The Petroleum Industry has gone from being perceived as the foundation for modern industry to the bad-boy of post-modernist society. Throughout recorded history, oil and gas have brought people from many fields of knowledge together. Our own lives have admittedly been considerably impacted by the petroleum industry over the past decades. Gasoline and aviation fuel have made us more mobile than ever before, we rely on heating oil and gas for our comfort and well-being, mineral oils are the basis for many chemical products such as fertilizers and plastics. But in spite of it all, recent surveys have indicated that only about one in every five respondents regarded the oil and gas industry in a positive light.

Through the pages of this single-frame thematic exhibit, you will experience the excitement, disillusionment and hope for our culture produced by this provocative industry.

This exhibit presents a brief history and overview of the global industry through this philatelist's eyes. The exhibit presents a selection of stamps, covers and other postal material spanning the last 150 years to explore and illustrate the storyline.

The exhibit starts with a quick history of the industry and run through the different operations of production and attempts to explain where it all leads.

The narrative of the exhibit is displayed in 10 pt. Memphis Light and philatelic text is displayed in 10 pt. *italicized* Times New Roman. Items of significant philatelic value are identified with a bold outline.

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Oil has existed on the earth since its creation. Some of the oil and gas, from deep within the earth has pushed up to the surface through rocks to form sticky black scum on the top of pools and springs.

Moses was found on the banks of the Nile river in a basket that had been made waterproof with oil seeps in Egypt.

Such practice had been carried out for centuries by the Assyrians who coated their "gultas" with pitch.

Greek Fire, a mixture of petroleum and powdered lime that would catch fire upon contact with moisture was a more feared weapon than gunpowder.

Gas that escaped from the ground usually catches fire from lightning strikes. In Azerbaijan, such "eternal flames" were worshipped as gods.

The ancient Chinese were more practical. They piped the escaping gas through bamboo poles and employed it to heat their homes.
Other uses for the black crude were devised and its value had grown from that of a sealant to much more. Besides its ancient use for coating and burning, petroleum was also found useful as a medicine for wounds, gout, and even baldness.

It was later discovered that the black substance could be distilled to a clean-burning illuminant. Abraham Gesner developed this process in Canada and Ignacy Lukasiewicz did likewise in Poland. Kerosene as an illuminant replaced the costly whale-oil in use at the time.

The stage was set and the need for more of the stuff was fast realized. However, the oil seeps and creeks where the oil could be found were limited and new ways of finding the oil were needed.

Drop Rate — “Nature’s Healing Ointment Sold by Druggists”
3.0 Upstream Operations

Upstream operations pertain to the exploration, drilling and production of crude oil.

The first commercial oil well, successfully drilled to a depth of 69 1/4 ft. in the town of Titusville, PA on Aug. 27, 1859 was an experiment in exploration.

Methods of finding the "black gold" other than drilling were developed to aid in exploration. These included seismology, geology, aero-magnetic survey and gravimetric research to name a few.

Lord von Eötvös (1848 - 1919) developed a new type torsion balance designed to detect gravimetric imbalances in the earth's surface which led to the detection of anticlines in the earth where oil pools.
Geophysics has made a great contribution not only to the development of oil resources but to underground resources as a whole.

The geophysical exploration techniques that have been developed do not result in perfect tools to forecast oil discoveries; they only help give the geologist an indication of how good his chances are, whether on land or sea.

Sometimes, finding crude oil was as easy as looking down. Sir Walter Raleigh discovered the Pitch Lake of Trinidad and Tobago. An entire industry developed to exploit the oil in the area.
3.0 Upstream Operations

Oil drilling is the process by which tubing is bored through the Earth's surface and a well is established.

North American oilfields were the first to be drilled. Canadian, European...

... and Latin American sites were drilled soon thereafter.

In Europe, oilfields in Romania and Poland were first to be exploited.

Percussion bits were replaced with rotary tools for more efficient drilling. Offshore drilling is now successfully done in water depths in the hundreds of feet.

Close-up of a rotary drill bit.
3.0 Upstream Operations

Oil production pertains to the removal of the crude from the ground.

Oil flows under its own pressure...

Imperforate Pair

Revalued

Logging, Perforating, and Pipe Recovery

Drill experts do more than just drill.

A roughneck crew working the drill string.

Overprinted

The need to drill opened up an entire industry.

... or is pumped from the ground using a “pumpjack”.

On land or sea, drilling operations are able to be performed in the most extreme conditions and in the most efficient manner. Roughnecks, expert in the handling of the drilling equipment, work around the clock to bring in a well. A “dry hole” is not an option!
4.0 Midstream Operations

Of course, getting crude oil from the ground to the refinery and refined products to market meant transporting it somehow. Transportation methods have evolved rapidly since the early days.

Transporting oil in barrels by barge down Oil Creek to Oil City was the best method in the early 1880's. Shipping crude oil and product in barrels by railroad made shipment by barge obsolete.

As the first standard unit of measurement the barrel was first used to collect, store and transport crude oil and refined product. The typical barrel of oil is 42 gallons. Officially adopted in 1866, a barrel's refined products include about 20 gallons of gasoline, 12 gallons of diesel and 4 gallons of jet fuel and other products like liquefied petroleum gases and asphalt. Barrels were transported a number of ways.

Railroad oil tank cars became the latest of a growing number of oilfield innovations. As Pennsylvania petroleum production skyrocketed following the Civil War, Densmore oil tank cars first successfully transported oil by rail from booming oilfields to refineries.

John D. Rockefeller used the railroads to build his Standard Oil Co. by offering rebates to the railroads who moved his product. Smaller refiners were thereby forced to pay more to move their product to market.

Although a mere 3% of crude oil and petroleum products are currently shipped by rail, amid a North American energy boom and a lack of pipeline capacity, shipping on rail is suddenly increasing. The trains are getting bigger and towing more and more tanker cars.
As the industry grew, a larger and larger amount of petroleum and natural gas has been moved through pipelines. In addition to transport by river barge, railroads and pipelines crude oil and refined product is carried around the world by tanker ships.

Carrying barrels of crude oil in the hold of a ship was dangerous business. Many a vessel caught fire or exploded in transit. New technologies and fresh ideas made the vessels safe and sure. The Glukhauf was the first such vessel.

Although the pipeline is the cheapest mode of transport today, it requires a steady flow in order to justify the large initial capital expense involved.

Road transportation by tank trucks ensures delivery of refined product like fuel oil and gasoline to residences and facilities.
Downstream Operations relates to oil and gas refining, marketing and distribution activities.

The first refinery was built on Oil Creek near Titusville in 1860. Soon after several others followed suit and built refineries.

The refining process essentially “cooks” the crude oil in order to separate its product components at various temperatures.

A refinery in Bulgaria

A Bolivian State oil refinery
5.0 Downstream Operations

Crude oil, by itself is virtually useless. Petroleum refining refers to the process of converting crude oil into useful products.

The refining process transforms the crude oil into useful products such as liquefied petroleum gas (LPG), gasoline or petrol, kerosene, jet fuel, diesel oil and fuel oils.

Refineries exist the world over, owned by oil companies both large and small. They produce the products required by today’s energy-hungry culture.
Several petroleum companies have come and gone in the 150-plus years since Drake drilled that first well. From these companies have come some of the most useful products of our time. The world's oil companies are either private or State-run.

Collectively, multinational oil companies produce 10% of the world's oil reserves. State-owned companies now control more than 75% of all crude oil production.
The majority of petroleum is converted to petroleum products, which includes several classes of fuels, synthetic fibers, fertilizers, asphalt, butane, propane, and plastic products...

... all are derived from the crude pumped out of the ground.

Full booklet: Paraffin cooking stove
Conserving oil is vital to most everything we depend upon for our everyday lives.

Although energy conservation became commonplace after the oil embargos of the 1970's, conserving the world's petroleum reserves had been important long before that.

When steam containing Btu's from oil heat leaks, that results in the loss of both latent and sensible energy. The value of the oil used to produce it is wasted as well.
Our demand for petroleum resources has increased, but has not yet reached peak petroleum production. With added production comes added risk of environmental disaster.

**Imperforate**

Risk comes from threats of war, causing discharges, whether accidental or intentional...

... spills affecting wildlife and the food chain.

With increased production comes the responsibility to use our minds to develop safer and more cost-effective techniques to maintain supply while keeping our planet...

... and its inhabitants safe.
8.0 Conclusion

So, in spite of the romantic past; this precious resource being used in the worship of vengeful deities...

... and the risks involved in the modern exploitation of its power, man's need, want and desire for greater mobility and energy will never be satisfied.

Azerbaijan - Sheet with green color shift

Thanks to petroleum, humanity has a higher standard of living than ever before. We all hope the present richness of life could last forever. However, in spite of the unparalleled benefits derived from oil, we must utilize our vast technological skills to wisely use this limited commodity to our full advantage. The future is in our hands.

Photo essay signed by designer

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