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HEADLINE: The Surgery That Gave Hope for 'Blue Babies';
At Johns Hopkins 50 Years Ago, a New Approach to Congenital Heart Defects Was Born

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BODY:

It seems hardly possible that 50 years have passed since a pale and frightened 15-month-old girl was wheeled into Operating Room 703 at Johns Hopkins Hospital in Baltimore to undergo a procedure that would make medical history.

The date was Nov. 29, 1944. In Europe, men and armor were being put in place for the Battle of the Bulge, in which 81,000 Allied servicemen were to die. But in the operating room at Johns Hopkins that day a child lived, and her survival was to give hope to thousands of other "blue babies" with congenital heart defects.

The child, Eileen Saxon, was born prematurely on Aug. 3, 1943, at Hopkins. A heart murmur was detected, but nothing was done about it. Ten months later, doctors realized her blood wasn't getting enough oxygen and she became cyanotic, a condition in which the skin takes on a pale blue complexion, and she was losing consciousness. On June 25, 1944, she was admitted to the Harriet Lane Home at Hopkins, where the pediatric division was headed by physician **Helen Taussig.** It was obvious that the baby was becoming increasingly cyanotic and losing weight.

X-rays confirmed that she was suffering from pulmonary stenosis, in which the pulmonary artery was constricted, preventing an adequate supply of blood from the heart to reach the lungs, where it could receive fresh oxygen. The condition can be fatal if not corrected. It was this lack of oxygenated blood that caused Eileen's blue complexion.

Taussig immediately contacted Alfred Blalock, chief of surgery, about the possibility of creating a duct from the child's heart to carry blood to the lungs. It was not a random request. Blalock had prepared for just such an operation in more than a decade of experiments on dogs at Vanderbilt Medical School in Nashville. In fact, he had devised a "blue baby syndrome" in dogs.

Taussig, the pediatrician, had worked closely with Blalock, the surgeon, when he came to Hopkins in 1942 in the hope that the heart defects in children under her care could be corrected through surgery. Her idea of creating a duct had been rejected by Robert Gross of Harvard, a pioneer in cardiology research who specialized in surgical repair of leaking valves. "My job is to close ducts, not create them," he told her.

Blalock agreed to operate on Eileen, although both surgeon and pediatrician knew the risks would be great because of her fragile physical condition (at 15 months she weighed less than 10 pounds). The child's parents, middle-class Baltimoreans, eagerly gave their consent. The operation, performed on Nov. 29, consisted of joining the left subclavian artery, which branched off from the aorta, to the lung, where the blood could take on oxygen. The baby recovered, gained weight and was able to go home for Christmas 1944, but liver and stomach problems would soon end her brief life. Operations on two other children followed almost immediately, with successful results each time.

By today's sophisticated standards, the operation would be considered almost routine. But in 1944 cardiac surgery was rarely performed on humans, especially not on infants, and the instrumentation was considered primitive.

A. McGehee Harvey, a medical resident at the time who went on to become chief of cardiology at Hopkins, wrote

later: "This monumental accomplishment, resulting from the collaborative effort of a scientifically oriented surgeon and a dedicated pediatric cardiologist, brought fame to them both and ushered in the modern era of cardiac surgery." News of the operation spread widely throughout the nation and brought hundreds of children to Hopkins within months.

In many ways, they were an odd couple. Blalock, a native of Georgia and a distant cousin of Jefferson Davis, was known for his volatile temper and could administer a tongue-lashing in the operating room to some unwary assistant; Taussig was tender-hearted and treated every patient as her own child. She had been denied admittance to Harvard School of Public Health because she was a woman, enrolled in Boston University Medical School and was later accepted at Harvard Medical School as a "special student." She was to sit apart from male students when attending lectures and was required to study tissue slides in a private room. She would not be allowed to graduate regardless of her grades. Instead, she received her MD degree from Johns Hopkins in 1927.

Their work became known as the Blalock-Taussig procedure, but there was a third member of the team who went largely unrecognized until years later. He was Vivien Thomas, a black man who grew up in Nashville with a deep interest in medicine. His first job was as an orderly in a Nashville hospital, where he scraped up enough money to enroll as a pre-med student at Tennessee A&I. But Thomas lost everything in the 1929 crash and was forced to leave school and work as a carpenter's assistant and plumber. In 1930, he learned that a doctor at Vanderbilt needed a helper. The doctor was Blalock, who hired him as an assistant.

Thomas became an apt pupil, learning to operate on experimental animals, perform the necessary chemical determinations for such operations, and keep precise records. At Blalock's insistence, Thomas accompanied him to Hopkins as his surgical technician. During operations, Blalock frequently called on Thomas for advice on sutures and other aspects of the surgery, as he did during the landmark procedure on Eileen Saxon.

At Hopkins, Thomas was classified as a janitor because there was no money in the budget for technicians. But his contributions brought him promotion to supervisor of the surgical research labs, a role that helped elevate the status of other black medical aides. In 1971, he was honored by Hopkins at a ceremony in which his portrait was unveiled.

Additional honors also awaited Taussig. In 1962, she learned from a former student in Germany of gross deformities in children born to mothers who had received the drug thalidomide for sleeplessness during pregnancy. She rushed to Germany as the first American physician to investigate the reports and returned to notify her friend, Frances Kelsey of the Food and Drug Administration, of her findings. As a result, the drug was kept off the market in the United States.

Liver cancer claimed Blalock's life at Hopkins in 1964. Thomas died of pancreatic cancer at Hopkins in 1985. Taussig was struck by an automobile in 1986 on the street near her retirement home in Kennett Square, Pa., and died of her injuries.

Despite the initial success of her "blue baby" surgery, little Eileen Saxon was born with too many other health problems to survive. She was unable to sustain her growth after the historic operation and died nine months later following surgery on another section of her heart.

But she had participated in an historic medical procedure that would provide surgeons with the knowledge to save countless other infants. An estimated 2,000 "blue babies" or those with similar conditions are born annually in the United States, according to the Centers for Disease Control and Prevention. The condition is corrected surgically for nearly all of them, with techniques far more advanced than the one used by Alfred Blalock.

Today, with frequent medical monitoring, most of these infants go on to live normal lives.

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