

BY ROD DAVIS

ROUGHNECK U.

The Rig Crew Training Program in Abilene, Texas, is the hottest blue-collar ticket back into the resurgent US oil industry

One more second and 19-year-old Harry Wingfield's pursuit of a diploma from the world's only roughneck school is going to end as such careers often do: on a stretcher. Wingfield's job is to catch a 30-foot joint of drill pipe weighing 480 pounds and swinging to the floor of a drilling rig in a field on the edge of Abilene, in West Texas. Then he must muscle the pipe ("joint" in the jargon-heavy parlance of the oil patch) over to a temporary storage tube known as a mouse hole. He has performed the task several times already this morning, but now the pipe is arcing in much too fast.

Wingfield's solution is to try to block it with his body. The pipe's solution is to drag Wingfield along the floor toward the spud (drill) hole, where all manner of unforgiving metal waits to usher him into the ranks of the 70 percent of roughnecks seriously injured in their first few weeks on the job.

But those guys did not go to roughneck school, and they did not have Lonnie Harlan to yell at them to move their butts *now*.

Wingfield jumps sideways like a mongoose. The pipe swings through, spending its force against the massive traveling block over the spud hole. After that the pipe is a pussycat to slide over to the mouse hole. Nobody hurt. Nothing broken.

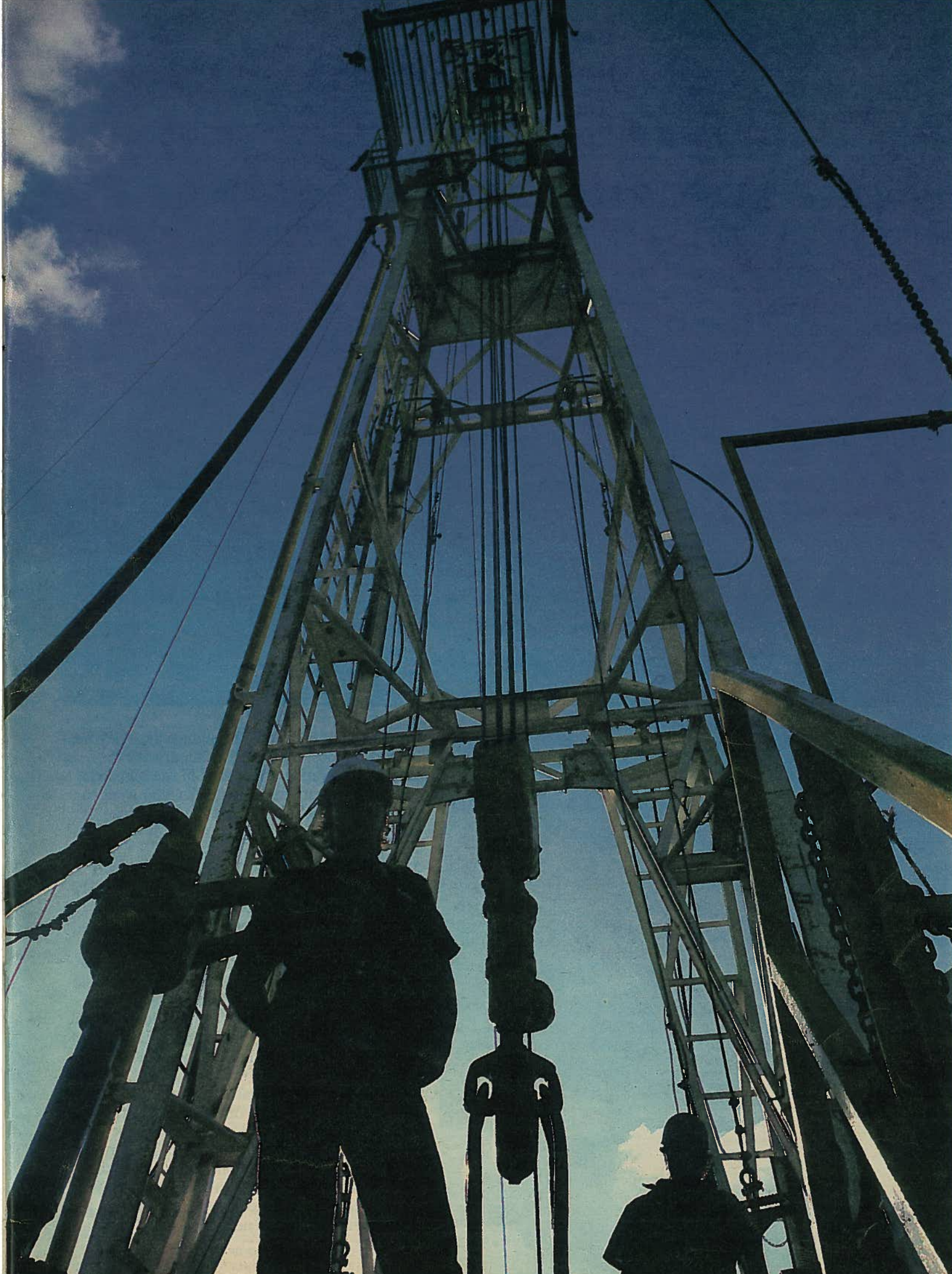
Wingfield steps back and wipes grease from his right cheek, where a ragged scar memorializes the time a horse, back home in Jasper, Texas, kicked in his jaw and knocked out his teeth. He turns and looks sheepishly at Lonnie Harlan, the big, cherub-faced, 37-year-old "tool pusher" (foreman) turned teacher who has just saved Wingfield's major body parts.

"You pretty much better know what you're doin' when you're on one of these things," Harlan had said earlier in the day. Which is, of course, why Wingfield is at roughneck school.

Texas A&M University's Rig Crew Training Program reopened in Abilene this past summer and is now the hottest blue-collar ticket back into the resurgent US oil business. About six months ago, a shortage of roughnecks — the entry-level job on a drilling rig — began to be felt in the drilling industry. Normally, there's a roughneck surplus, and normally it's not what you'd think of as nice work. As bumper stickers in the mid-1980s used to say, "Don't tell Momma I work in the oil patch. She thinks I'm a piano player in a whorehouse."

That was when oil was \$30 a barrel and 4,500 drilling rigs were operating in the United States. Thousands of workers were attracted to the fast life and hard work of the oil fields. The problem was, few of the new hands knew what they were doing. The Texas Employment Commission classifies roughnecks as unskilled labor. Not only were accident rates high, so were production losses from rookie mistakes. In 1981 Ray Brazzel, owner of Bandera Drilling Company and a former roughneck himself, thought it was high time to stop treating a complex, dangerous job as though it were as simple as pounding tent stakes at a carnival.

Brazzel headed an effort to raise money to start a training program. Investment in the new school, operated by Texas A&M's engineering extension service in Abilene, eventually yielded a fully functioning rig whose \$2.1 million cost was covered mainly through equipment donations. Between 1981 and '86, the school

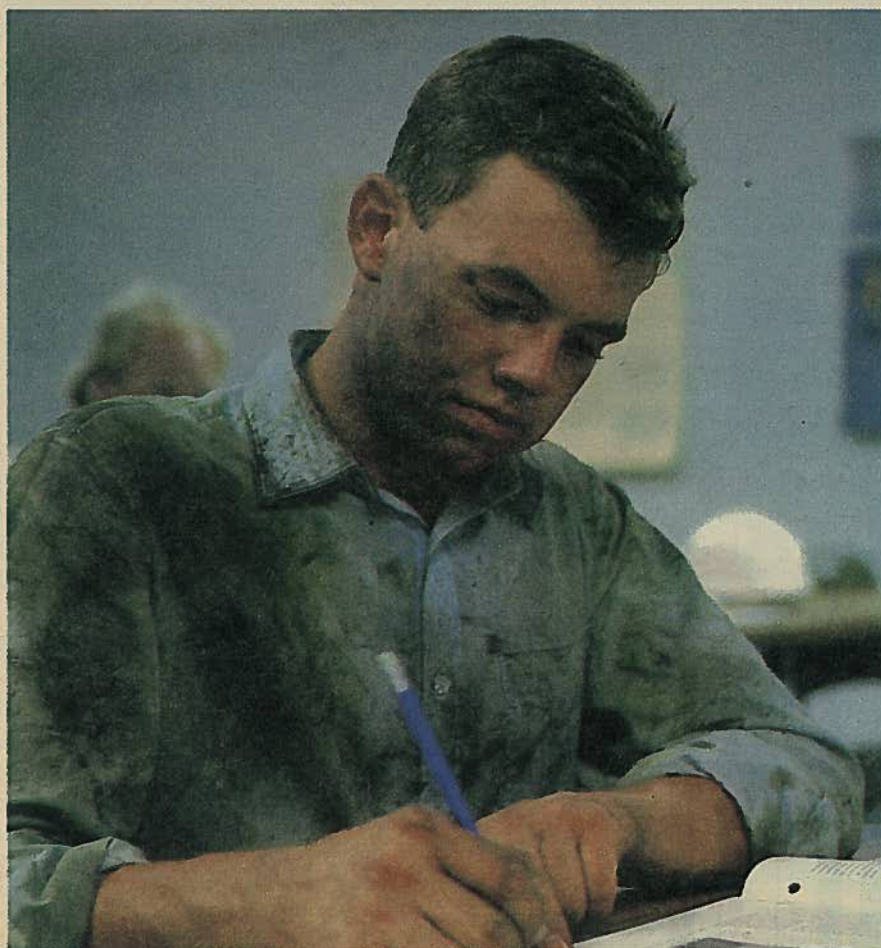


Roughneck trainees learn drilling operations on a functioning oil rig at Texas A&M University. Above: Trainee Jim Kallivas, originally from Boston, executes a "trip" - removing a string of 60-foot pipes from a drill hole.



Abilene trainees (from left) Galther Lee Cain, 28, a former maitre d' in Dallas; Vern Kaylor 3d, a 19-year-old Texas bull rider; Harry Wingfield, 19, an East Texan; and Jim Kalliavas, 32, who was a truck driver in Boston before moving to Atlanta eight years ago.

Right: After a day on the rig, Wingfield and other oil-field trainees adjourn to the classroom.



pumped out 1,500 trained roughnecks. They not only found jobs, they went to them with the kind of preparation unheard of in the oil patch. The accident rate for roughnecks who went to the school wasn't 70 percent, or even close. It was 5 percent.

THEN CAME THE 1980s. CRUDE, WHICH peaked at \$41 a barrel in 1981, collapsed to \$10 a barrel by 1986 as OPEC flooded the market to drive out rival oil producers. Suddenly, nobody in the US oil business, which is a high-cost operation compared with those in Saudi Arabia and Kuwait, could afford to sink a well. In West Texas, a drilling contractor who charged \$14 a foot for a well in the early '80s was lucky to get half that by the end of the decade. Of 100 drilling contractors in the Abilene area alone, fewer than 29 survived the bust.

The number of operable rigs in the United States eventually fell to 664, and most of the roughnecks, drillers, and tool pushers who ran them — perhaps 400,000 — got into other lines of work. West Texas, Oklahoma, New Mexico, the Rockies, and other oil-producing areas were abandoned faster than collateral at a savings and loan. Even today, Abilene, which along with

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Midland-Odessa is the heartland of the Texas oil patch, looks like it is recovering from an economic hurricane. Highway 80 leading into town from Dallas is a long strip of boarded-up oil-service businesses, closed-down motels, patronless restaurants, and vacant bars.

Roughneck school shut down, too. The training center — a prefab metal building in a lonely, scrub-filled field with a Texas Instruments plant on one side and an idle training derrick on the other — went back to its other specialty classes, such as heavy-equipment operation and computer technology. If you wanted to be a roughneck, you couldn't get proper training and you had to compete with drillers and tool pushers who, unable to find work at their levels, had to settle for what they could get.

Then things changed again. Beginning earlier this year, even before the Kuwait crisis erupted, crude prices began to inch up, justifying tentative increases in drilling. The rig count climbed to about 1,000 nationally — still less than a quarter of the boom level but a decided upturn. There was only one problem: Drilling companies could find plenty of cheap equipment to resume operations, often at 10 cents on the dollar of 1981 price levels, but there was nobody to operate it. Companies began to call the Abilene training center. They guaranteed jobs, begging for a new crop of graduates. They wanted roughneck school to reopen.

In July it did. Wayne Davis, 58, a veteran oil-patch hand with 25 years at Halliburton, the Houston-based giant of the oil-service industry, was recruited to set up a new curriculum, heavy on hands-on skills but also with classroom time devoted to safety issues. Lonnie Harlan, who'd been with the school all along — he built the training rig himself — agreed to come back as an instructor. The first two classes were predictably small — seven and four students, respectively — but the third was up to 15, and 20 or 30 were expected thereafter, which would mean more instructors (about one per 10 students) and more revenues. That is important, because this time the program has to be self-sustaining, which is why tuition tripled from its pre-'86 level of \$750 to \$2,200.

Hundreds of applications come in each month from all over the United States. Everyone in the first training class, which graduated on August 17, got a job, some at offshore rigs in the Gulf of Mexico — the highest-paying and

Today's solution

R I A P S T I E S G L E S S C H I T

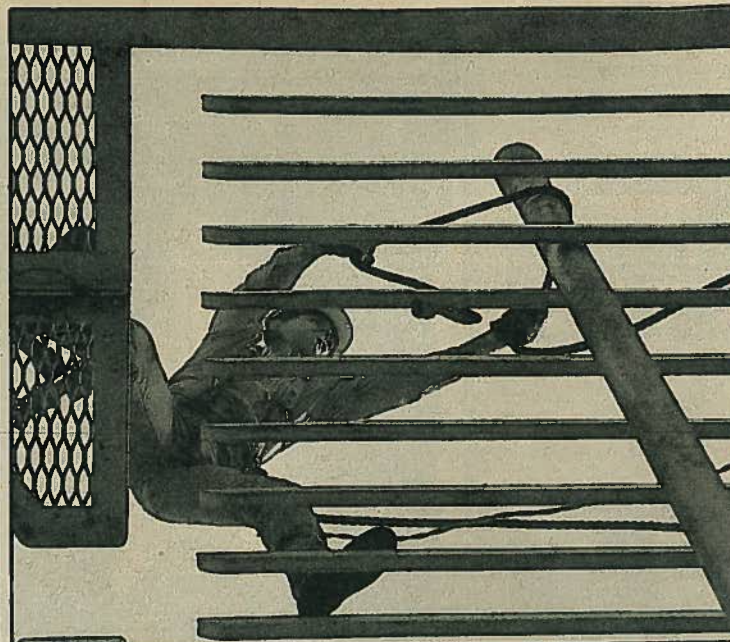
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most glamorous jobs in this dirty industry. Wages aren't up to the boom-time levels of \$14 an hour in the west Texas fields, but they've inched up from \$7 to \$8.25, usually with a 56-hour week. That's still better than a lot of local alternatives. At the General Dynamics plant in Abilene, the starting rate is \$4.25 an hour.

Iraq's invasion of Kuwait pretty much sealed the roughneck renaissance. Most oil companies, wildcatters, and financiers are waiting to see if crude, at one point soaring above \$40 a barrel, will stabilize at least at \$25. If so, it might be truly safe to drill again. Plenty of companies are already taking the gamble.

By the time Harry Wingfield and his childhood buddy, Vern Kaylor 3d, drove in from East Texas in Wingfield's new Chevy Silverado pickup to join the second class in early September, a certificate in roughneck training was good for any of the local drilling jobs and for offshore work, where there are near-boomtime wages if a roughneck is willing to put in overtime.

For young men "coming to



Harry Wingfield at work as a derrickman, one of oil drilling's riskier jobs.

work straight out of high school," says Bob Prock, 50, who joined the A&M extension center staff after leaving Pantex, the nuclear-weapons assembly plant in Amarillo, "it's better than working at Burger King."

"Vern-elle!" Burly, mustachioed Jim Kalliavas, at 32

looking more like a Mediterranean playboy than a roughneck trainee, leans over the side of the pipe-stacking board, 62 feet up the practice-rig tower. He and Gaither Lee Cain, a 28-year-old former Dallas maitre d', had climbed up to work as derrickmen. It is one of the most dangerous oil-field jobs and pays a dollar more an hour than most ground-based work.

For about an hour, Kalliavas and Cain work to disengage and secure 60-foot lengths of pipe (called doubles) suspended from a traveling block on what's called a "trip" — a process by which the entire "string" of drill pipe is pulled out of the hole in order, for example, to change a drill bit. It sounds complex and hard to do, and it is. Kalliavas and Cain take turns at the task, and now Cain is wrestling with the pipe, kept from falling only by a safety belt. Kalliavas has time to continue his mock-plaintive wail.

"Vern-elle!" It is typical of the "Greek from Boston" to rib the younger guys and generally ignore the accords of Texan good-old-boy taciturnity. The problem is that "Vernelle" sounds suspiciously like a feminized version of "Vern."

It might have been a good brawl. Vern Kaylor, a 19-year-old bull rider as quiet as Kalliavas is talkative, is every bit as solid as his apparent tormentor, and no stranger to manly disputes. But the Greek has knuckles like hubcaps. Before moving to Atlanta eight years ago to work in carpentry and

high-rise construction, Kalliavas had been a Teamster in Boston, driving trucks for his father's liquor business. He carries a crease in the top of his skull from the time three thugs dragged him from his truck and left him for dead.

Kalliavas, it turns out, isn't talking about Vern Kaylor at all. "Vernelle" is actually Verneesha, otherwise known as Vernette, a cocktail waitress at Chapps, a Highway 80 motel lounge at which Kalliavas plans to spend the upcoming evening. Once the etymology is explained, Kaylor settles back in the small tier of observation bleachers.

"Yankees," says Wayne Davis, shaking his head. Everyone nods, as if that pretty much covers it. At least Kalliavas isn't an Okie. Rivalry between the Texas and Oklahoma oil patches is so bad that the first thing Davis did when he moved to Abilene to work at the school was change his Oklahoma license plates.

In time, Kaylor will have to get used to a lot of types he'd never see in Jasper. Twenty years from now, if Kaylor continues his plan to stay in the oil

patch and rise up to tool pusher, he'll be part of one of the tightest subcultures in the working world, whether at a frozen rig near the Arctic Circle or at a remote site in Saudi Arabia's empty quarter — though, in truth, right now Kaylor is still the kind of guy who orders cheeseburgers in Mexican restaurants.

Kaylor's friend Harry Wingfield is a little more daring: chicken-fried steak instead of enchiladas. Whenever possible, Wingfield asks to team up with Kaylor. It makes him less nervous. "We been kicking each other's butts since we were little," Wingfield says. When he saw a clip about roughneck school on TV, he told Kaylor about it, and they decided to go together.

Actually, Wingfield had wanted to join the Marines. Watching troops in the Persian Gulf on the evening news back at the Ramada filled him with longing. A vision blockage in his right eye, however, kept him a civilian, and the oil field seemed like a useful alternative career. At the end of each day, Wingfield and Kaylor go back to the Ramada and work

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out with weights or run, except on the days when rig work takes care of "staying in shape." Cain prefers his bike. The first day of class he showed up looking like a California nightmare: biking shorts and Hawaiian shirt. Supervisor Wayne Davis told him to get some long pants and steel-toed shoes. Jim Kalliavas told him he had a long way to go to survive in the hard-hat world.

Kalliavas is not a typical tobacco-chewing roughneck. He has an agenda other than aerobics in Abilene. After work he changes into Docker slacks and pastel T-shirts and makes the rounds. He learned about Chapps his first week in Abi-

lene and is already one of the boys, no mean feat for a Yankee. But Kalliavas transcends stereotypes easily. Atlanta, not Boston, is his new home, the place where he has set up several small businesses, including an upscale deli, and bought a home near a golf course. He came to roughneck school after getting laid off at a high-rise construction job and thus qualified for a federal tuition grant. But it is clear that Jim Kalliavis isn't planning a career on the rig floor. A blue-collar entrepreneur — "I learned about business from the old man" — he likes to work with his hands but always has his eyes open for a way to make a few bucks.

Half the drilling-company owners in West Texas started out like that, working their way up as roughnecks, making contacts, learning the lingo, and proving themselves. By his third week in town, Kalliavas was schmoozing like a native. One Saturday, two locals with more than a dozen oil wells between them invited him out to a ranch to hunt rattlesnakes and drink beer. Kalliavas said he'd bring the beer: Not the local favorite, Miller Lite, but St. Pauli Girl, which is a brand his old man used to sell.

A loud clang causes Lonnie Harlan to shut off the big air compressor

on the draw works and observe rule No. 1 on the rig: "Always look up." What he sees is trouble. Cain and Kalliavas have come down the derrick tower, and Wingfield and Kaylor are now working the stacking board. Things had been going smoothly. They had pulled up most of the drill string and were now extracting the drill collars, heavy pipe lengths (about 2,400 pounds each) that are fitted just above the drill bit itself to add heft.

While unbuckling a drill collar from the traveling block, Wingfield had let it drop, and now it is wedged against the far side of the derrick. Neither Wingfield nor Kaylor knows

what to do, nor do Cain and Kalliavas. The drill collar is far too heavy to move by hand, it can't be ignored, and it won't go away on its own.

Harlan lets the dilemma sink in. This is just the sort of thing that can bring a rig to a halt. Then the instructor provides the solution. Instead of trying to hook the fallen pipe and pry it from its corner, Harlan's idea is to add an intermediate step to the procedure — a sort of intellectual pulley. To get one pipe free, he'll drop a second.

Manipulating the traveling block, Harlan deftly draws another double from the hole and stacks it next to the fallen one.

Then he climbs the tower and shows Wingfield and Kaylor what he is going to go. When he comes down, Harlan uses the hoist to maneuver the extra double so it is wrapped behind the stray. With the leverage of the second pipe, he pops the first one from the derrick and into the hands of Wingfield, who ties it off, then unhooks the second pipe length and stores it, too.

A novice could think all day and never hit upon that option. Once seen, however, it is dead perfect. Like everything in drilling, the basic idea is extremely simple: Build a tower, suspend a rotary drill, and start making a hole. As the hole gets deeper, add pieces of pipe to the upper end to go deeper. When the pipe hits the bottom, it is all brought back up. If the geology is right, and all the planets have aligned, oil follows.

It's as easy as space travel: Just build a rocket and fly to Mars.

There are a million ways to get hurt in the oil patch. Some are simple and brutal, such as catching a

hand in a chain or getting cut in half by a power tong that has broken loose from its mounting chain. Others are dramatic and unpredictable, such as a blowout that sends a string of drill pipe up through the hole like spaghetti, crushing or vaporizing anyone unlucky enough to be the derrickman or chain slinger on the drill floor at the time.

There's also hydrogen sulfide. If you've ever driven past a drilling area and held your nose, you've smelled hydrogen sulfide. Only a minute amount, less than 10 parts per million, can stink up a countryside with a rotten-egg smell. Hydrogen-sulfide pockets lie along the drill holes of hundreds of wells in the United States and are increasingly common as wells are sunk deeper and in more marginal places. But hydrogen sulfide doesn't just smell bad. It can kill in seconds.

Texas law requires certification in hydrogen-sulfide detection and escape procedures, and Wayne Davis does his best to impress on his class that dealing with the gas is more than an academic consider-

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Jim Kallivas, a blue-collar entrepreneur, says, "I learned about business from the old man."

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ation. Dozens of workers die each year walking into a drill site where hydrogen sulfide, which is heavier than air and invisible, has escaped and accumulated in low-lying areas.

Even the odor isn't a safeguard. After 15 minutes of exposure, a person stops smelling it. In sufficient concentrations, say 500 parts per million, it can render a person unconscious in seconds. Above 1,000 ppm, it is almost instantly fatal. On one occasion, says Davis, three field servicemen, one after another, came upon a pumping unit in which hydrogen sulfide had settled in the pit. As each jumped in to see what was wrong, each dropped dead.

Nor is that the end of the toxicity of drill-rig life. Years back, Davis temporarily lost 50 percent of his lung capacity from breathing cement dust, which is used after drilling is finished to create a permanent concrete casing for the well. He has also been exposed to drilling mud, the special mix of caustics and other substances used to regulate drill pressure and speed.

"I had this crap all over me and breathed it for years, and now they tell me it's deadly," he tells the class.

The Halliburton logging truck rolls up in midafternoon. It is filled with "tapeworms" — geologists and engineers who want to test some drill-hole measuring devices on the school's rig. Keeping the rig operable costs up to \$50,000 a year in maintenance, not counting the need for replacements for old gear. Good will within the oil industry is important, so class stops as the pros step in.

Davis tells everyone to sit on the far side of the drill floor, behind the Caterpillar engines. One of the instruments the tapeworms are running into the hole contains a radioactive component.

The afternoon passes under storm clouds that have threatened all week but have never produced rain, though they provide cover from the sun. Wingfield and Cain sit in the shade, swapping ideas about skinning possums and rabbits. Davis tells stories of his years as a

tool pusher. "When I was in the desert they had some of them big ol' trucks going to Saudi Arabia," he says, narrating in the short, deliberate phrasing of the region. "Big ol' sumbitches . . . tires like this." He raises his hands. "And this wide." He extends them. "Sand tires." He spits tobacco for emphasis. "Big ol' Peterbilts . . . automatics."

The pros finish just before 5 p.m. On a working rig, that wouldn't mean quitting time, but for roughneck school it is the class bell.

"Let's go home," Harlan says and climbs down the substructure ladder. Harlan likes the regular hours, which give him time for his wife, his two kids, his small ranch, and the rodeo. The money isn't as good as on a real working rig, but money isn't everything. Harlan and Davis, and now their trainees, could have found other routes to the American Dream.

Davis lingers for a few minutes, watching Harlan and his students amble down the road back to the parking lot. He can't help noticing the changes. He came into the oil field when oil workers stayed as segregated from the social mainstream as the military does. "Burns me up to see some longhair in a pickup with an 'Oil Field Trash and Proud of It' bumper sticker," he says, taking off his hard hat to wipe his brow. "People start thinking that about themselves."

He tosses his soiled gloves into the back of the pickup with those of the trainees. The school doesn't budget for laundry, nor for all the fix-it overtime somebody has to do, so in addition to patching things together on Saturdays, every so often Davis sneaks a load of cotton work gloves into his wife's washing machine, then wipes the greasy residue from the tub before she finds out.

"There's a bunch of people in the business who started up a 'Society of Oil Field Trash,'" he says of a tongue-in-cheek club that does little other than hold parties. "They asked me to join, and I said no. You know what I said? I said, 'I'm not trash. I'm a professional.'"

He spits on the ground and opens the truck door. He is going to give his students a pop quiz on hydrogen sulfide first thing Monday. If they flunk, they'll take it again until they get it right. •

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