
A VISIT TO "THE BEAST:" EXPLORING A WORKING OIL RIG

Where
your weekly fill-up begins its journey

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"Toto, we're not in Long Island,
N.Y., anymore. We're in Texas oil country."

I'm staying in the home of Ken and
Cathy Burgess, and dinner, cooked by Ken using some of his homegrown hot
peppers in multiple ways--including some great enchiladas--comes with much talk
about the oil business. In Midland, Texas, where the Burgesses live, and where
Ken's \$650.1 million-assets FirstCapital Bank of Midland, N.A., is
headquartered, oil is the home team. Ken has been an energy lender, and even
now, as the bank's chairman, he knows the business well. He thinks the best way
to understand it is to see it where it begins--in the oil fields.

So tomorrow we will visit "The
Beast." (Video of part of the visit can be found below, where the photograph is.) A companion article, "How To Make A
Loan When The Inventory's Underground," explores the technical side of oil lending. Both stories are related to the
February 2013 cover story, "Tale of Four Cities," about Ken Burgess, who is currently serving as ABA's Community
Bankers Council Chairman.)

Mexican martinis and oil talk

Back in the east, where I live, you
must understand, oil is something you check the dipstick for now and then, or
something that heats your home. Natural gas is something that comes out of a
pipe to heat some homes and maybe to cook your steaks on. Gasoline is something
you pour into your car now and then, feeling your pulse rise as the numbers on
the meter seem to approach what you spent on your first car decades earlier.

The oil business, back east, is
something you curse about.

Or you make jokes about saying things about saving miles-per-gallon and starving an Arab oil sheik somewhere.

The closest thing most folks where I live know about how our fuel gets to our homes is their memories of driving the New Jersey Turnpike section that passes through that state's oil refineries. Phew! (Although it's better there than it once was.)

Fracking--hydraulic fracturing--is written in the eastern press as something of an evil. As close as Pennsylvania and upstate New York, fracking is being used just as it is in Texas. Back home, it's the subject of trepidation and considerable politicking.

In Midland, oil is quite literally the lifeblood of the community.

If you live there, the pump jacks--those up-and-down gadgets that resemble the old "drinking bird" toys--and drill rigs--those huge towers that city-bred easterners think of when they think of "oil wells"--are as ubiquitous as fast-food joints back home. Many people have nice homes in Midland, but what initially drew people was what's below ground: part of the Permian Basin, source of a good quarter of the oil produced in the U.S.

I'm staying with the Burgesses, in the room of a son away at college, and Cathy has thoughtfully left two local essentials in the room. One is a couple of bottles of spring water. When you come to west Texas, you make a point of staying hydrated.

The other essential, to help me understand oil country, is the local paper, the Midland Reporter-Telegram. The Sunday edition contains a pullout section, "Oil Report," which reveals a world I had only guessed at. Photo coverage of the 2012 Permian Basin International Oil Show, on the front page, shows the latest in oil and gas equipment.

I had taken a course in energy economics in college, but that was 34 years ago. The paper reveals oil and gas

as a veritable society, a culture of energy. A section of the paper called "Completions" resembles a sports section box scores page. Each entry describes, in incredible technical detail, how various wells have done, what methods were used to achieve the results, and more.

Steve

Cocheo shot some amateur video on "The Beast." To see oil workers adding more drill pipe, [click here](#). Warning:

Turn your computer's volume down a bit because the noise is like the shrieks of the damned. But don't turn it down all the way or you won't hear drilling manager Tommy Taylor of Fasken Oil and Ranch narrating the process.

Advertisers hawk products and solutions

to problems that open my eyes on a different way of life. "High Pressure Casing Leak?" asks one ad, listing solutions the vendor offers. Technical electronic services necessary to analyzing results are advertised. Specialized training courses are offered.

Even mobile homes for housing drill

rig crews are promoted. Crews come from Midland and many other places--as far away as Canada--as the boom in Midland sucks manpower from elsewhere to feed the need for more hands to do the work of the oil fields. Oil field workers live at their rigs for weeks at a time, working at all hours. Work goes on around the clock. During off weeks, some fly back home, others find what housing they can in a market that's short of places to live. It's come to the point where even basic hotels can charge hundreds for a night's stay.

The back page of "Oil Report"

features a full-page ad for the Ford F-Series pickup. Out here, pickups are tools, not for hauling lumber from Home Depot.

Dinner conversation mostly concerns

oil and gas. The Burgesses have gathered couples who know the business. As Ken Burgess serves out his famous "Mexican martinis," spicy drinks based on tequila and infused peppers, we talk oil and gas.

Cary Billingsley, vice-president at Atlantic Operating, LLC, and one of the bank's directors, speaks at length about the extensive science and engineering that goes into running an exploratory well. If your only experience of an oil rig consists, like me, of seeing James Dean getting soaked by a gusher in the 1956 movie "Giant," then you don't know anything. For one thing, a gusher would be wasteful. For another, as these folks explain, a gusher is damned dangerous. When gushers happen, people can get killed.

Like an iceberg, most of what a drill rig is all about is below ground. Thousands of feet of drill go beneath the surface, even sideways nowadays. Drill heads are complex, steerable machines under tremendous power and pressure. Think of all that metal suddenly being pushed back aboveground--launched, really. Think of it going airborne--and then gravity taking over.

Think of being caught amid the falling hardware.

Stopping that kind of thing from happening is critical, and as a result exploratory wells have multiple systems designed to prevent "blowouts."

But I'm getting ahead of the story.

Heading out to "The Beast"

The next day, after spending the morning talking about banking, Ken Burgess, Jay Isaacs, the bank's president, and I head to a parking lot, where we meet Tommy Taylor. He is drilling manager for Fasken Oil and Ranch, Ltd., owners of the well we will be visiting. Taylor is a veteran oilman. Fasken was a Canadian lawyer who bought a ranch in 1913. Drillers began harvesting the Permian Basin in this area a few years later.

We'd already changed into jeans, workshirts, and boots, and now Taylor hands us each three items. One is an oil field hard hat. Another is a set of safety glasses. The last is a set of blue-gray coveralls. Government regulations require that anyone on the drill

site wear these fire-retardant one-piecers.

We drive to the oil field, passing all kinds of service vehicles that bring supplies of various kinds to the rigs. "Fracking sand," used in the hydraulic fracturing. Water trucks. And equipment of all kinds.

Our destination is the company's Rig #33, "The Beast." It's a huge tower, several hundred feet high, built atop a multi-story platform.

Beneath the drill platform is a huge hydraulic device called a blowout preventer. Its purpose? Ever used a garden hose without an on-off valve? You pinch the hose, or bend it, as an impromptu shutoff.

There's nothing impromptu on an oil rig. The preventer, a huge device, is designed to prevent the kind of accident described earlier by using tremendous power, with several backups, to pinch closed the hollow steel tubing that the rig keeps sending down the well bore. The idea is to contain the pressure and to hold the drill pipe in place.

Concern over safety begins with a signboard near the parking area of the well's compound. It presents the latest statistics about the well, including the readings on various factors that are read using sensors down the hole. One is a poisonous gas that Burgess notes is so fast acting that if its presence wasn't monitored, you'd be dead before you were done getting a whiff of it.

Sobering.

A different kind of doghouse

The rig is the centerpiece of a temporary village. Housing for the roughnecks, the crew, is nearby, as is a small trailer nearby that houses the scientific equipment necessary for

analyzing core samples retrieved from the well.

It's a mistaken idea that oil lies beneath the earth's surface in hollow caverns filled with the viscous crude. That's a cartoonist's idea of oil drilling.

It's contained in rock, and the drill head is a rotary set of grinders that chew the stone and earth as it goes. What comes up for analysis are chips. Taylor takes us up to the rig's operations center--it's called the "doghouse" and is stuffed with computers and readouts and printers spitting out long sheets of what vaguely resembles a seismograph, collectively called "logs."

Taylor shows us the doghouse and then takes us back outside to an area where output from the well collects.

He puts a handful of sediment in my hand that was recently more than a mile below the earth's surface. It is warm and feels somewhat oily. This is what the workers in the small trailer use to test what the drill is finding. Chemicals are added to the sample and viewed through a microscope. If the sample fluoresces after treatment, that's a good sign. What's being tested is the presence of hydrocarbons--for you and I, whether there's oil down there and what its particulars are.

Taylor has shown us some of the various logs, measuring all kinds of factors. I am reminded of a line in Hamlet, where the main character tells his friend, "There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy." I don't recall what the Prince of Denmark was talking to Horatio about, but the logs and the sediment are examples of what's in the earth.

When the well is established, it will be lined with cement, to create a passage for oil to be pumped through using a pump jack. The lining prevents groundwater contamination, among other things.

Fasken has about 1,400 wells under pump jacks. Those are wells that produce. Some holes don't prove out and they

are sealed, so more exploratory wells than that have been driven by Fasken.

It's hard to imagine so many. But Taylor is nonchalant about that. "We're just small taters," he says. Other operations are much larger.

Adding on more pipe

How do you keep going further and further down into the earth? Drill pipe is added in standardized lengths, by a combination of manpower and power tools. This well is drilling at about 56 feet an hour. Periodically, it's time to add more pipe. At a signal, the crew stops the drill. Heavy equipment on the rig lifts a standby pipe section where it's waiting, vertically, in the "mouse hole." (Later this will be replaced by another standby section, raised to the drilling deck from a yard of waiting pipe nearby, lying horizontally, to be stood up in the mouse hole one at a time. It's the "on-deck circle" of the drill rig.)

The drill's motive power comes from a long metal shaft called a "Kelly," which stays above the surface all the time. A pair of crewmen use huge power wrenches to detach the kelly from the section of pipe closest to the surface, and the next section is threaded into that piece. The kelly re-engages with the entire drill length and the assembly lowers into the hole, and business begins again. Before long, the process will repeat itself, as the well goes deeper and deeper.

Each time the drill is partially raised to permit addition of pipe, a bit of "mud" drains out. This isn't from the well itself, but comes from "mud" pumped down the hollow pipe. Among the roles of driller's mud is cooling the bit. If you've felt the heat of a hand drill bit after putting a hole in a piece of hardwood or steel--it can burn you--imagine the heat of an uncooled well drill that is heading down to over 11,000 feet through the earth. Then consider that a mile measures 5,280 feet. Mud circulates, serving much the same purpose as the coolant in your car's engine.

In addition to the paper log, all information appears on computer screens in the doghouse, and these can be monitored back at the company's offices. In fact, Taylor pulls out his iPhone and shows how an app he has lets him see what's going on right on the mobile device.

The men, machines, supplies, and all the supporting transport and workers to handle it become mind-boggling. All I can wonder about, as we return our safety equipment and strip off the coveralls, is how gasoline only cost a quarter a gallon when I was a kid.