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UT Southwestern: From Army Shacks to Research Elites

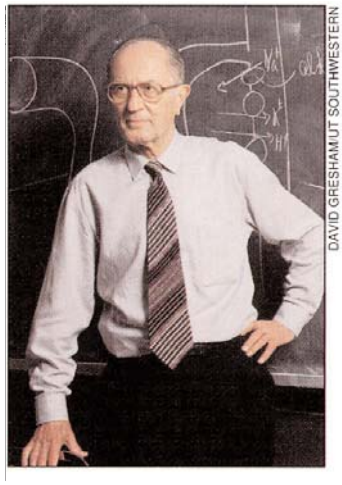
DALLAS—Donald Seldin got out of his car, while his wife and daughter waited inside, and surveyed the rows of army shacks and strewn garbage at the corner of Maple and Oak Lawn near downtown Dallas. He assumed he had misunderstood directions given by an attendant at a gas station a few blocks away, so he drove back and asked again. There was no mistake, he was told. That was Southwestern Medical School.

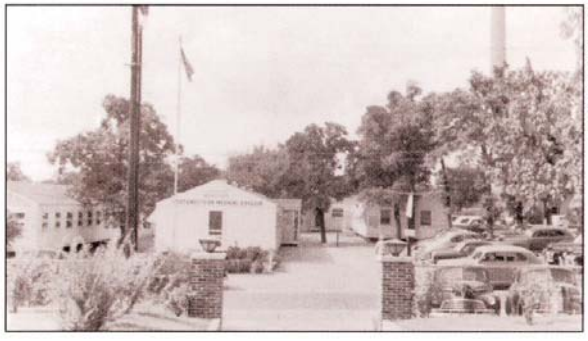
The year was 1951. Seldin had left his comfortable assistant professorship at Yale University School of Medicine to join the Internal Medicine Department at this obscure medical school—then just 8 years old—far from the academic powerhouses of the East Coast. The dilapidated buildings shocked him, but they represented an opportunity. "There was a chance to build something new because there was very little here," he recalls today.

It didn't take Seldin long to start building. He was promoted to chair of the Internal Medicine Department a year after he arrived. There wasn't much competition: He was the department's only full-time member. When he stepped down 35 years later, in 1987, Southwestern Medical School—now the University of Texas Southwestern Medical School at Dallas (UT Southwestern)—included two Nobel laureates and seven members of the National Academy of Sciences. Today, the school houses 10 academy members and more Nobel laureates than any other medical school in the world: Michael Brown and Joseph Goldstein (1985); Johann Deisenhofer (1988); and Al Gilman (1994). All four remain active researchers among the schools complement of approximately 1000 faculty and 3100 students.

"UT Southwestern has moved into the front rank of medical schools in the last several years … and it's the only school to have done so in the last decade," says H. Maxwell Cowan, vice president and chief scientific officer at the Howard Hughes Medical Institute in Chevy Chase, Maryland. An analysis of the average number of citations per paper published between 1980 and 1993—conducted by the Philadelphia-based Institute for Scientific Information—supports Cowan's conclusion. UT Southwestern came in second in biology and biochemistry, just behind Rockefeller University in New York City, and ranked in the top 10 in immunology, and molecular biology and genetics.

UT Southwestern's steady rise to become a research powerhouse has been fueled by a changing mix of Texas oil money, state funding, private donations, and research grants—and a large measure of homegrown research talent. The school has built up a healthy endowment and now gets more than half its operating funds from nongovernment sources, a feature that should provide some protection from the fiscal winds now buffeting academic medicine. And the school's healthy finances are reflected in the buildings: The Army shacks are long gone, and UT Southwestern now stretches over two campuses, connected by a causeway that spans a busy throughway. The original campus, built in the 1970s, cradles a bird sanctuary whose snowy egrets are a constant presence in the skies above horizontally designed, interconnected buildings.





Before and after. UT Southwestern in the early 1950s and the south campus today. Donald Seldin *(left)* was a major force in the transition.

The path to the elites. Ask longtime researchers here how UT Southwestern got started on the path to the research elites, and the conversation generally turns to Seldin. More than any other figure in the history of UT Southwestern, Seldin's philosophy shaped and guided the institute in its steady rise. When he retired, he had been chair of Internal Medicine for more than half his life.

Sitting in the small office from which he now serves as a part-time adviser to the school, Seldin is polite, even gentlemanly, in conversation. But he is terse and to the point. Many scientists speak in open admiration of him, but his brusque style has rubbed some the wrong way. Kern Wildenthal, president of UT Southwestern since 1986, acknowledges that this has made Seldin a somewhat controversial figure on campus, but "as long as you're committed to excellence, you won't have any conflicts with [him]."

To build the faculty in the early years, Seldin looked for young physicians skilled in basic science. But Dallas's fiercely hot climate—compounded by a lack of air conditioning in the early '50s—and the meager state funding the school got in those days put off many potential recruits. So, rather than focusing on outside talent, Seldin established a mentorship program in which he worked with students individually. He sent the best ones to the National Institutes of Health (NIH) for further training, then brought them back to staff the school's clinical medicine program.

He had a knack for developing young talent. "You would not have thought the University of Texas would have as many outstanding young medical students coming along as a Harvard or Yale … but [Seldin] identified those that were there and brought their achievements to fruition," says Lloyd Hollingsworth Smith, former chair of internal medicine at the University of California, San Francisco, Medical School.

Perhaps the most famous of the school's homegrown hires is Joseph Goldstein. He left UT Southwestern with his M.D. in 1966 and eventually studied at NIH under Marshall Nirenberg and at the University of Washington before returning to UT Southwestern to join the Internal Medicine Department in 1972. He was drawn back to UT Southwestern by personal loyalty to Seldin, whom he regarded as a mentor, "and the exciting realization that UT Southwestern was on the verge of becoming a major center for bio-

medical research," Goldstein recalls today.

Before heading to NIH, Goldstein interned at Massachusetts General Hospital, where he met another intern, Michael Brown. As the two made rounds and discussed cases, they discovered a common interest in the basic science underlying clinical medicine. A recent graduate of the University of Pennsylvania Medical School, Brown was taken aback by Goldstein's alma mater. "I thought it was associated with a bible school," says Brown. But Goldstein urged him to consider moving to UT Southwestern.

The two "handicapped" Mass General and UT Southwestern—as Brown put it—to decide which had the better department of internal medicine. "The criteria were excellence in clinical scholarship and research relating to the fundamental causes of disease," says Brown. UT Southwestern won hands down in this private contest, and Brown was convinced. Brown joined UT Southwestern in 1971, and he is now director of the Eric Jonsson Center for Molecular Genetics. It was in Dallas that Brown and Goldstein built on their observations of patients with inherited high cholesterol at Mass General and formed a longtime collaboration to investigate the mechanism of cholesterol regulation, for which the pair won the Nobel Prize in 1985.

A boost from the state. Seldin's ability to attract high-powered recruits like Brown owes much to a promise Seldin coaxed from the UT administration a decade after he arrived at UT Southwestern. Seldin had gotten an offer from Harvard Medical School to chair one of its departments of internal medicine. He was happy at UT Southwestern, but he says he wanted assurance that the school would evolve according to his vision of "basic science first." Harry Ransom, chancellor of the UT system at the time, backed him. Seldin stayed and, when Charles Sprague moved from dean of the medical school to president of UT Southwestern in 1972, the two set about building up a basic research center in earnest.

The time was ripe. In the early '70s, the Texas economy was booming, and state funding of the institution rose from approximately $6 million in 1970 to about $60 million in 1985. That expanding funding base allowed Seldin and Sprague to make generous offers of laboratory space and funding to recruit outside researchers to establish entire departments.

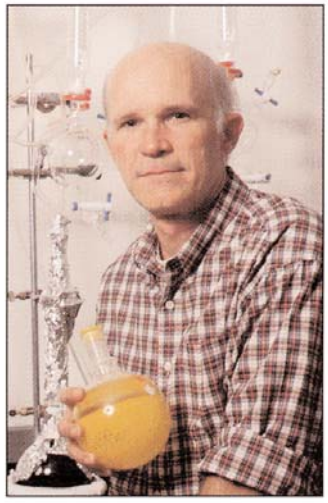
Among those early recruits was Jonathan Uhr, then the director of the Irvington House Institute for Rheumatic Fever and Allied Diseases at New York University, who was enlisted by Seldin in 1972 to chair the microbiology department. UT Southwestern's offer surprised him, Uhr recalls: "The microbiology department would have approximately 30,000 square feet [2800 meters^2] of laboratory space, and I was offered support for approximately 10 to 12 faculty members. This was an extraordinary offer ... [it] made it clear that I could build up and put my own stamp on the department." Start-up funds and equipment were promised on an as-needed basis. The agreement was sealed with only a handshake and soon delivered, says Uhr.

UT Southwestern's resources soon attracted other prominent researchers. Al Gilman arrived from the University of Virginia Medical School in 1981 to head the Pharmacology Department. Joe Sambrook—charged with strengthening biochemistry—came to UT Southwestern in 1985 after serving as assistant director of the Cold Spring Harbor Laboratory in New York. Sambrook in turn recruited Deisenhofer from the Max Planck Institute for Biochemistry in 1988, and Deisenhofer won the Nobel later the same year for work in x-ray crystallography.

PHOTOS BY DAVID GRESHAM/UT SOUTHWESTERN

Nobel quartet. UT Southwestern's Nobel Prize–winners *(clockwise from left)*: Michael Brown, Johann Deisenhofer, Joseph Goldstein, and Alfred Gilman.

Tapping Texas wealth. Brown and Goldstein's 1985 Nobel announced the arrival of UT Southwestern as an upper-tier research institution. But even as Seldin and Sprague were beginning to taste the fruits of their success, the school faced a new threat: Following the sharp drop in oil prices in the early 1980s, the Texas economy plunged into recession. In September 1986, the state slashed its budget by 13% across the board. At that time, more than 40% of the school's $182.5 million funding base came from the state government. The same year, Sprague stepped down and Kern Wildenthal—a Seldin protégé who completed a Ph.D. at Cambridge after medical school at UT Southwestern and went on to serve as dean of both the medical school and the graduate school—began his tenure as president.



New recruit. Steve McKnight was recruited last year with promises of big resources for biochemistry.

Wildenthal's first order of business was to reduce the school's dependence on state funds. He didn't have a large body of alumni to draw on, so he began to solicit limited numbers of large, individual gifts. He turned out to be a spectacularly successful fund-raiser: Between 1988 and 1994, Wildenthal's house calls resulted in five of the six largest gifts ever given to any public medical school. Ross Perot donated $20 million in 1988 and followed it up with another $23.3 million on 6 June this year. Dallas businessman Harold Simmons made a $41 million contribution to UT Southwestern in 1989 and has since upped the gift to more than $50 million.

Foundations boosted UT Southwestern's funding base as well. According to a 1995 report from the Foundation Center in New York, for the fiscal year 1995, UT Southwestern led the nation in the amount of money received from foundations for medical research and health care. It brought in almost $15 million, nearly doubling the $8.54 million received by Presbyterian Hospital in New York City, the second-highest recipient.

Uhr attributes Wildenthal's success to his approach. "Donors [appreciate] his authenticity. He's a straightforward, milk-drinking Texan." By 1995, the school's operating budget had risen to $429.6 million, with just 22% of the total stemming from state sources and 58% from nonfederal, nonstate sources, including private philanthropy. UT Southwestern's endowment was $35 million in 1985 and has grown to more than $400 million today, ranking among the top 25% of American medical schools.

Wildenthal believes that with this expanded funding base, UT Southwestern has some protection from the cost-containment pressures that are squeezing other medical schools. And he adds: "I am cautiously optimistic that the current levels of NIH and federal funding will be maintained." As long as federal dollars are distributed according to merit, he believes UT Southwestern will continue to flourish: "Good researchers can attract most of the funds necessary [for research]."

No looking back. Wildenthal's optimistic projections are reflected in a recruiting drive that has added more stars to UT Southwestern's faculty and in bold plans for yet more construction. UT Southwestern has earmarked $200 million for 65,000 square

meters of research space in two new buildings that will be occupied near the turn of the century. They will be built on 12 hectares of land donated in 1987 by the John D. and Catherine T. MacArthur Foundation.

Among those recently lured by UT Southwestern's resources is geneticist Steve McKnight, who made his reputation working on gene regulatory elements while at the Carnegie Institution's embryology lab in Baltimore. After leaving Carnegie and flirting with a position at UT Southwestern in 1992, McKnight headed to San Francisco to help found Tularik Inc., a biotechnology company that focuses on the regulatory mechanisms of gene transcription. Like many earlier recruits, McKnight, a native Texan, was lured last year by the resources UT Southwestern was able to offer. "The [biochemistry] department had a commitment of approximately 40,000 square feet [3700 meters^2] of spectacular new space ... that I was able to design with total flexibility," says McKnight. The school provided funds to equip all of the core labs, and an endowment will help support start-up packages for eight new faculty members—bringing the department to 30, each with an independent lab.

The potential for interdisciplinary work helped attract developmental biologist Eric Olson from the University of Texas M. D. Anderson Cancer Center in Houston last November, to head the Nancy B. and Jake L. Hamon Center for Basic Cancer Research. Olson says he expects the Hamon Center to interact broadly with Brown and Goldstein's Molecular Genetics Department.

In addition to hiring established researchers like Olson and McKnight, UT Southwestern has also been recruiting promising young researchers like Margaret Phillips, who arrived at UT Southwestern in 1992 after completing a postdoctoral fellowship at the University of California, San Francisco. Phillips received a Burroughs Wellcome Fund New Investigator Award in Molecular Parasitology in 1995 for her investigation of drugs to control the parasites, called trypanosomes, that cause African sleeping sickness and Chagas' disease, among others.

And the school has not abandoned Seldin's initial policy of hiring UT Southwestern's own graduates. Andrew Zinn received his M.D./Ph.D. in 1988 before training at Mass General and the Whitehead Institute for Biomedical Research at the Massachusetts Institute of Technology. Since returning in 1993, he has found a comfortable working environment. "[UT Southwestern] likes its young faculty ... you don't feel like some of the places I've been exposed to, where it's a Darwinian struggle to survive."

A shelter from today's cutthroat funding environment is a luxury indeed. Zinn can thank UT Southwestern's successful fund raising for that luxury, but the fund raising in turn built on UT Southwestern's growing academic reputation. Seldin recognized the secret of that success long before anyone else: "Those west Texas farm boys turned out to be as good as anybody."

–James Kling

James Kling is a science writer in Bellingham, Washington.