

*The truth about a steamy campus underworld
your Vuceptor never showed you.*

By CLAIRE VERNON SUDDATH, BA'04

Vanderbilt—a vibrant university full of students, professors, deans, assistant deans, associate deans, vice chancellors, assistant vice chancellors, and the people who make smoothies at Rand—has been one of Nashville’s most prominent landmarks since 1875. But there’s much more to the school than freshly cut lawns and well kept buildings. There’s also a reliably unlucky football team. But underneath the football team’s stadium—underneath the entire Vanderbilt campus, actually—runs an extraordinary series of underground tunnels that carry electricity, steam, telecommunications lines, and the occasional sneaky undergraduate.



**WHAT
LIES**

BENEATH

Like most Vanderbilt students, I had heard many rumors about the infamous tunnels. I believed that one could use the tunnels to travel anywhere on campus without venturing outside. I was told that a student caught in the steam tunnels earned immediate expulsion, and I even heard the completely unfounded rumor that some people had once become trapped inside the tunnels and had never escaped. They resided underground, much like Danny DeVito's Penguin character in "Batman Returns."

In truth, there are no giant, mutated penguin-people underneath Vanderbilt. There are, however, two types of tunnels: pedestrian tunnels that connect Stevenson Center buildings to the Vanderbilt University Medical Center, and the deep, dirty utility tunnels that run between 60 and 110 feet underground. The steam tunnels can reach temperatures of 120 degrees and require passengers to travel in an uncomfortable crouching position. The folks at *Vanderbilt Magazine* asked me to explore this often ignored side of the University and find out what life among the tunnels is really like. Needless to say, as a journalist, I decided to explore the spacious, air-conditioned pedestrian tunnels first.

Vanderbilt Greenhouse Manager Jonathan Ertelt, who once had an office near a tunnel entrance, volunteered to take me through the pedestrian tunnels underneath Stevenson Center. An amiable man with a gray beard and an almost fantastical adoration of plants, Ertelt spends most of his days in the brightly lit, climate-controlled greenhouse rooms atop the molecular biology building. But today he and I would travel underground to a darker area of Vanderbilt. Or rather, one with bad fluorescent lighting.

"They're not that exciting," Ertelt warned me as we took an elevator to the basement of the molecular biology building. "I mean, the tunnels are a lot of fun, but you're not going to be surprised or anything." The elevator doors opened, and we walked down a bleak hallway with yellow fluorescent lights. Ertelt led me through a pair of swinging doors, and suddenly the basement turned into one long, narrow tunnel. The tunnel twisted, turned and formed various offshoots, preventing me



from discerning either my location or direction within its system. At one point we wandered through one of the tunnel's offshoots and ended up in a hallway full of classrooms. "Hey, I had a health economics class in that room!" I exclaimed, pointing to a locked classroom on my left. "But that means we're in the Math Building, which is on the other side of Stevenson Center. How did we get over here?" Ertelt smiled at my confusion.

The Stevenson Center tunnels have cream-colored cinderblock walls and speckled tiled floors—the same materials out of which every elementary and middle school in America is made. Because the tunnels lead to the Medical Center, travelers encounter that distinct hospital smell of disinfectant and illness. Unused gurneys and dumpster-shaped containers that bear the words "Hospital Linens" line the walls.

During the day, busy commuters flutter through these pedestrian tunnels, traveling to and from the Medical Center like businesspeople on a downtown city sidewalk. Nurses with clipboards take notes in front of broken or excess inventory; people in hospital scrubs—doctors? med students?—run by in a hurry; and maintenance men ride around

I wondered what I had gotten myself into. The tunnels were hot and dirty, and I was standing in a shallow puddle of an unidentifiable liquid. I was starting to sweat. This was not my idea of fun.

on miniature versions of airport courtesy carts, beeping at people to move out of the way. An occasional undergrad may be found walking through the tunnels, but the population is almost entirely professors, maintenance workers and hospital employees.

At one point, Ertelt and I passed an open closet filled with clear plastic tubes and complicated medical appliances. “What do you think those are?” he asked me. I stared at the hospital supplies and shrugged like the ignorant English major that I was. I never enjoyed science in school and avoided it as much as possible during my undergraduate career at Vanderbilt, choosing instead to focus on writing and literature. I spent four years poring over term papers about Hemingway and Chaucer while someone else at the University learned how to attach the clear plastic tubes to lifesaving machines. I had no interest in these machines, but knew that one day I might need one. There was more to this University, to Vanderbilt, than I would ever know.

We continued along the tunnels, walking among nurses and medical technicians. Ertelt showed me a few more passageways and shortcuts, but my mind stayed with the machines and the thought that the same University that taught me about T.S. Eliot’s *The Wasteland* could also save my life.

Ertelt knew everything there was to know about the pedestrian tunnels underneath Stevenson, but he couldn’t tell me much about the deeper, mysterious utility tunnels. For that information I had to go to Mark Petty, director of buildings and utilities in Plant Operations.

I found Petty in his office during lunchtime. He sat at a round wooden table in his first-floor office of the Bryan Building. A Diet Coke and a poster-sized map of Vanderbilt sat in front of him. Four large lines and many smaller ones had been drawn on the map. Petty explained that these lines represented the utility tunnels, round passageways lined with cement, just small enough to require pedestrians to crouch in an uncomfortable position. More than two miles of tunnels lie underneath Vanderbilt, most of them stretching diagonally across buildings in a seemingly haphazard fashion. The largest

tunnel runs continuously from Sports Club Field at the corner of 25th Avenue and Children’s Way, past the Mayfield apartments, underneath Branscomb Quadrangle, and ends nearly half a mile away, just short of the power plant. The Peabody College campus and main Vanderbilt campus are joined by a tunnel running beneath 21st Avenue.

The oldest tunnel dates back to the early 1920s, and Vanderbilt continuously constructs and repairs its utility system every year. Petty explained that to build deep, underground tunnels, a crew must first dig out the space. “Then they pour concrete over the sides and floor. Once it dries, they lay the steam and electrical lines and pour more concrete to cover it up.” The process is tedious and disrupts Vanderbilt’s aesthetics, but without the tunnels the University could not function.

I asked if students entered the tunnels on a regular basis. “Not anymore,” Petty replied. “A few years ago we found a Web site by a group called the Urban Explorers. They travel around the country and hike or spelunk through manmade buildings. They had a page about the Vanderbilt tunnels. They actually went in the tunnels and took pictures, and we didn’t even know about it.” Vanderbilt subsequently installed an alarm system and locked all the entranceways to the tunnels.

I knew that students occasionally entered the utility tunnels, and I was curious to see if I still could. Armed with a digital camera and a vague notion that the Stevenson Center pedestrian tunnels somehow connected to the utility tunnels, I resolved to enter the underground world of Vanderbilt. I brought along my boyfriend, Paul, for protection. I told him it would be an exciting adventure, but I really just wanted someone to keep me company if I got arrested.

Paul and I entered Stevenson Center around 5 p.m. one Wednesday, after classes had ended but before the buildings were locked for the night. I led the way through the basement of Stevenson, Paul following hesitantly behind. “Are you sure we should do this?” he asked. “The tunnels probably won’t even be interesting.” After wandering around aimlessly, opening doors and peering down hallways, we located the pedestrian tunnels Jonathan

Ertelt had shown me. From there we found a small, unlocked door that led to the utility tunnels. I cannot divulge the exact location of this door—Vanderbilt doesn’t need hundreds of people running around underground, but, more important, I’m not entirely sure where the door actually is.

The door was heavy, and although both sides had handles, I worried that it would lock behind us. A thick metal tube lay on the ground near the door, so I propped it up and used it as a doorstop. Once Paul and I were sufficiently satisfied that we wouldn’t get trapped inside the tunnels, we passed through the door and into the dark. “Oh, this is awesome!” Paul cried. He ran off in front of me while I looked around and wondered what I had gotten myself into. The utility tunnels were hot and dirty, and I was standing in a shallow puddle of an unidentifiable liquid that I hoped was just water. I had only been here for a minute, but already I was starting to sweat. This was not my idea of fun.

“Maybe we should go back,” I shouted to Paul, who was already yards ahead of me, ducking under pipes and running around corners to see where the tunnel led. I followed after him slowly, watching where I walked. I stepped around puddles, a dead cockroach, and an empty soda can. Paul and I moved down a passageway, past humming steam pipes and electrical lines. A thermometer hanging from the tunnel ceiling indicated a temperature of 95 degrees. The further we explored, the sweatier we became. The tunnels were exciting, but only because the act of visiting them felt daring and subversive. Aside from the initial thrill that came with breaking the rules, they were humid and sticky and gross and I didn’t feel the need to ever visit them again.

Vanderbilt students would never use the tunnels to travel across campus; they’d arrive at class drenched in sweat and grime. The tunnels would probably make a good hazing test for fraternity pledges—not that hazing occurs at Vanderbilt, no, definitely not—but a large group of people would make too much noise and almost certainly be discovered. No, the utility tunnels are best left to the workers at Plant Operations—people who know what

I passed an open closet filled with clear plastic tubes and complicated medical appliances. My mind stayed with the machines and the thought that the same university that taught me about T.S. Eliot's *The Wasteland* could also save my life.

each wire and pipe is for, and whether or not it's safe to touch anything. The occasional student or sneaky *Vanderbilt Magazine* journalist might climb down there every once in a while, but conditions are uncomfortable and they probably wouldn't stay very long.

After 10 minutes or so, Paul and I turned around and retraced our steps to the heavy metal door. We left the underground tunnels and closed the door behind us, returning the doorstep to its original location. But instead of going home, we decided to explore the pedestrian tunnels once more.

Paul and I walked down the linoleum hallways of the Stevenson Center tunnels, happy to be away from the steam lines and high temperatures. We entered the Medical Center and looked at the unused gurneys and surgical equipment. Paul noticed a pair of double doors and wanted to see where they led, so we opened them and peeked inside. The doors opened onto a Vanderbilt Medical Center loading dock. A shipment of some kind had just arrived, and teams of workers were unloading enormous metal tanks with the word "Nitrogen" printed on the front. To the side, other workers were rolling yellow bar-

rels onto a truck. A van pulled up to the loading dock as another one drove off. People moved to and fro, hauling this and moving that, working to make Vanderbilt run as smoothly as possible.

Paul and I stood off to the side, watching the spectacle. "I've never seen this side of Vanderbilt before," he whispered to me as a man walked by with a large wooden crate. I was about to reply in kind, but the men rolled the nitrogen tanks toward the doors and we jumped out of the way to let them pass. "I think we're in the way," I said. "We should probably go back."

We walked back through the tunnels, past doctors and dockworkers and people in uniforms I couldn't identify. This was not the Vanderbilt with which I was familiar. When I graduated last May, I told myself that it was time to go; I had seen and done all this University had to offer. But in reality, the University had a whole other side I had yet to explore. Professors and students take most of the credit for Vanderbilt's accomplishments—scientific breakthroughs make the local and national newspapers, alumni magazines publish the achievements of notable graduates—but nothing would be possible without the employees to lug the nitrogen or the underground tunnels to carry hot water and telephone lines to the dormitories. Underneath the green, manicured lawns at Vanderbilt lies a system of filthy steam pipes and electrical lines. Behind every beautiful building is a loading dock with unsightly tanks, barrels, crates, and workers who never went to college yet still work to make this one great. They are rarely recognized and almost never thanked, but they contribute more to Vanderbilt than I did with my term papers on Jane Austen or the football team with its occasional touchdown.

Next time you're at Vanderbilt for an alumni reunion or event, walk around campus and explore the areas you rarely ever see. Take time to appreciate the people and products that made your college experience possible. But don't run around the utility tunnels or you'll get me in trouble. ▼

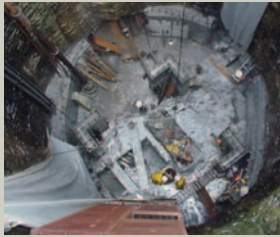


How to Build a Tunnel Underneath Vanderbilt in 12 Easy Steps

(as explained by Jim Galbreath, mechanical engineer, Vanderbilt Department of Campus Planning and Construction)

Step 1: Figure out where you want the tunnels to go. You may want to run steam tunnels to the site of the new Vanderbilt Children's Hospital, but you have to know where exactly to put them. Keep in mind that the tunnel construction site is very large and very, very deep underground.

Step 2: Decide on the path you want the tunnels to take. Will they run in a straight line or curve around the buildings? Tunnels can only be drilled through solid rock, so you'll probably want to design your path around that fact.



Step 3: Dig a huge hole. To do this, you must first dig small holes with rock drills, then use explosives to blast the rock. Dig more small holes, blast more rock, dig, blast, and so on until you have achieved your large hole, 100 feet deep with a diameter of 60 feet. This may take awhile.

Step 4: Back on ground level, dig small holes along the path you want the tunnel to take, to make sure you will be drilling through solid rock. If you encounter something that isn't solid, return to step 2 and try again.

Step 5: Lower the drilling equipment into the hole. Before you can do this, you must begin digging into the sides of the giant hole in the areas where you want the tunnels to go. This must be done with rock drills. Dig a few feet on either side of the hole, so that when you bring the drill down the hole, you have extra room to back it up and position it just right.

Step 6: The machine that makes the tunnels is an oversized drill called a "rock boring machine," with a drill head that's 8.5 inches in diameter. As it turns, it fractures the rock into fist-sized bits that are carried away by little train cars, similar to the ones coal miners used to carry their coal away. Like real trains, these cars run on train tracks, so you will need to lay down a few feet of track to get the drill going. This is the same type of drill that was used to build the Chunnel, the rail



tunnel that runs underneath the English Channel and connects England to France. The Chunnel drill, however, had a drill head that was 25 feet in diameter. Vanderbilt's drill is tiny in comparison.

Step 7: The drill stations itself with little metal feet that press against the rock as it drills. To begin drilling, pour concrete along the sides of the tunnel so the drill can get a good grip.

Step 8: Start drilling! The drill is driven by electrical power and can only move four to five feet at one time. After that, it retracts its legs, moves up and repeats the process. It moves very slowly. As it drills, you'll need to continue laying train tracks and hauling fractured rock to the vertical hole. The train cars are then hoisted to the surface by crane and hauled off by truck. The old drills used a laser to help the operator steer them in the right direction, but now a Global

Positioning System (GPS) is used. All the rock drilling is uphill so that if the tunnel floods—you're 100 feet underground, beneath the water table, after all—the water will drain away instead of drowning your workers and equipment.

Step 9: When your tunnel is drilled and you want to stop, you'll need a way to get the drill out of the tunnel. You're nowhere near the 100-foot hole anymore, so you'll need to make a new hole on the other side. Use a caisson rig auger to "core drill" to the end of the tunnel.

Step 10: Pull out the drilling equipment, and remove the train tracks.

Step 11: Lay your steam lines, electric and fiber-optic cables, and anything else you want to put in the tunnel.

Step 12: Erect buildings on top of the vertical holes, with stairways that lead to the tunnels. This is how you'll get into the tunnels for maintenance and repair work.

You're done!



Interesting fact: Every tunnel underneath Vanderbilt has water running along its floor. Vanderbilt has tried several things to stop it, but nothing seems to work. Instead, they just pump the water out. A quarter million gallons of water are pumped out of the tunnels every day. This water is used to irrigate the Student Recreation Center's playing fields.

Problems you may encounter during the drilling process:

Scenario 1: Sometimes the rock is not drillable, but you won't realize it until you try to drill it. This happened north of Olin Hall during the recent Monroe Carell Jr. Children's Hospital tunnel construction. Vanderbilt hired an independent company to pump concrete in front of the drill. Then it drilled through the concrete instead of the rock. This added an extra \$180,000 to the total cost of the project.

Scenario 2: Your tunnel could flood. This happened underneath Morgan Hall. Water gushed out and, as with a normal pipe leak, the engineers plugged it up. A metal plate was placed over the leak to act as the plug. The plate had a pipe with a pressure gauge to show how much water was pushing down on the tunnel. It turned out they were drilling 40 feet below the water level, so the engineers laid some pipe and ran the water back to the power plant, where it was used to make steam.

Scenario 3: The tunnel could collapse. The rock may start to crumble, in which case you can cover it with a thick wire mesh to keep it in place.

Does this sound like fun to you? For the low price of \$7.65 million, you too can build tunnels exactly like the ones underneath the new Children's Hospital.

—CLAIRE SUDDATH