

SIGHT FOR SORE EYES

Dartmouth ophthalmologist Douglas Fredrick took part recently in an international medical mission to Trinidad, and photographer Patrick Saine went along to record the sharing of knowledge that took place.

Photographs by Patrick Saine
Text by Jonathan Weisberg



At a screening session, Dr. Fredrick examines Shaquilla, who lost the function of one eye and ended up with scarring in her other eye after an earlier operation to remove cataracts. As he works, Fredrick discusses her problem with the local medical students and physicians who are there to observe the visiting specialist.

String together the words "airplane" and "Caribbean" and "island," and most people would picture a flight to an exotic destination for a relaxing vacation amid white-sand beaches and azure seas. But for Dartmouth ophthalmologist Douglas Fredrick, M.D., and ophthalmic photographer Patrick Saine, the week in early June that they spent on Trinidad was anything but relaxing. And although they used a week of vacation to make the trip, they never even got near a beach. In fact, they spent most of their time there inside an airplane.

But not just any airplane. The pair's base of operations for the week was a DC-10 operated by Orbis International. The nonprofit organization is dedicated to spreading ophthalmologic training and know-how around the world. On this particular mission, the Orbis plane was stationed for three weeks on the smaller of the two islands that make up the Republic of Trinidad and Tobago, a tiny nation off the northern coast of Venezuela.

Fredrick and Saine joined several Orbis staffers who travel with the organization's plane, endlessly traversing the globe, plus a couple of other specialists who had signed on as volunteers for "pediatric week" at this particular stop. The plane is a mobile ophthalmic hospital. It is outfitted with an operating room as well as high-tech communications equipment. Orbis flies nearly a dozen missions a year, carrying the technology and expertise of first-world ophthalmology to third-world nations. The organization's goal is no less than eliminating all avoidable blindness worldwide.

Orbis's strategy is education. Volunteers don't just deliver care and then leave; while they're in a country, they teach new techniques and treatments to local ophthalmologists, nurses, and technicians, thereby helping more patients than could ever be treated in the plane's operating room. The organization's philosophy is based on the Chinese proverb "Give a man a fish, and you feed him for a day. Teach a man to fish, and you feed him for a lifetime." Since its start in 1982, Orbis has directly benefited some 23,000 patients, while Orbis-trained ophthalmologists have touched more than nine million lives.

The Dartmouth duo's week in Trinidad may not have been relaxing, but they definitely found it rewarding. Fredrick, who is the director of pediatric ophthalmology at Dartmouth, shared his surgical expertise, while Saine recorded the mission in photographs and also participated in its ophthalmic aspects, including giving a lecture on Web resources for ophthalmologists. Both have participated in Orbis missions before—Saine in Cuba and Jordan, and Fredrick on two trips to Asia.

During their first day on Trinidad, they participated in a screening session at a local hospital, where the Orbis ophthalmologists examined over 120 patients referred by local physicians. From that pool, they selected about a dozen to receive surgery. For the rest of the week, they spent long days in the high-tech belly of the Orbis plane, conducting surgery as well as giving lectures and demonstrations.

Patrick Saine, the director of ophthalmic photography at DHMC, is also a widely exhibited art photographer; a series of "digital quilts" that he created from retinal angiographs was the subject of the cover feature in the Summer 2000 issue of this magazine. He has worked at Dartmouth-Hitchcock since 1997. Saine's trip to Trinidad was underwritten by the Biomedical Communications Association's Endowed Fund for Education as well as by Dartmouth Medicine magazine. The text accompanying Saine's pictures is by Jonathan Weisberg, a former member of the Dartmouth Medicine staff who is now a freelance writer in New Haven, Conn. He is a 1996 graduate of Dartmouth College.



Fredrick also checks out Joshua, who suffers from strabismus, or crossed eyes. A flashlight was one of the simple tools Fredrick relied on in making diagnoses, so local ophthalmologists could replicate his techniques.



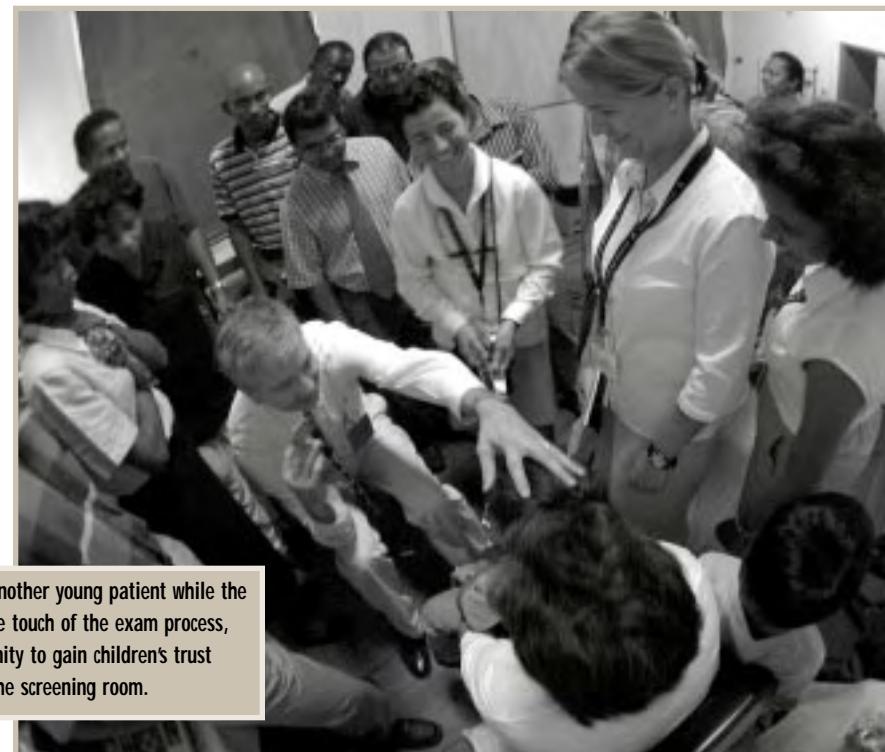
Fredrick washes his hands at the one sink in the ophthalmology area at the local hospital. He says that although the "education level of the physician is excellent" in Trinidad, the hospital technology is rudimentary by United States standards (there is no central hot water, for example) and some supplies are scarce.



Nurses from the local hospital's ophthalmology department helped to run the screening sessions. The roll of toilet paper on the desk was used instead of tissues to wipe away tears during the testing.



The familiar vision chart is another of the basic diagnostic tools that Orbis ophthalmologists use. Even without the latest laser technology, the visiting specialists can learn a lot with simple tests and a careful examination of the patient.



Fredrick stabilizes the head of another young patient while the child sits on its mother's lap. The touch of the exam process, says Fredrick, offers an opportunity to gain children's trust amid the hectic atmosphere of the screening room.



The local participants came to Trinidad at Orbis's invitation from several surrounding Caribbean nations. Their "interest level was high," says Fredrick. Here, he discusses how to rehabilitate Shaquilla's one good eye in the safest possible way —using a laser procedure, which will clear the opacification with minimal risk.



After the screening sessions, all the doctors gather to discuss the findings for each patient. Fredrick says he tried "to be Socratic in [his] approach," in order to determine the local participants' level of knowledge.



After a day of having her eyes scrutinized, Shaquilla turns the flashlight on one of her examiners. Fredrick says that pediatric week is always a favorite for the Orbis staffers, because of the opportunities for play.



In the waiting area for patients selected for surgery, Joshua's mother gives him a bite to eat while his father receives instructions from an Orbis staff member. Shaquilla and her parents wait in the next row. Fredrick says he tried to "choose cases that can be done with the technology in the country," as well as ones that can be taught effectively in a week and that provided some variety.



The next day, the volunteers and staff board the plane after a bus ride from their hotel. The plane remains on the ground during its stay and draws its water and power from the local airport.



In the waiting room aboard the plane, Shaquilla whiles away the time playing with Legos. The patch above her left eye indicates which side will be operated on.



As a token of his unusual experience, Joshua arrives carrying a toy airplane and wearing a shirt decorated with planes. Here, he is being readied for surgery.



To demonstrate how Shaquilla will get eye drops, Orbis staffers first give some to her Elmo doll. Saine says that the high-tech plane is "a whole other world [the children] never could conceive of," and the staff do all they can to help the young patients understand what is happening.



This view of the OR is through an observation window that runs alongside it. The video camera above the table broadcasts an image of the surgery to a lecture hall in the front of the plane. One local doctor scrubs in for each operation, while many more can watch and learn from the video feed.



Stuffed into the fuselage of an airplane, space in the OR is limited. It can also get very hot. Fredrick calls it an "odd experience" to be focused on an operation and then look up and see airplane windows.



Shaquilla is still clutching her Elmo doll as she's wheeled into surgery. The OR's location on a plane is evident from the row of windows to the right. Another patient left the operating room just a few minutes before, as the two visiting ophthalmologists alternate cases.



No, this isn't an in-flight movie. It's a video feed of the surgery occurring in the back of the plane. Observers can use a microphone to ask questions about the procedure, and the surgeons can respond through microphones taped to their masks, creating a "back and forth conversation."



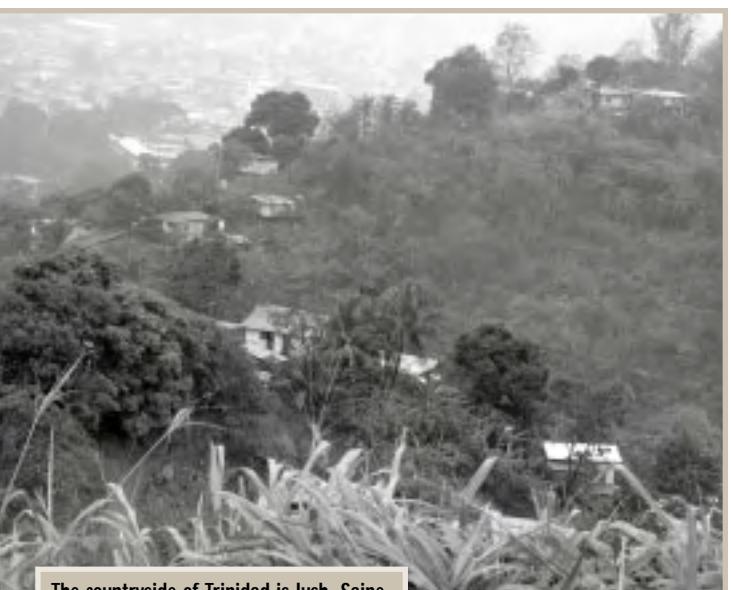
Shaquilla's mother tends to her as she awakens from the anesthesia. Her parents had been nervous about risking another surgery on their daughter's eyes, but the procedure significantly improved her vision, to everyone's relief.



Joshua's surgery was successful as well. The "world looks different to him," says Fredrick, checking his vision the next day. With his strabismus corrected, Joshua's depth perception is improved. In the tight space onboard the plane, three ophthalmologists work here simultaneously.



Fredrick credits the good nutrition available in Trinidad for the low incidence of infectious disease, a major cause of eye problems in other developing nations. The abundant fruits and vegetables at roadside stands like this one are rich in carotenes, which help to prevent the sight problems associated with vitamin A deficiency.



The countryside of Trinidad is lush. Saine says if one were stranded there, it would be possible to easily survive on the "mango trees and bananas and coconut groves—just all sorts of resources."



Fredrick says the trip was the "highlight of the year" because it allowed him to do the things "I love most about medicine": to teach, to learn, and to provide care without worrying about patients' ability to pay.