LIFE OF A DROP OF OIL



A Story Unlike Any Other



Chapter One:

This is a story billions of years in the making, about a miracle substance that's touched every thread of human life in every corner of the world. This is the story of oil.

Walls of ancient civilizations were mortared with it; epic battles waged over it; billion-dollar industries fueled by it; fortunes won and lost because of it. It's second only to water as the most precious natural resource on the planet.

It greased the machinery of the First and Second Industrial Revolutions, powered the Transportation Age and helped the Allies win two world wars. Pursuit of it remade the geopolitical landscape, then remade it over and again. Countries that recognized oil's transformational power leveraged it to grow in size and influence. As the legendary late U.S. Sen. Everett Dirksen once put it, "the oil can is mightier than the sword."

The energy surge in the U.S., wrote author and former British House of Lords member Matt Ridley, was responsible for a "roughly 9,000% increase in the value of goods and services available to the average American since 1800, almost all of which are made with, made of, powered by or propelled by fossil fuels."

Think about this: One standard, 42-gallon barrel of U.S. oil yields between 19 and 20 gallons of gasoline. After that, roughly one-third of what's left will produce other fuels to power diesel engines and jet airplanes. Things like asphalt and lubricants come from the tiniest slice of the barrel "pie" – typically 3% to 4%.



It takes 2.000.000 gallons of Hi-octane gasoline to put 1.000 planes over Germany



U.S. war propaganda stressing importance of |oil for the war effort. Source: National Archives and Records Administration

The other 15% – dubbed "other"

or "bottom of the barrel" petroleum substances – couldn't have a more understated classification.

Why's that?

Because today, you'll find these so-called "bottom barrel" petrochemicals in some 6,000 everyday products – from backpacks to eyeglasses, shoelaces to lipstick, toothbrushes to shampoos, trash bags to coffee pots, deodorants to allergy medication. And it's a near certainty many folks don't comprehend or fully appreciate how intricately enmeshed this substance is in the routine machinery of their daily lives. Yes, it fills up your gas tank, but it influences your life in other ways you might not realize.

Lately, there's a cause du jour of publicly chastising First World countries for failing to accelerate the transition to greener fuel sources and wean themselves from petroleum dependency. However, a good chunk of those calling for this revolution might be shocked to realize this inconvenient truth: Going greener still relies on petroleum products to manufacture solar panels or lubricate the gears and axles inside wind turbines to keep fan blades whirring.

Pioneer is a company that realizes there is room for both: Fossil fuels still move the world; however, there is room to embrace the energy transition and do better for the planet through long-term emission reductions.



Developing the massive infrastructure required to support a shift to renewable energy sources doesn't come easily. Indeed, even tech mogul Elon Musk, whose Tesla brand lives and dies on the success of its electric cars, batteries and solar energy products, tweeted in March that "... we need to increase oil & gas output immediately ..." Russia's invasion of Ukraine disrupted the global supply of fossil fuels, again resetting the geopolitical chess board, as a swath of European countries – even if by necessity – realized how vital fossil fuels were to transportation, commerce and energy security.

Fossil fuels are responsible for lifting untold hundreds of millions of people in developing nations out of poverty, boosting wages and life expectancies in those countries while causing global malnutrition rates to plummet.



Rollerskating initiative in New York City after FDR implemented mandatory gasoline rationing in 1942. Source: Found originally from www.blackmountainsand.com/blog/texas-oil-and-world-war-il/

Energy and industrial policy expert Alex Epstein, author of the 2014 book, "The Moral Case for Fossil Fuels," argued in a 2015 Forbes op-ed that, because of abundant oil, coal and natural gas, "individuals in industrializing countries have gotten their first lightbulb, their first refrigerator, their first decent-paying job, their first year with clean drinking water or a full stomach."

As for oil's future?

To borrow a line from Mark Twain, the rumors of its demise are greatly exaggerated. Its story is still being written.

Author Daniel Yergin, whose hefty, 900-page "The Prize: The Epic Quest For Oil, Money & Power," is required reading for anyone serious about this business, aptly summed up that sentiment in an epilogue to his sweeping 1991 narrative of the industry: "For several decades to come – whether the price is high or low or somewhere in between – oil will be a central factor in world politics and the global economy, in the global calculus of power, and in how people live their lives."

Our story crisscrosses datelines from Dubai to Houston, Cairo to Midland. Over the coming seven weeks, we'll take a journey unlike any other – a time-traveling, globe-trotting adventure through human history. From the ancient Babylonians and Egyptians to the Chinese, who drilled the first known oil wells, then on to America, where an oil strike in a sleepy Pennsylvania hamlet touched off the country's modern energy industry.

We'll discover how oil took form on the planet, how we find it, extract it, produce and market it. To accomplish this, we set out more than a year ago to interview dozens of employees in Irving and Midland whose work has shaped the corporation Pioneer is today.



Next week, we'll begin our second installment with a (light) history lesson to learn how oil got here. Then, in weeks to follow, you'll meet the geologists who locate the oil and the landmen who secure the drilling acreage to recover it.

From there, we'll document three of the most labor-intensive steps in the process: drilling, completions and production. The final chapter traces oil's journey through the marketing stage.

Even though each link

in this process is entirely unique, we discovered you share two things in common: You are passionate about your work, and you love the business you're in. Oil is in our blood.



It's fitting that, as we mark our first quarter-century in business, we explore how your work, ingenuity and diligence form the backbone of this Fortune 500 corporation with a market cap topping \$50 billion.

That's why this is your story, too, a parallel narrative about a company with roots going back six decades, formed on a handshake deal between two gutsy west Texas oilmen who wanted to elevate their company and better the industry, which for decades had seen hundreds of come-and-go wildcatters looking to cut a corner and make a fast buck.

It's also a testament to the bold-thinking visionaries; the mom-and-pop operators betting everything on striking black gold; the scientists and inventors who developed technology that gave oil and gas operators access to fresh pockets of hydrocarbons once considered out of reach; and the rig workers in the field, from the entry-level roughnecks to the toolpushers who've earned enough stripes to oversee the complex ecosystem of an entire rig operation.

Thanks to companies like Pioneer, today's oil and gas industry is safer, cleaner, and more environmentally and socially responsible than it's ever been.

That's something special to celebrate this year, and we're excited you'll be along for the journey.





COMING NEXT WEEK: Discover how oil first formed on the planet and how both ancient and modern-day civilizations harnessed its seemingly limitless potential

DISCOVER MORE: View additional learning resources from the <u>Pioneer University Oil & Gas 101 page</u>.