



On June 15, 1910, Chancellor Samuel B. McCormick (third from the left) laid the cornerstone for Pennsylvania Hall, then the new home for the School of Medicine. (The building was torn down in the late 1990s and replaced by a residence hall of the same name.)

A CENTURY OF ORTHOPAEDICS AT PITT
BY MICHAEL FITZGERALD

B.F. AND A.F., BEFORE FERG AND AFTER FERG

In the late 1940s, when Albert “Ferg” Ferguson was a young orthopaedic surgeon at Harvard Medical School and Boston Children’s Hospital, he often saw children with dislocated hips. Their joints had been pushed out of alignment at birth, during breech deliveries, but the problem usually wasn’t apparent until the children tried to stand. The protocol was to not attempt corrective surgery until the child turned 5. “Nobody dared do it,” says Ferguson.

“The delay caused all kinds of damage to the kid, not just in terms of mobility, but psychologically, socially, and every other way,” Ferguson recalled in a 2002 story for this magazine. “He couldn’t play with other kids, couldn’t walk right, was left out.” It was damaging to the parents, too, who were left wondering whether their children would ever walk properly or at all.

Ferguson felt compelled to do something and developed a new surgical approach that minimized scarring and didn’t cut through muscle. He seated the hip where it belonged and pulled down the joint’s lip, which had been pushed up by the hip dislocation. He began operating on children as young as 2. The procedure worked, granting newfound mobility to these toddlers. Eventually orthopaedic surgeons throughout the country adopted Ferguson’s technique and the practice of operating on young children.



Albert Ferguson made orthopaedics at Pitt “superb,” observers say. Here (in 1986) he’s shown at the 25th anniversary of the lab that would be later known as the Ferguson Laboratory for Orthopaedic Research.



David Silver

Innovations like this got Ferguson noticed and prompted an offer to chair the Department of Orthopaedics at the University of Pittsburgh School of Medicine.

The surgeon would go on to remake orthopaedics at Pitt. Among other notable achievements, Ferguson's program trained at least 30 department chairs for other institutions. The historical timeline for Pitt orthopaedics is now split into two eras: Before Ferg and After Ferg.

B.F. was a quieter and less storied time, but also one of inventiveness.

In 1909, Honus Wagner and the Pittsburgh Pirates won their first World Series, playing in brand-new Forbes Field (now the site of Posvar Hall). It was just a year after Western University of Pennsylvania formally changed its name to the University of Pittsburgh, moved from Observatory Hill to Oakland, and adopted the panther as its mascot. And David Silver, a 36-year-old orthopaedic surgeon, began teaching at Pitt.

Silver, a local orthopaedic surgeon who trained in Harvard and in Europe, taught at the behest of Thomas Shaw Arbuthnot, the medical school's new dean. Arbuthnot, a physician from one of Pittsburgh's leading retailing families, was in charge of remaking the school during a time of dramatic reform in medical education nationally. Arbuthnot was intent on making the school among the very best. He had some success recruiting top medical talent to Pittsburgh. He upgraded entrance standards. (Starting in 1911, applicants needed at least a year of college. They would need two by 1913.) Also in 1910–11, the medical departments moved from Polish Hill to a newly constructed building in Oakland, Pennsylvania Hall, located next to where Pitt stadium would be built. (The old Pennsylvania Hall was demolished more than a decade ago; a new residence hall of the same name now occupies the site.)

When Silver joined the faculty, medical

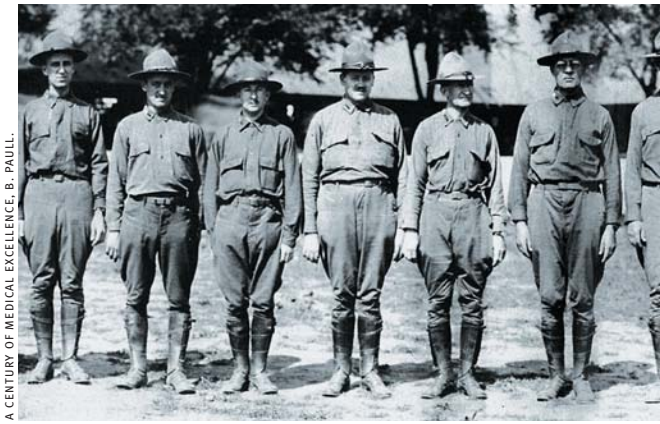
students studied orthopaedics in their fourth and final year, a year dedicated to clinical work. He lectured once a week for an hour. Immediately afterward, Henry Thomson Price, also new to the faculty that year, hired to teach "Children's Diseases," administered an hour long quiz. Clinical instruction was split between Allegheny General Hospital and Children's Hospital of Pittsburgh.

Silver is considered the father of orthopaedics at Pitt; he laid the groundwork for the program to achieve department status. Yet other orthopaedists preceded him. C.B. King, one of the 1886 founders of the medical school's antecedent, West Penn Medical College, was its clinical professor of orthopaedic surgery. Also preceding Silver was Stewart LeRoy McCurdy, professor of orthopaedic surgery at the Western University of Pennsylvania; McCurdy stayed on the Pitt faculty after the name change and Arbuthnot-led reorganization, with appointments in the dental and medical schools. McCurdy was noted for both roles in his obituary in the 1936 Report of the Chancellor to the Trustees.

McCurdy drops off the list of the School of Medicine's orthopaedics surgery faculty after Silver's appointment. As the years roll on, however, a growing register of names join Professor Silver as lecturers and demonstrators in the annual catalog. One of those names is that of Paul B. Steele, who joined Silver's practice in 1917 and would eventually succeed Silver as head of orthopaedic surgery at Pitt.

Silver's photograph in the 1933 edition of *The Owl*, the University's yearbook, shows a dapper man with a trim mustache, peppery hair combed back and parted in the middle, and circular glasses. Silver headed Allegheny General Hospital's orthopaedic department for 30 years. He ran the D.T. Watson Home for Crippled Children in Sewickley from 1919 until 1944, not long before it would serve as the site of Jonas Salk's first clinical trial for the Pitt polio vaccine. Silver also headed the American Orthopaedic Association in 1916–1917, shortly before he served as a lieutenant colonel in the U.S. Army during World War I (65 percent of the med school's faculty served in World War I in some capacity). The professor also established two Pitt traditions: He was loyal to the medical school, endowing a chair in his name, and he was an active researcher—most notably, while consulting for the army. Silver invented a three-part artificial leg made of fiber and rubber.

Arbuthnot's reforms secured an A-plus rat-



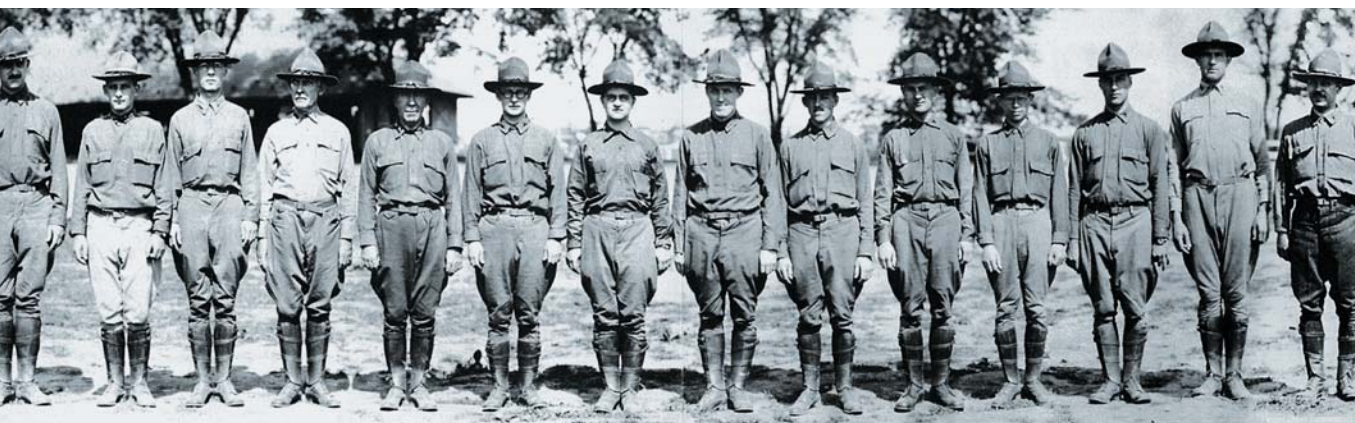
ing for the medical school and widespread acclaim; yet the dean struggled with raising the funds to continue to build on these programs and eventually retired in 1919. Silver and many of Arbuthnot's other early key hires were a source of constancy for the school. The orthopaedist taught until 1940 and then appears to have handed the reins to his partner and longtime colleague, Steele. (There is no record of how the transition occurred.)

Steele was "a powerful and potent man," recalls retired plastic surgeon Ross Musgrave (MD '43). Musgrave wanted to do his residency at Allegheny General. But Musgrave says when Steele found out that Musgrave's uncle worked at Allegheny, he red-lettered his name.

After graduating from medical school in Baltimore in 1914, Steele interned at Allegheny General in 1915–16, after which Silver hired him. The next year, the 26-year-old Steele shipped off to Great Britain as part of the Second Orthopedic Unit. Steele went to France in 1918, serving at the bloody battle of Château-Thierry, and he eventually received the U.S. Army's Silver Star. After being discharged in 1919, Steele came back to Pittsburgh and helped Silver organize the Watson Home, beginning his long surgical career.

Steele published little, but his ingenuity was apparent in the O.R., and the surgeon was quick to share his ideas. H. Andrew Wissinger, who graduated from Pitt in 1952 as an undergrad and as an MD in 1956, knew of Steele's reputation, though he did not meet him while he was in medical school. He met "Still" at the 1957 American Academy of Orthopaedic Surgeons conference at Chicago's Palmer House hotel. Wissinger was in the navy and went in uniform. When Wissinger walked into a bar at the Palmer House, he heard a shout: "Hey, sailor! Come over here, and we'll buy you a drink!" It was Steele, holding court at a table in the corner of the bar.

"He was pretty smart," Wissinger says. "I



ABOVE: The U.S. Army's 27th General Hospital, Pitt Unit, during the First World War. Both David Silver and Paul Steele served in the war. RIGHT: Paul Steele, who was with the Second Orthopedic Unit, treated soldiers wounded in the bloody battle of Château-Thierry.

got a kick out of him." Wissinger himself was famous within the city for his excellent surgical technique. He says he picked up a couple of things just from listening to Steele. Wissinger attended Steele's talks to local groups and eventually used a Steele idea for fusing wrists to help patients suffering from rheumatoid arthritis. "It was quick and easy, and it worked," he says. "He was one of those guys who had good ideas but never got around" to writing them up and submitting them to journals.

Steele does get credit for his method for treating avascular necrosis of the femoral head when it occurs in children, usually because of Perthes disease. In 1928, Steele developed a technique that involved hollowing out the femur and filling it with bone grafts. *Who's Who in Orthopedics* (Springerlink 2005) notes that "in [Steele's] hands the results seemed to be better than those reported by others."

Steele was also credited with developing a barrel-stave graft for ununited fractures and bone cysts. The *Who's Who* entry reports that Steele originated at least six other surgical procedures, ranging from a novel treatment for scoliosis to fixing a fracture of the patella without entering the joint. None appears to have been published in journals, nor did Steele formally track outcomes.

Despite being chair of the orthopaedics department from 1940 to 1953, Steele did not have much interaction with Pitt medical students. Musgrave says that when he was in medical school from 1940 to 1943, most orthopaedics surgery was taught by a Steele associate named John Best. George Gilmore (MD '52), who grew up in Steele's neighborhood, remembers him giving only a lecture or two and otherwise being uninvolved. Some of that may have been a factor of time: Steele was on staff at eight hospitals in Pittsburgh, one in Erie, Pa., and also at the D.T. Watson Home.

In 1953, Ferguson was convinced to come west from Harvard and become Pitt's David

Silver Professor and Chair of Orthopaedic Surgery. It was a major coup for the school as it aspired to transform itself from a training ground for local physicians to a nationally renowned institution. The dean at the time was William McEllroy; yet Ferguson says he was lured by Edward McCluskey, head of Children's Hospital of Pittsburgh and later vice chancellor of the schools of the health professions. Ferguson recalls McCluskey as an unsung hero of the medical school's new focus.

The Before Ferg era ended without fanfare. Ferguson doesn't remember ever meeting Steele. Stationed in Children's Hospital, he quickly went to work building his department. Today, the Ferguson days are remembered as sort of a Camelot for Pittsburgh orthopaedics. Right away he hired Mary Cosgrove, who would be his assistant (some would say department cochair) for all of his 33 years at the University. Ferguson's wife, Louise, says he took advantage of a chance to build a program "the way he thought it ought to be done."

Ferguson believed in McCluskey, even though McCluskey outraged many doctors by banning smoking at Children's Hospital. (Ferguson smoked a pipe then and still does.) So Ferguson helped recruit other talented doctors (among them, Jack Myers for medicine and Hank Bahnson for surgery). He established a research lab, a rarity in orthopaedics departments at the time. Ferguson, who will be 92 in June, says he started a lab because research was important, and he thought it would help him attract good residents if he could offer them a year in the laboratory.

Ferguson's charisma, more than any lab, helped him recruit. In April 1955, a colleague and occasional patient of Ferguson's, Jonas Salk, became a national celebrity for heading the Pitt team that developed a vaccine for polio. (Ferguson's young sons were among the early test subjects.) That boosted Pitt's

reputation and Ferguson's recruiting, too.

Some of Ferguson's hires helped him draw Henry Mankin (MD '48) back to Pitt from the University of Chicago in 1960. "Ferguson put together a really superb program," says Mankin. "He was himself superb. It wasn't the University that did it for him. He did it for the University."

Mankin himself was an exceptional instructor—"probably the most outstanding teacher of orthopaedics and orthopaedic surgery I have ever known," says John Perri (MD '59, Res '66). The surgeon-scientist did groundbreaking work on articular cartilage. Mankin also has been a significant supporter of the school: He endowed the chair today held by Pitt stem cell researcher Johnny Huard and has served on a number of Pitt committees.

Ferguson says that "we were just really, really lucky" in drawing talented residents and clinicians with a bent for research. But Ferguson's charisma and vision helped, as did his love of people—his former residents say they still hear often from Ferg. (He sends holiday cards with illustrations of his original paintings.)

Ferguson's greatest legacy may be the dozens of department chairs whom he helped train. Mankin says Ferguson had a gift for getting people interested in academics and for keeping out of their way.

Mankin was asked in 1966 to become head of orthopaedics at New York's Hospital for Joint Diseases (now part of New York University's medical school). He says, "I told Ferg, 'Listen, I'm very happy here.' But he said, 'Go! This is your chance to become an academic giant. Do it!'"

Mankin would go on to chair orthopaedics departments for more than 30 years, one of several such long-serving Ferguson protégés. The record holder at 35 years and counting is Robert D'Ambrosia (MD '64, Res '70), who has trouble with the idea that he has

chaired a department for more years than Ferguson. He runs the orthopaedics program at Louisiana State University in New Orleans. (Ferguson also inspired at least two former residents, D'Ambrosia and Edward Hanley, to take up painting.)

The 1960s and 1970s were heady years for orthopaedics at Pitt with docs like Mankin and William Donaldson Jr. (MD '43, Res '50), who was the first surgeon in Pittsburgh to succeed in correcting spine curvature in a scoliosis patient. Ferguson himself led the use of titanium and other metals in joint replacement. His lab also did early work in what we now call tissue engineering.

Ferguson also brought in Pitt's first woman to train in orthopaedics, Mary Williams Clark (Res '72), then hired her as a faculty member. Even so, Clark remembers that at one point when she was on the faculty, he asked her whether it would be okay to bring in two women as residents one year. She replied, "You always take more than one guy." Ferguson made both offers. Today, Pitt has a notably diverse faculty, and in the most recent class, a record five (of eight) residents were women.

For all Ferguson's success in building the reputation of Pitt orthopaedics, he still relied on many non-staff surgeons. He only had three full-time staff until 1980, when he asked Edward N. Hanley (Res '80) to become part of the department after finishing his residency and also added Mark Goodman (MD '79). The bigger department then moved to new quarters in the Falk Clinic.

Ferguson's approach to recruiting trainees was based more on intuition than application strength. He was used to bending rules when he felt the need. For instance, he sent D'Ambrosia off for six months with Andy Wissinger to get up to speed on surgical technique and also allowed him to finish his residency six months early to help establish an orthopaedics program

at the University of California at Davis.

In 1986, at 67, Ferguson retired. His departure coincided with a shift in medical school culture. Then-dean Thomas Detre was elevating the importance of research across the medical school. It was becoming harder for doctors to follow a three-pronged approach—i.e., clinical care, teaching, and research—notes Hanley, now chair of orthopaedics at Carolinas Medical Center in Charlotte, N.C. Hanley served as Ferguson's interim replacement while a search committee looked for a permanent chair.

Tabbed to take over after Ferguson was James Herndon, then chair of orthopaedics at Brown University. Herndon, now the chair emeritus at Partners Health Care and still the William H. and Johanna A. Harris Professor at Harvard Medical School, remembers being wowed by Pittsburgh's beauty as he drove in from the airport for his first interview. Herndon was impressed with Pitt's orthopaedics program and Ferguson's foresight in such things as setting up his lab. "I just took it to a different level," Herndon says.

In particular, Herndon greatly expanded the staff, bringing in multiple specialists and increasing the number of residents. He concentrated his far-flung department at what is now UPMC Presbyterian and a few community hospitals, and he encouraged all of the faculty to be more involved in research. In

part, Herndon was looking at the writing on the wall—the National Institutes of Health (NIH) was awarding grants to fewer than 10 percent of applicants. By the 1980s it had become much harder for practicing clinicians to best full-time researchers for federal funds. Herndon also wanted to expand the Ferguson lab into bioengineering and biomechanics.

Under Herndon, Pitt's orthopaedics department ranked among the top five NIH grant recipients for orthopaedic surgery departments, more than doubled in faculty size, and tripled in clinical volume. Herndon was close to completing an MBA at Boston University when he came to Pitt and managed to finish it despite having to fly to Boston once a week for a while. He eventually became involved in reorganizing UPMC, which was growing by buying and integrating



TOP RIGHT: Current chair Freddie Fu (left) with former chairs James Herndon (center) and Ferguson. RIGHT: The 1982 resident class meets with Ferguson (back to camera). Clockwise from front left — Fu, Dean Bennett, Robert Weiss, Linda Thompson, William Pekman, Thomas Rago, Dan Johnson, and Mickey Moritz.



ABOVE: Orthopaedics Grand Rounds at Children’s Hospital of Pittsburgh c. 1969. Each year, Ferguson’s house staff (in whites; faculty and community physicians are in street clothes) would put on a show with other staff in the hospital’s McCluskey Auditorium. They used whatever props were lying around for the skits and faculty roasts; it was “all in good fun,” recalls department administrator Nancy Ostrowski (not shown; the woman in the photo is Pitt’s first woman ortho resident and professor Mary Williams Clark). She says they’d write the show the night before—sometimes just minutes before. Ferguson would have everyone at Grand Rounds get on stage that same week for a photograph. (Drop us a line if you remember those days!)

practices, including specialty practices.

After a decade at Pitt, Herndon was lured away to Harvard Medical School and Partners Health Care. Among other Pitt rising stars, Harry Rubash (MD ’79, Res ’84), now chief of orthopaedics at Massachusetts General, followed. This time, the medical school picked a Ferguson protégé, Freddie Fu, to lead orthopaedics.

Herndon “put the department into the modern era,” says Fu (MD ’77, Res ’82), who joined the orthopaedics faculty in 1982 and has been at Pitt ever since. “It was a little bit difficult for some people who were in the old-time mood; they were not used to it.”

Fu has both honored Ferguson’s legacy (when his parents correspond with Ferguson, they speak of their shared “son”) and taken Pitt orthopaedics in new directions. The surgeon is a perpetual-motion machine, constantly seeking ways to promote ortho at Pitt. He spurred the building of an innovative sports medicine complex. That expanded another Ferguson legacy—Ferguson was interested in sports medicine, was team doctor for the

Pittsburgh Pirates, and had encouraged Fu to start Pitt med’s original sports medicine clinic, which Fu had developed during his years on the faculty. Fu has also expanded the department, now nearly 80 faculty members strong, close to double what it was when he became chair in 1998. He has added both clinical faculty and research staff, aggressively recruiting, for instance, surgeon Constance Chu, a groundbreaking arthritis researcher, from Harvard in 1999. (Chu ranked first among orthopaedic surgeons receiving grants from the NIH last year. She ranked second on the agency’s listing of ortho researchers receiving funds.) A decade later, Fu helped convince the prominent stem cell and tissue engineering researcher Rocky Tuan to leave the NIH and come to Pitt to head orthopaedics research and a new Center for Cellular and Molecular Engineering. Fu himself has been involved in innovative research on the evolution of important ligaments in the leg. He recently was named a principal investigator on an NIH grant for a randomized double-blind study on anterior cruciate ligaments. Fu, one

of the world’s top sports medicine authorities, replaces torn ACLs using a “double-bundle” approach that connects the replacement ligament as a double bundle, rather than the single-bundle approach common today. And he had the pleasure, last year, of celebrating a century of orthopaedics in the medical school during a Grand Rounds.

Success brings its own challenges. Orthopaedics has spilled away from its center at UPMC Presbyterian. The sports complex is in one place, the tumor program is in another, pediatrics in a third. Fu says he hopes to address this diaspora by bringing orthopaedics back to one location. In the meantime, Pitt ortho continues to soar: Department faculty captured the Kappa Delta award for clinical research four of the last six years; *Becker’s Hospital Review* ranked the department among the nation’s great orthopaedic and spine programs; and the department caused the medical center to place among the top 10 hospitals for orthopaedics in *U.S. News and World Report’s* current ranking.

The Ferguson era started 44 years after David Silver began at Pitt; Fu became chair 45 years after Ferguson. Fu says he has no expectations of changing Pitt orthopaedics as much as Ferguson did.

“I can never be comparable to him,” says Fu. “If I can do half of what he did, I’ll be happy.” ■