surgicentre over the years, it is estimated that 66 percent are full-paying, 18 percent are subsidized, and 16 percent are free.

TEC's Nepal Eye Bank operates an eye donation program for corneal transplant operations. Devoted to the fight against corneal blindness, which is the second major cause of blindness after cataract in Nepal, it procures, stores, and distributes corneas. The country's first eye bank, it was established with the generous help of the International Federation of Eye and Tissue Banks (IFETB) and Lions International, and was inaugurated on September 16, 1994 by His Royal Highness Crown Prince Dipendra Bir Bikram Shah Dev.

TEC has run a successful public awareness program to encourage eye donations. Its success, despite the religious and cultural factors that usually inhibit such donations, is due in large part to its culturally-sensitive approaches in getting Buddhist monks, Hindu priests, and local community leaders to support the practice of eye donation. Between 1994 and 2006, TEC technicians harvested over 1,600 corneas and received pledges from over twenty-one thousand potential donors. Most of the corneas collected are used in TEC where over 840 corneal transplant operations have been performed between 1994 and 2006.

In 2006, with assistance from the Jan Kok Fund (Netherlands), the Eye Bank established a corneal excision center in the crematorium of the Pashupatinath Temple, one of the largest Hindu temple complexes in South Asia, located in the outskirts of Kathmandu. It is a fine example of the center's community-based, socially-sensitive approach to eye donation. TEC worked to get the cooperation of the cremators and temple officials, set up a special room for excisions, and ran a grief counseling booth with the help of the local Lions Club. TEC has also organized commemorative ceremonies that bring together donor families and the patients who have had cornea transplants.

TEC's Nepal Eye Bank has made Nepal self-sufficient in corneas for transplant, something that few other countries in the world can claim. The expenses of the Eye Bank are met primarily through donations from local philanthropists and subsidies from the TEC Surgicentre. All procedures are performed free of cost. TEC has also supplied at no charge corneal tissues for transplant surgeries to eye hospitals both inside and outside Nepal.

A core division of TEC is the Fred Hollows Intraocular Lens Laboratory, which specializes in the production of world-class, state-of-the-art intraocular lenses for use in modern cataract surgery. The establishment of the laboratory was already the dream of Fred Hollows and Sanduk Ruit in the early 1990s. They resolved to bring to Nepal affordable and high-quality IOLs by manufacturing these lenses right in Nepal. Thus, with initial funding and technology transfer from the Fred Hollows Foundation, the laboratory was commissioned in 1995.

The lenses produced in the Fred Hollows IOL Laboratory have been tested against major brands around the world and have proven to be "second to none." Yet these lenses cost around US\$6 to US\$10 each in Nepal against US\$150 in Australia, for instance. Nepalis pay about US\$150 (or less or none at all in the case of the poor) to have their sight restored, as against US\$2,000 for Australians in a public hospital in Australia.

A world-class IOL manufacturer, the laboratory presently has a staff of seventy-two people and produces nearly three hundred thousand lenses a year for use in Nepal and for export to developing countries. As of 2006, it was exporting lenses to fifty countries for about US\$6.00 a lens. Its success story is unprecedented in the region.

TILGANGA Eye Centre has developed into a dynamic center for education, research, and outreach activities. Its programs have contributed significantly to making eye care the most developed medical field in Nepal.

TEC views its involvement in training vital due to the need for skilled human resources to carry out clinical, preventive, promotive, and rehabilitative roles at the community level. Its education and training department is heavily involved in training surgeons, nurses, hospital managers, and paramedical personnel through its MD residency program in ophthalmology, a course leading to a certificate program in health

science in ophthalmology, and short training programs for community health workers and pharmacy professionals. These programs have attracted not only local but also international medical personnel and eye health workers. In conducting these programs, TEC collaborates with institutions like Dhulikhel Medical Institute/Kathmandu University, Dhulikhel Hospital, the Nepal Eye Hospital in Tripureshwor, and the Nepal Netra Jyoti Sangh (National Society for Comprehensive Eye Care).

TEC's research unit, on the other hand, conducts research activities, usually in conjunction with its academic programs, focused on improving clinical and operational activities. TEC has generated numerous projects and scientific papers aimed at decision-makers and medical professionals. Its scientific papers (many of which are authored or coauthored by Ruit) have appeared in local and international medical journals. Moreover, TEC has engaged in research-and-development work aimed at remodeling equipment—such as operating microscopes and YAG lasers—to make them low-cost and portable without sacrificing quality. As always, social access has been the watchword in TEC's activities.

A core activity in TEC's outreach program is its famous eye camp. This consists, annually, of twelve eye camps—which TEC now calls Outreach Microsurgery Eye Clinics (OMECs)—in remote areas of Nepal, in addition to thirty-five one-day screening clinics in Nepal and neighboring countries. In conducting these rural eye camps, TEC partners with local schools, civic organizations, youth groups, and social clubs. While there are other institutions and organizations conducting eye camps in Nepal, TEC accounts for 51 percent of the total cataract surgery conducted in these camps.

Beginning in 2001, TEC established Community Eye Centers to extend its reach and bolster the country's medical infrastructure. There are now six of these centers located in Makawanpur (Hetauda), Ramechhap (Manthali), Dhading (Dhading Besi), Solukhumbu (Phaplu), and Sindhu (Sindhupalchok). Staffed by a trained Ophthalmic Assistant and an Eye Worker, each center provides health education, screening, and clinical services.

In 2002, with the help of the Himalayan Cataract Project, TEC opened a Community Eye Care Annex to expand the medical services of its facility in Kathmandu, which had grown strained because of the overflow of patients. Further expansion of the facility was begun in 2005 with the help of HCP and other agencies.

TEC has reached out beyond Nepal to countries underserved by modern medicine. As early as 1990, Fred Hollows and Sanduk Ruit, under the auspices of the Fred Hollows Foundation, already carried out training in ophthalmic medicine in Vietnam, with emphasis on appropriate and affordable treatment. The foundation also donated microscopes in conjunction with this training. Since then, Ruit and TEC have been active in other countries. In 2005, for instance, Ruit and a team from TEC performed the first modern cataract surgery in North Korea, restoring sight to nearly a thousand people as well as training and equipping the country's first microsurgeons.

Motivated by the aim of extending its skill, experience, and technology to other developing countries, TEC has conducted public awareness programs, training workshops, and surgical camps in Tibet, Bangladesh, Bhutan, India, Cambodia, China, and North Korea. Building on these initiatives, it has helped develop sister institutions in Kalimpong and Darjeeling in India (2002), Lhasa in Tibet (2004), Pyongyang in North Korea (2006), and Quinghai in China (2007).

More than five hundred surgeons across Asia have now learned Ruit's path-breaking techniques. "We Nepalese have never been known to give anything to other parts of the world," he says. "I feel proud that we have given this expertise to many countries."

ACKNOWLEDGED as the founder of Tilganga Eye Centre, Sanduk Ruit acts as its medical director and also serves as member and secretary of its board of directors. He is the moving spirit in an institution that has

treated a million people since its establishment. A decade ago, Ruit was nearly alone in performing modern cataract surgery, but by 2002 there were over a hundred thousand annual cataract surgeries in the country and 97 percent of them used modern methods.

The first Nepali doctor to perform cataract surgery with intraocular lens implants, he pioneered in the use of microsurgical extracapsular cataract extraction with posterior chamber lens implants. He modified and simplified established practice by introducing different techniques in incision and suturing procedures and inserting the lens without the use of very expensive viscoelastic materials. In 1996, Ruit and his team developed a sutureless form of cataract surgery that allows safe, high-volume, low-budget operations. The innovation was heralded around the world and is now widely used.

Ruit works hard. A masterful surgeon, he can perform dozens of flawless cataract operations at eye camps over a twelve-hour workday. He once performed 101 surgeries in one day, which is said to be an unofficial world record. Yet he remains consummate as a surgeon, insists on high standards for everyone, and always raises the bar for his own work, an attitude that has gained him the respect of all who worked with him. His colleague Geoffrey Tabin says of Ruit, “He takes as much care and love in the surgery of the poorest of the poor as with the highest VIP.”

Sanduk Ruit’s achievement, however, goes beyond his technical and scientific skills but lies in the way he has devoted his profession and his life to the service of those who have hitherto little access to the benefits of modern medicine. He devotes a lot of time to teaching and training other people to do the kind of work he is doing. Geoffrey Tabin says, “The focus is not myself and Dr. Ruit going to the most remote area in Nepal and doing fifty surgeries. It’s teaching local folks how to perform thousands of operations. Lots of people Ruit has taught are now teaching others, and even some of those students are now teaching as well.”

Ruit, Tabin adds, “has changed eye care for the whole region.” He is an important part of the story that has made Nepal—one of the world’s poorest countries—self-reliant in its blindness prevention and eradication campaign and a model in this field for the developing world.

Today, Ruit still goes to the field to conduct eye camps and workshops, performs surgeries in and outside the Tilganga Eye Centre, and remains enthusiastic about finding ways of improving surgical processes and techniques so that the benefits of modern medicine can be brought to more people, especially the poor.

The challenge remains daunting. In the past few decades, developments in ophthalmology have been rapid as new machines, lens designs, materials, medicines, and techniques have been developed. These have resulted in cataract surgery that is quicker, safer, and more effective, with greater patient comfort, and fewer complications. Yet these have meant as well more expensive equipment, lenses, and materials. Ruit and TEC have consistently worked to stay on top of the field. (In 2005, for instance, TEC started to manufacture the new foldable lenses that can be injected into a three-millimeter incision opening.) Yet they are committed to assuring that the benefits of new Western innovations can be adapted to reach the greatest number of people.

As a medical professional, Ruit is excited about the scientific advances in his field. He knows, however, that these innovations become most meaningful only according to the number of people they can serve. This challenge continues to excite Ruit. He looks forward to spending more time on research-and-development work when he retires as medical director of the Tilganga Eye Centre.

SANDUK Ruit lives in Kathmandu with his wife, a son, and two daughters. He remains close to his parents and a surviving sister, who live with him in Kathmandu. Outside of his medical practice, his pastimes are modest: badminton, trekking, reading, and watching adventure movies.

Though he has received numerous honors, he remains soft-spoken and modest. His calm demeanor, however, masks an iron will. It is told that when Ruit, a Tibetan-Buddhist, married his wife Nanda, a Nepali Hindu, his parents strongly objected on religious grounds, but he remained unmoved. His parents eventually

came around after he and Nanda had their first child. He attributes his equanimity in the face of a daunting challenge to the rigors of his early years. He says, “One of the facts in life is that when you grow in extreme necessity, you tend to explore and struggle. My life has always been like that.”

Part of the challenge for Ruit is the immediate environment he has to work in. Nepal’s recent history has been marked by political instability and violence because of a Maoist insurgency, dissension in government, and conflicts over the monarchy. Strikes and street protests are a familiar part of life in Kathmandu. Asked about whether his work has been affected by the political turbulence in the country, Ruit replies that this has indeed made for a difficult situation for everyone, but he says, “It has never incapacitated us; it’s always more challenging when the circumstances are difficult. . . . Otherwise, you become lazy.”

Ruit once said: “When I’m in surgery, I’m in a state of almost total meditation.” He is so focused, his metabolic rate goes down, and he grows quite calm, he says, forgetting everything that is happening around him. He is not unaware, of course, of how the lives of others are transformed by what he does—the father who, because he can now see, is overjoyed that he can now work and not be his children’s dependent, or the seventy-three-year-old woman who, seeing her daughter for the first time in many years, just stared at her for a few seconds and then burst into tears.

Sanduk Ruit is a person who has found his life work and in the process, made life better for others.

Resil B. Mojares

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