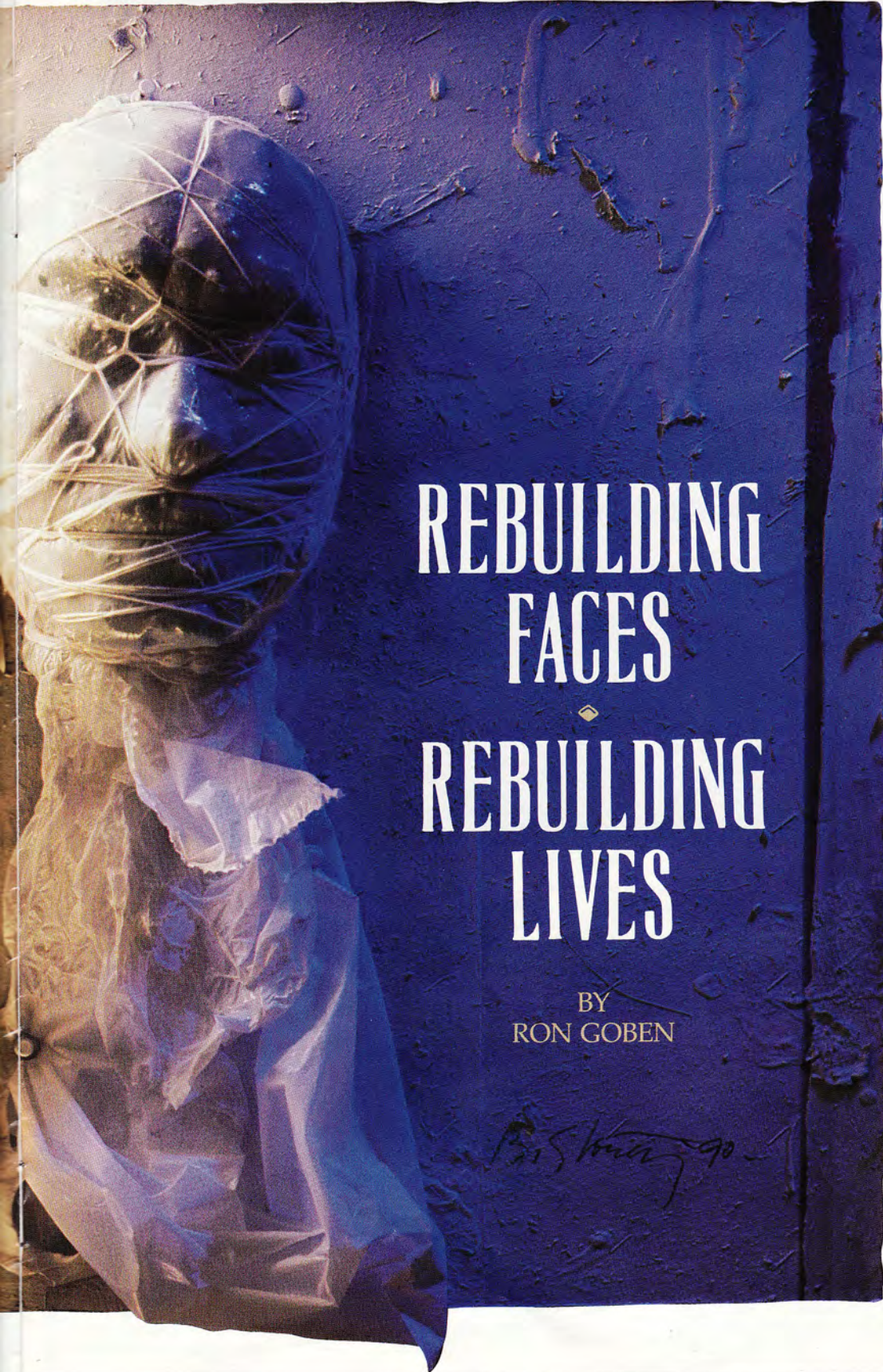


DR. STEPHEN SCHENDEL
PRACTICES THE RARE SPECIALTY OF
CRANIOMAXILLOFACIAL SURGERY,
REPAIRING DEFORMITIES CAUSED
BY TRAUMA OR GENETICS.

Reassembled Head / Craniofacial Surgery

Illustrations by Barron Storey, Photographs by Kris Knudsen



REBUILDING FACES

REBUILDING LIVES

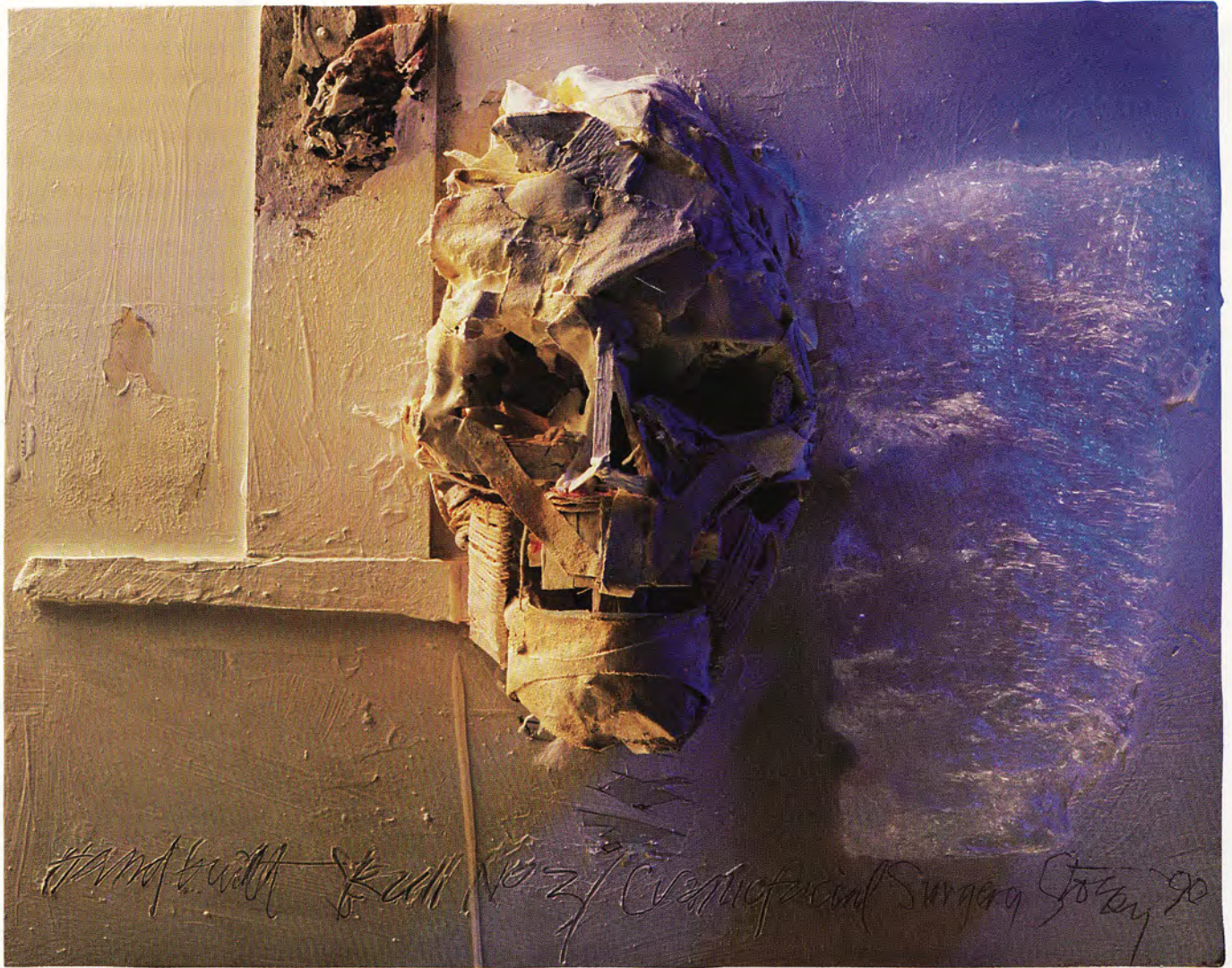
BY
RON GOBEN

The scenario is every parent's nightmare. When the Jeep Sonja Crabtree was driving overturned on a mountain road, the accident "broke every bone in her face," says her mother, Diann. "She lost sight in her right eye because the optic nerve popped out the back. Her left cheek, nose and the orbit of her left eye disintegrated. Her nose was flattened. Her whole face kind of shifted over. Her teeth went out sideways."

That was in June, 1989—barely more than a year ago. Today, Sonja is a pretty, outgoing, 19-year-old woman who is anxious to return to college. If you look closely, you can see traces of scars. But you would never guess her face had been completely reconstructed.

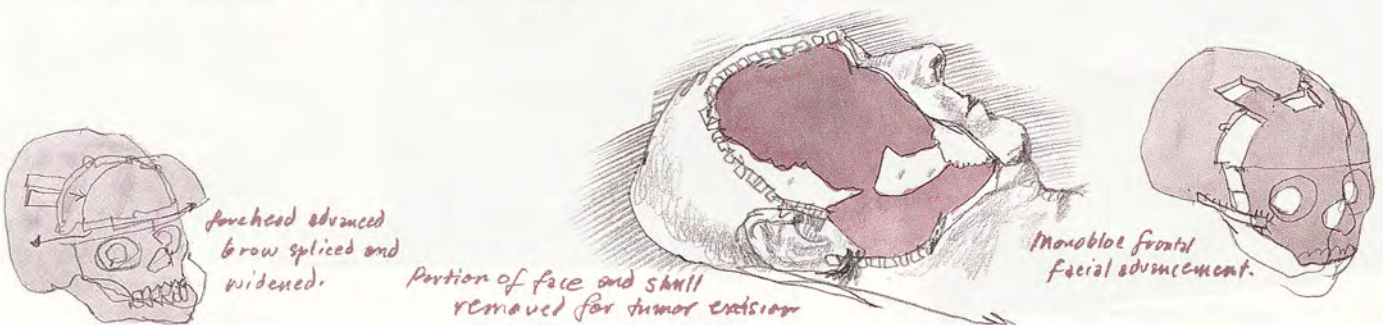
The man responsible for the reconstruction is Dr. Stephen Schendel. He holds up a photograph of Crabtree after the accident as he describes the surgery. "Her right eye is all sunken in and malformed, and she has no nose. I rebuilt her nose and cheekbones as well as the soft tissue of her eye. I brought cranial bone from the back of her head to the front for the reconstruction. For this sunken left eye, I built a new orbit, the bony framework on which the eye sits."

Schendel, who joined the Stanford faculty about a year ago, practices one of the most unusual specialties in medicine with one of the longest titles. The young dentist-turned-surgeon performs craniomaxillofacial surgery. *continued*



Handwritten text at the bottom of the painting: "Handwritten Skull No 2 / Craniomaxillofacial Surgery, Jozey '90"

Craniomaxillofacial surgery is still unknown to many potential patients—and a surprising number of physicians—which makes education a major part of Schendel's job.



*forehead advanced
brow spliced and
widened.*

*portion of face and skull
removed for tumor excision*

*Monobloc frontal
facial advancement.*

Yes, it's a mouthful. And what it means is that Schendel is an expert in three areas of surgery: the cranium, the jaw and the face. He incorporates his experience as a dentist and a physician, along with special training in oral and maxillofacial surgery as well as plastic surgery, to correct deformities that his patients such as Crabtree, have as a result of trauma, or genetics. Only four other surgeons in the world have the same combination of training.

Craniofacial surgery is a new subspecialty, Schendel notes. About 30 years ago, a Parisian physician, Dr. Paul Tessier, developed it. Schendel had the opportunity to study with him in 1987 and 1988.

"He developed a new technique to functionally and morphologically correct terrible deformities. Before him, surgeons didn't correct deformities; instead, they camouflaged them. The results," Schendel says, "were not very good."

A major portion of Schendel's work—about 75 percent—is with children.

"When you do this kind of surgery on children you are basically doing an experiment in growth and development. We know that if children have abnormalities, they grow abnormally. When you operate on them you change that. The question is: Do you normalize growth? That's my research interest."

That research, he says, focuses on facial muscle function and craniofacial growth and development—what Schendel calls "the biology of maxillofacial osteotomies."

Operating on disfigured children, he continues, requires not only a knowledge of how to correct the deformities, "but also a working knowledge and interest in growth and development in the craniofacial region. You may

operate on a child who is 1 year old or 7 years old. But you don't know what they're going to look like ultimately until they're 18 years old."

Schendel prefers to operate on children as soon as possible. He recently did a procedure called a facial bipartition on a 6-month-old girl. "Most people are doing it on 2- to 3-year olds," he says. "To my knowledge, she's the youngest child who has had the procedure."

The baby had hypertelorism, a condition in which the eyes are abnormally far apart. The distance between her eyes measured five centimeters; it should have been about two centimeters.

Facial partition, a procedure Tessier developed only six years ago, involves cutting and removing the excess bone between the eyes, building new orbits to hold the eyes and rebuilding the tendons of the eyes. The procedure is not only cosmetic, Schendel notes. The operation is necessary because if the eyes are not corrected by the time children reach age 2, they will never develop binocular vision, or depth perception.

But there's a lot more involved than binocular vision. Children with hypertelorism frequently have fibrous joints or sutures in the skull that are fused. These patients, including the six-month-old girl, will have not only misshapen heads; they'll have developmental problems as well. "There is increased pressure inside because the brain is going to grow and the skull can't enlarge to accommodate it because the sutures are fused," Schendel explains.

So while Schendel was performing the facial bipartition, he and neurosurgeon Dr. Lawrence Shuer were working on the sutures to give the child's brain the required amount of room to grow.

Such a combined neurosurgery-plastic surgery approach is not uncommon with infants, Schendel says. He and Shuer, or neurosurgeon Dr. Gary Steinberg, have collaborated on several such operations. The team concept figures naturally in Schendel's work, simply because most people with facial deformities have related problems that require the involvement of other specialties.

For example, the Craniofacial Anomalies Clinic at Children's Hospital at Stanford includes plastic surgeons such as Schendel, neurosurgeons, speech pathologists, orthodontists, dentists, social workers and genetics experts.

"We meet every other week to evaluate these children," Schendel says. "For the more complex cases, we talk to the family, discuss whether their child's condition is heritable and whether the child is going to have trouble with intelligence, speech and hearing."

In the short time that he has been at Stanford, Schendel has built up quite a reputation. Already, he has had several patients referred from neighboring states such as Oregon and Washington. Patients even have flown from the East Coast to seek out his skills.

But craniofacial surgery is still unknown to many potential patients—and a surprising number of physicians—which makes education a major part of Schendel's job.

He tells of one child who had fused sutures that were causing his head to be very narrow and grow in an abnormal way from front to back. "It's strange," he says, "but this boy wasn't picked up. Physicians kept telling the family he would grow out of it. He's now nearly 2 years old and, of course, he hasn't grown out of it. The procedure he needs is one that I like to do when a child is 6 months old.

"We have to make other physicians and the community aware that children just don't grow out of some of these things," Schendel adds. "And even if physicians think they're going to, they should be sent to the appropriate place for evaluation."

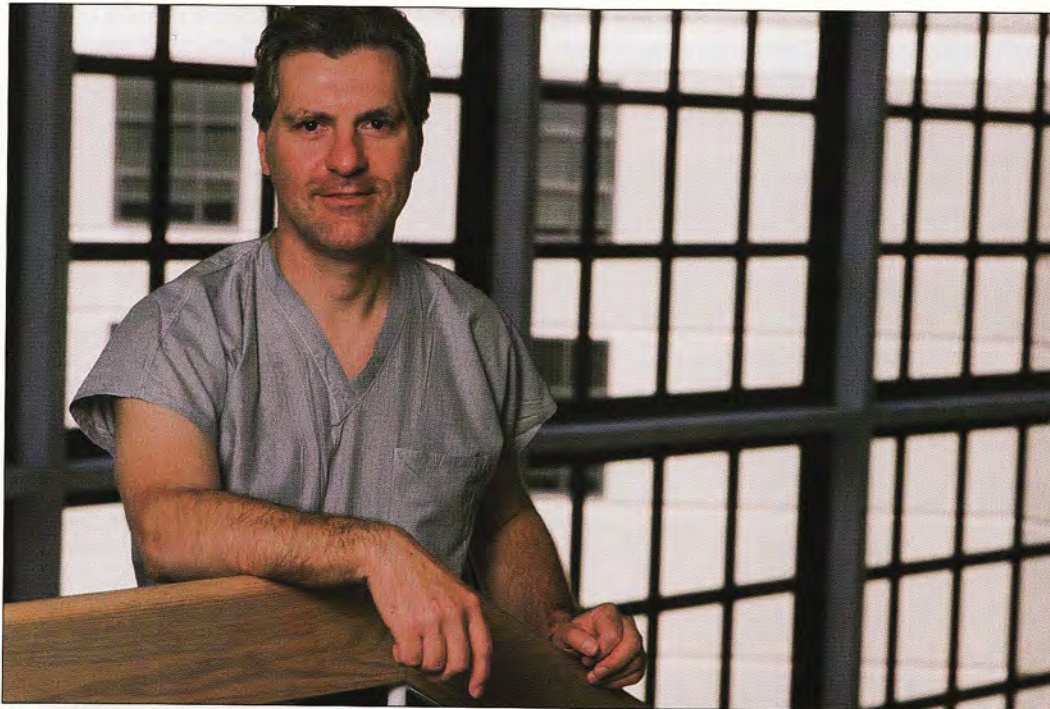
Proper evaluation is especially important, he notes, because incorrect treatment can be just as bad as no treatment. He holds up another photograph; this one is of a 30-year-old woman with Treacher-Collins Syndrome. Characteristics include eyes that slant down and malformed ears and jaws.

"This girl had had a number of operations since infancy," Schendel comments. "But they were camouflaging procedures. Instead of actually correcting the problem, the surgeons were trying to cover it up. They just don't work."

To truly correct the woman's deformities, Schendel has restructured her upper jaw and taken bone grafts from her cranium to rebuild her lower jaw. "She's going to need some work on her eyelids and ears," he reports. But she has already had a marked personality change. People like her really come around."

Schendel, too, has come around to his current career, after more than 20 years that have included stints at institutions throughout the world to acquire the expertise for the complicated operations he does every day.

After getting his dental degree from the University of Minnesota in 1973, he trained in oral and maxillofacial surgery at Parkland Memorial Hospital in Dallas. He continued his studies under a Fulbright Fellowship at the University of Nantes in France, where he was one of the first Americans to receive a diploma in maxillofacial surgery. *continued*



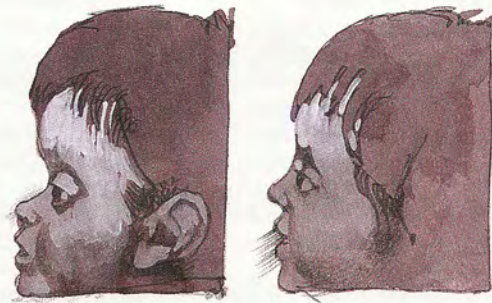
Schendel

Photograph by Tim Davis

When you do this kind of surgery on children you are basically doing an experiment in growth and development. We know that if children have abnormalities, they grow abnormally.

When you operate on them you change that.

facial advancement profiles, pre and post operative.



He was in private practice of oral and maxillofacial surgery in Hawaii when he decided to seek an M.D. "I wanted to be able to take care of the total patient," he explains. "I wanted to

be able to surgically reconstruct the total craniofacial area."

Schendel graduated in 1983 from the University of Hawaii's medical school, completed his general sur-

gery internship at Baylor University Medical Center, and then came to Stanford for residencies in general surgery and plastic surgery.

A French government research grant took him to

Paris where he served as an assistant to Tessier from 1987-88. He then returned to Stanford and joined the faculty.

Schendel's work is immensely satisfying, he says, because of the effect it has on his patients. Phrases such as "she's so much more outgoing," or "he's really a happy guy now" crop up often in his conversation.

"The face is so important in our society," he explains. "It dramatically affects the way people act. If you can make people look more normal—even if they're not completely normal—the improvement of their self-image is extremely rewarding."

Vanessa Love is a perfect example. A bubbly 17-year-old Menlo-Atherton High School student, Love has changed her career goals after a series of surgeries to repair her cleft lip and palate. Now she wants to go into the medical field. In the meantime, she's setting up a self-help group for people with the same deformities she had.

Love credits Schendel with having a major impact on those decisions. "He has become a role model in my life. I'd like to have the impact on people and be able to work with them like he does."

Schendel performed a LeFort procedure on Love, which he describes as "a reconstruction of the mid-face. I brought her upper jaw forward and rebuilt her cheekbones."

Although there is almost no trace of her disfigurement, Love knows "it will never be perfect. My face is like a picture. If you paint it too much you can ruin it."

But, she adds, carrying the art analogy one step further, "There is a bond between us. Dr. Schendel is like an artist to his picture. For me, it's like he's the person who's forming my picture." □