

Lung Transplant

Early last September James Franzen, 31, a nursery gardener in Marietta, Georgia, was lying in a hospital hours from death, his lungs destroyed after inhaling paraquat, a weed killer.

His physician, Dr. Harold Alpert, flew with him to Toronto General Hospital, which is the only hospital with a membrane oxygenator (artificial lung) where surgeons transplant lungs alone without transplanting the heart. (Transplanting both at the same time is technically easier.) The oxygenator could keep him alive for, possibly, two weeks.

A thirty-member surgical team led by Dr. Joel Cooper was standing by.

A potential donor—a man with healthy lungs who had just died—was found back in Georgia and his body was rushed north. As his lung was removed in one operating room, Franzen was being prepared in a room next door.

The operation was a clinical success—the patient survived the operation though danger-

ously high levels of the herbicide remained in his blood. He received a second lung transplant, but died of a stroke some two months after his surgery when the tube carrying oxygen from the ventilator broke through a major blood vessel.

Dr. Cooper said afterwards that he is encouraged about the future of lung transplants but not for victims of paraquat poisoning, which causes widespread damage to other muscles of the body as well as the lungs. Both transplanted lungs were working when Mr. Franzen died. A new drug called cyclosporine played a role in the operation's limited success.

When a body receives a transplanted organ, cells known as T-lymphocytes, a major part of the body's natural immune system, react as they would to any other foreign body—they attack and reject. This has been the greatest problem in the transplanting of organs. Cyclosporine contains a rare amino acid which suppresses the production of T-lymphocytes.

Sick Children

Canada's researchers and its research institutions have long had a particular focus on sick children. The first diabetic saved by insulin was a teenage boy. Since then the lives of thousands of children have been enlarged by innovative treatments. One recent example concerns an eight-year-old who had his life broadened by surgery at Toronto's famed Hospital for Sick Children.

The following description of his adventure is adapted from a report by Diane Wilson in *Saturday Night* magazine.

Michael O'Brien had a rare defect called *pectus excavatum*, a hole in his chest, about three inches long, two inches wide and two inches deep. He had been born with it, and it had deflected his ribcage and pushed his heart to the left.

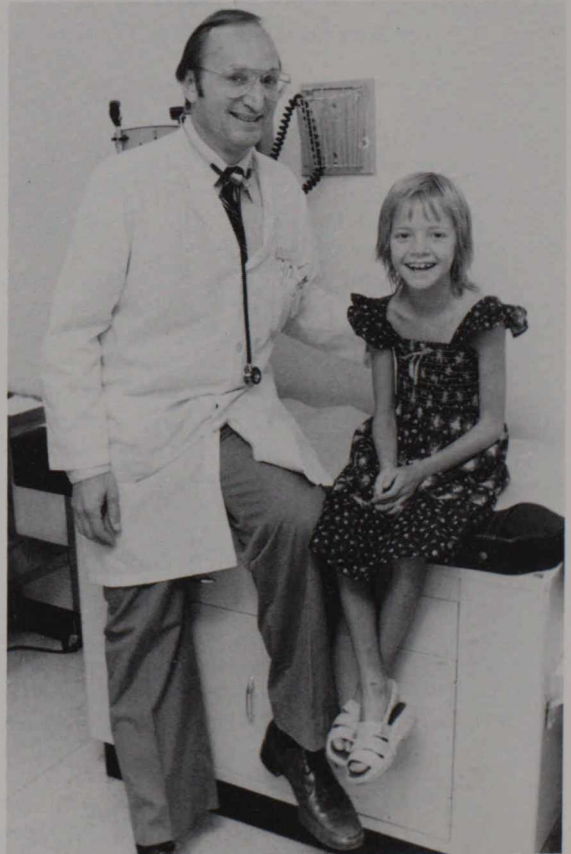
He was in the Hospital for Sick Children, about to be operated on by a team headed by Robert Filler, the hospital's surgeon-in-chief.

Nurses had demonstrated heart surgery for Michael and other young patients, unzipping a puppet and exposing its internal organs, but that was not particularly reassuring to Michael.

On the morning of the operation he was awake early and scared.

First Dr. Filler came to visit him in the pre-operating room where he and several other frightened children were waiting. The doctor exuded confidence.

Michael was then rolled into the operating room and wired to an electrocardiogram monitor. The nurse explained that this was done so that Jeremy Sloan, the anaesthetist, could listen to his



Dr. Robert Filler