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SUMMER 2005  
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# BOSS

CONNECTING TO INDUSTRY

## Crude Journey

*How does oil get from the ground to the gas pump?*



**Henry J. Kaiser:**

His Legend and His Cars

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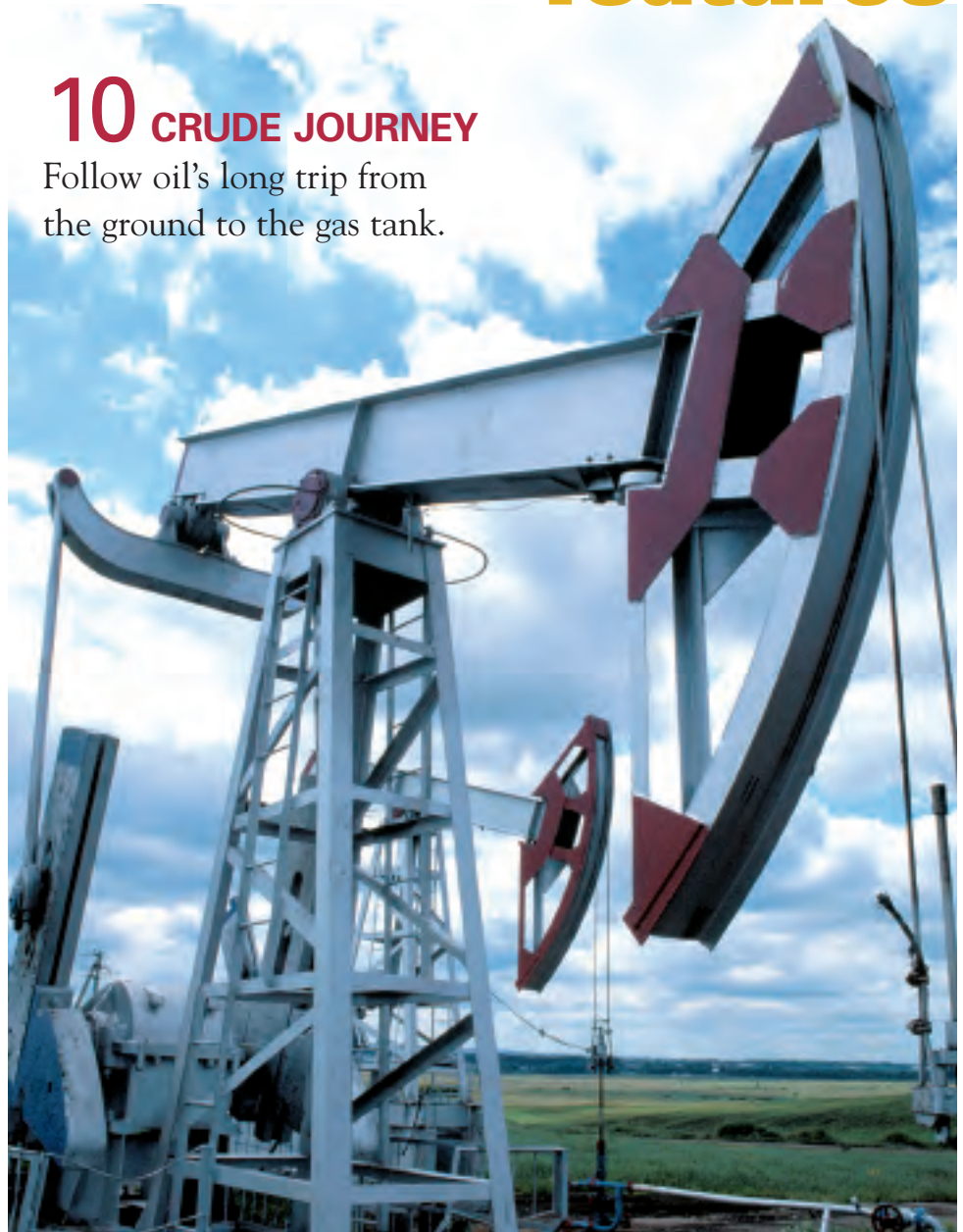
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Known mainly for manufacturing cars, Henry J. Kaiser was a true entrepreneur.

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The land down under is rich in natural splendor.





# The Right Connection

We hope you enjoyed the first issue of *BOSS* magazine. Your comments are always appreciated and, based on the ones we

have received, we believe that we are on track. With each publication, our intent is to provide interesting and informative articles that focus on subjects that are important to people involved in industry.

With world gas prices going through the roof, we feel it is appropriate to focus this issue of *BOSS* on oil production and related businesses. We all know that finding and refining enough oil to meet our needs is a continuing challenge. However, what we may not know is the process of getting oil from the ground to the gas pump. This is the topic of our feature article, and it is a fascinating sequence of events. I trust that you will find this and the related articles well worth reading.

The articles concerning leadership, integrity and perseverance speak to issues that are an important part of our business, and we want to share them with you. Enjoy this issue of *BOSS*, and please let us know what you think. We want to be your Right Connection. You can reach us at [bossmagazine@dixonvalve.com](mailto:bossmagazine@dixonvalve.com).

Richard L. Goodall  
CEO, Dixon Valve & Coupling Company

# BOSS

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## An Ounce of Prevention

*Handling air tools unsafely can cause breakage—or much worse!*

**E**xtracting aluminum and refining it into a substance that another manufacturer can use as an aluminum part requires many steps. The raw material, bauxite, is fed into a separator tank also known as a digester. Inside the digester tank are a series of wires that resemble a spider web. These wires carry an electrical current that separates the aluminum ore from the rest of the material. This process is known as electrolysis. The residual matter ends up layered on the walls of the tank. Periodically, this clay-like substance needs to be removed from the walls of the digester; pneumatically powered chipping guns do the job. Removing this residue is hot, dirty and strenuous work.

### Case Study

After cleaning one digester, a three-man crew began the process of removing their tools. To do this, two men climbed to the top of the digester. One pulled the chipping hammer up by its hose and the other man coiled the hose. The third person remained inside the digester to steer the chipping gun through the “spider wires” as it was being hoisted up. Just as the chipping hammer reached the top of the tank, a short piece of pipe connecting the air fitting to the tool broke and the chipping hammer plummeted into the tank, bouncing like a pinball off the spider wires. The worker inside the digester had no idea which way the 25-pound tool would travel as it cartwheeled off the wires. The tool struck the worker’s hand, which was grasping a spider wire and amputated three fingers.

Removing the tool from the digester using the air hose was “standard procedure” at this plant. Even though there was a door at the bottom of the tank, the workers pre-

ferred pulling the tool up by the air hose rather than carrying it up the steps that wound around the outside of the tank.

This plant was in violation of several Occupational Safety and Health Administration regulations. Standard 1926.302 (b6) states: “The use of hoses for hoisting or lowering tools shall not be permitted.”

Standard 1926.302 (b1) states: “Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from being accidentally disconnected.”

ANSI Standard B186.1-1984 section 7, paragraph 7.4 states: “If a quick-disconnect coupling is used on a percussion tool, it shall be separated from the tool by a whip hose.”

If any of these regulations had been followed, this accident would not have happened. Properly installed safety devices, even when equipment is not being used, can prevent accidents from occurring. ■

### DO'S AND DON'TS



#### Do:

- Use a pipe elbow instead of a horizontal outlet to reduce stress on hose.
- Use a pipe elbow instead of a horizontal outlet to direct the pressurized media to the floor in case of accidental disconnect.



#### Don't:

- Ever allow compressed air to be directed toward a person.

# GADGETS

BY KAREN BAXTER

## PACEMASTER PLATINUM PRO TREADMILL

When is a treadmill not just another piece of exercise equipment to hang your clothes on? When it's the PaceMaster Platinum Pro by Aerobics Inc.

Designed for home use, the Platinum Pro features an expanded running surface, measuring 20" x 60," a heavy-duty frame and a top-out speed of 12 miles per hour. Moreover, it has digital functions that allow you to measure time, speed, distance, incline, calories burned, aerobic points, heart rate, heart rate zone, average speed and pace.

The Platinum Pro has express speed and incline keys, programmable user IDs and enhanced features. These features include a motivational display and a completely new concept, E-Courses, which bring distance-based virtual reality workouts into the home.

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The AVIC-N2 can fit virtually any vehicle on the road; as an added benefit, it plays AM/FM radio, satellite radio, CDs, MP3 CDs and even shows DVDs using its display screen.

**Subscription is \$13.99 a month for a bundled offering of XM NavTraffic and XM Radio. Pioneer. [www.pioneer.com](http://www.pioneer.com). The MSRP is \$2,200.**



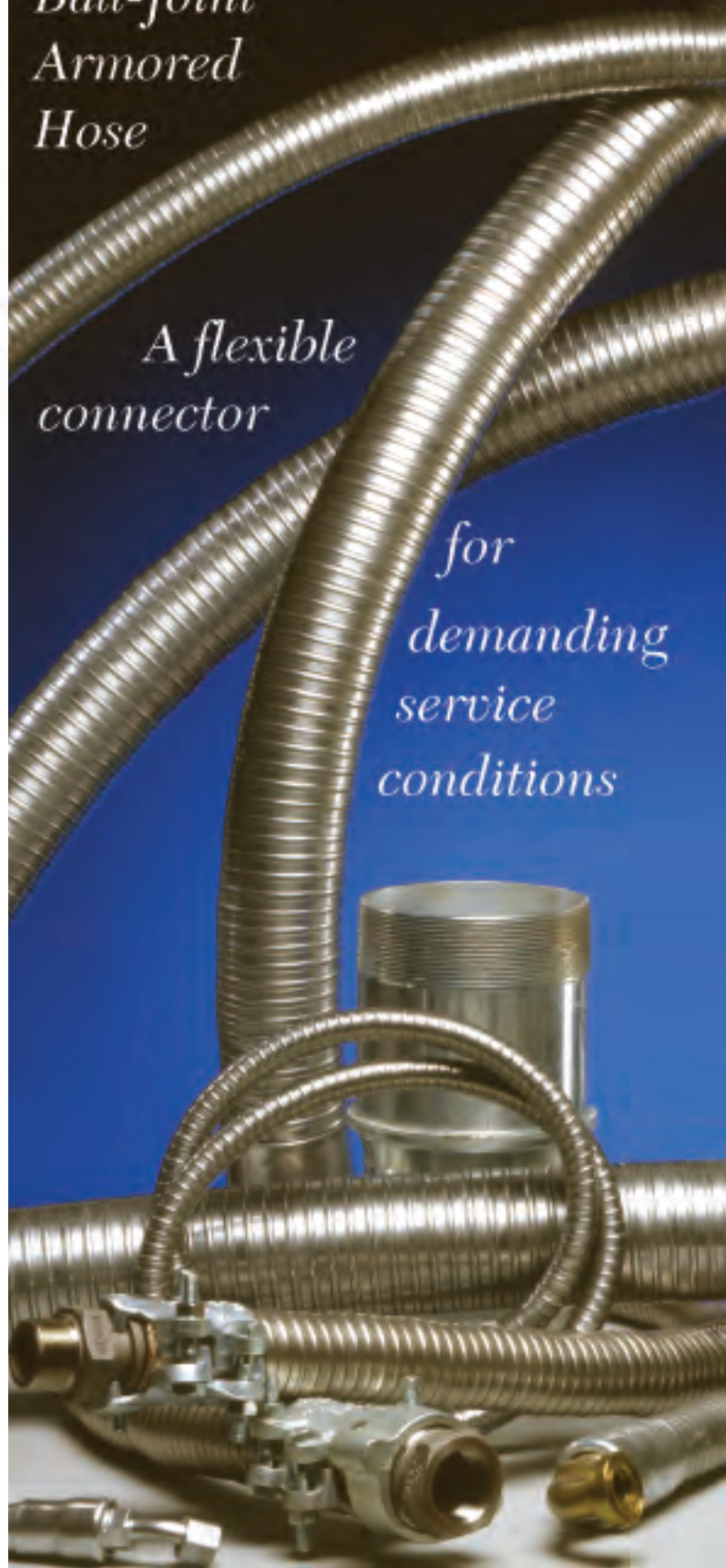
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## Up Close With Kyle Maynard

*Overcoming physical obstacles,  
Kyle wrestles with college life.*

BY JOSH DARNELL

Kyle Maynard's dorm room is typical, at least by the standard of most other college dorm rooms. "I just crashed out for two hours after class," says Maynard as he opens the door to his tidy, yet not overly neat, living space. Covers sit slightly disheveled on a university-issued bed frame. Walls are livened up by posters of "American History X" and the Ultimate Fighting Championship. In a position of prominence against the room's interior wall sits a modest television set connected to a sleek Xbox video game system.

Again, typical.

Except for the motorized wheelchair parked by the doorway.

"My whole life has been a pursuit of normalcy," says Maynard, who is relaxing in his room on the third floor of Reed Hall, happy to have survived his first college midterms.

Despite his efforts to the contrary, Kyle Maynard is decidedly atypical, at least in comparison to most college students. And, it isn't because the talkative freshman is a congenital quadruple amputee, meaning his arms end just above the elbows and his legs end above the knees. It's because, despite his physical limitations, Maynard has succeeded as a motivational voice for the Washington Speakers Bureau and as an all-state-level wrestler who studies three different martial arts. He has met each of life's challenges with an ebullience of spirit uncharacteristic of the typical, self-absorbed 18-year-old.

Maynard— who was offered wrestling scholarships by several schools— works out with University of Georgia's (UGA) club team.

"I don't really look at myself (as disabled)," says Maynard. "It sounds strange, but that's the way I've been raised."



Maynard's parents helped him overcome the challenges presented to him by his condition, rather than bow to them. As a child, he learned to easily negotiate the stairs in his two-story Suwannee home. He learned to traverse short distances without the aid of his wheelchair, moving across the floor in a motion far too fast and fluid to be considered "crawling." At age 11, Maynard fulfilled his goal of playing football, lining up at nose tackle for a local rec league team, and in high school, he again overcame the limitations of his body to become a successful wrestler.

"Since I was young, sports has allowed me to compete against able-bodied athletes and to do all the things I've dreamed of doing," says Maynard of his improbable athletic success. "It's been the biggest avenue to reach out to people."

Now, Maynard, whose story has been told on the pages of numerous publications such as *Sports Illustrated*



**Kyle's University of Georgia wrestling team.**

*For Kids* and on various television programs, is testing his mettle against an entirely different world of challenges—college.

The sprawling campus of UGA might not seem like the logical choice for someone like Maynard, but he considers the University a perfect fit.

**"SINCE I WAS YOUNG, SPORTS HAS ALLOWED ME TO COMPETE AGAINST ABLE-BODIED ATHLETES AND TO DO ALL THE THINGS I'VE DREAMED OF DOING," SAYS MAYNARD OF HIS IMPROBABLE ATHLETIC SUCCESS. "IT'S BEEN THE BIGGEST AVENUE TO REACH OUT TO PEOPLE."**

"I picked UGA, for one, because it's gotten to be a really prestigious university now academically, and I knew that if I wanted to wrestle somewhere on scholarship, I'd have to go pretty far out of state," says Maynard, a pre-business major. "I just loved the atmosphere. I love that it's a town completely devoted to the University."

Getting from class to class and then to wrestling practice isn't a problem for Maynard, who primarily uses his motorized wheelchair to get around campus. He makes only sparing use of the university's disability services.

"I feel bad using the 'handi-van,' because I don't think that I qualify," says Maynard of the University's disability transportation service, which picks up mobility-impaired students practically at their front doors. "It's just kind of ingrained in me."

The University also provides a note-taking service, which, like the "handi-van," Maynard politely eschews. His arms meet at a point in front of his chest, allowing him to hold a pen. It's a skill he developed not out of necessity, but out of typical teenage indolence.

"I started to use a tape recorder, but I was so lazy that I hated listening to



class twice," explains Maynard. "So instead of doing that, I just learned to take notes."

According to Maynard, the biggest challenge he's faced as a college freshman is learning the requisite art of time management—a sentiment that would ring true with almost any classmate.

"During the week, I'm pretty much focused on class and academics, then the weekends are pretty much all travel," says Maynard, whose public speaking docket has recently included trips to high schools and other venues in New York, Idaho, Cleveland and Chicago. "There's no time to hang out and party. You have to use (your time) wisely."

Despite his hectic schedule, Maynard has experienced the same excitement and awe that most freshmen feel during their first semester at UGA.

"There's unimaginable opportunity to stay involved, and then there's avenues to relax," says Maynard of his new college world. "It's just been so nuts. But it's been fun!" ■

*Reprinted with permission from Georgia Magazine, University of Georgia.*



# Crude Journey

BY DAVID HOLZEL

GETTING OIL FROM THE GROUND TO THE GAS TANK IS PART GEOLOGY, PART CHEMISTRY, AND INVOLVES THOUSANDS OF MILES OF PIPELINES AND A WORLD-WIDE TANKER FLEET.

**T**he oil derrick and the gas pump don't readily come to mind as objects of beauty. But, if they disappeared tomorrow, the world would be unrecognizable. The two structures are visible reminders of the source of much of the world's wealth—the petroleum economy.

Oil provides about 40 percent of the energy Americans consume and 97 percent of the country's transportation fuels, according to the U.S. Department of Energy. It's impossible to understate the importance of oil in the United Kingdom, which uses 1.7 million barrels a day throughout its economy, or in Australia, which consumes 880,000 barrels a day. U.S. neighbors Canada and Mexico use 2.33 million barrels a day and 2.04 million barrels a day, respectively. The United States consumed an average of about 20.4 million barrels of oil per day during the first ten months of 2004, up from 20.0 million in 2003. Of this, motor gasoline consumption was 9.0 million barrels a day or 44 percent of the total. Petroleum demand

in 2005 is projected to grow by just 1.4 percent (280,000 barrels per day), to an average 20.7 million barrels per day, in response to the combined effects of somewhat slower economic growth and relatively high crude oil and product prices.

These statistics may come as no surprise. But what most people don't have a handle on is the process that takes the fossil remains of one-celled prehistoric sea plants and animals and transforms them into a dizzying array of products—not just gasoline and jet and diesel fuel, but plastic beverage containers, mascara, heart valves, floor polish and even bubble gum.

So how do oil companies find petroleum? How is crude oil processed into usable products? And how does the product with the highest demand—gasoline—get to the pump? Let's take the journey between the derrick and the gas station.

## PROSPECTING FOR OIL

Finding oil is the work of geologists.

There are a number of ways oil companies search for new oil fields. A representative of Chevron Corporation explains that prospectors look for a “convergence of geologic elements.” Some of the elements, he explains, include:

“Source rock to generate hydrocarbons, a porous reservoir rock to hold them, and a structural trap to prevent fluids and gas from leaking away. Traps tend to exist in predictable places—for example, along faults and folds caused by movement of the Earth's crust or near subsurface salt domes.”

Geologists have a number of high-tech tools to aid their search for underground oil. Satellite imaging aids in the analysis of surface rock.

Magnetometers and gravity meters can detect subtle changes in the Earth's magnetic and gravitational fields, an indication that oil may be present. And seismic surveys, performed by sending shock waves underground and

measuring the waves reflected back to the surface, can help draw a picture of the terrain below the surface.

Despite all these tools, the only way to confirm the existence of oil below ground is to drill. “The average U.S. wildcat well (an exploratory well drilled a mile or more from existing production) has a one in 10 chance of striking hydrocarbons,” according to Chevron.

## PUMP IT UP

Oil rigs are structures containing the equipment needed to drill for oil. Rigs include the derrick, the tall structure that holds the drilling apparatus; the rotating equipment, at the end of which is the drill bit, which cuts deeper into rock; an engine to run the rotating equipment; a circulation system that pumps drilling mud to lubricate and cool the drill bit and the steel pipes attached to the drill bit; and casing, a concrete pipe that lines the drill hole, keeps the hole from collapsing and allows the drilling mud to circulate.

To prevent blowout—an uncontrolled gush of oil or gas to the surface—high-pressure valves are installed to seal the drill lines. The valves can relieve pressure when necessary.

Once the well has been drilled, the oil is caused to flow by dissolving and fracturing the rock at the bottom of the well. The substance used to dissolve the rock varies, depending on the type of rock. Once the oil is flowing, the rig is removed and replaced by pumping equipment which will remove the oil.

The oil pump is placed at the well head. The pump is run by an electric motor that forces the pump up and down, creating a suction in the well that draws the oil up.

## REFINING

Once crude oil has been pumped, the job changes from one of geology to chemistry. Crude oil consists of different kinds of hydrocarbons – sometimes



in the hundreds – each with its own molecular structure of carbon and hydrogen atoms. The work of an oil refinery is to break the crude oil down into its different parts and then reconfigure them to create usable products.

The refining process has three steps: separation, conversion and treatment.

- Separation takes crude oil and breaks it into components, called “fractions,” based on the component's weight and boiling point. Oil is piped through hot furnaces, where lighter components rise to the top and heavier ones sink to the bottom.



## RECOVERY METHODS

Before the development of advanced recovery procedures, it was common to leave 90 percent of the available oil in the reservoir due to the inability to bring it to the surface. However, advanced technology now enables producers to bring 60 percent of the available resources to the surface. There are three recovery methods used to bring oil to the surface.

- Primary recovery first relies on underground pressure to drive fluids to the surface. When the pressure falls, artificial technology is used. This can include using pumps, or pumping units. Primary recovery often tops only 10 percent of the oil in the deposit.
- Secondary recovery uses water to bring more oil to the surface. With this approach, water is injected into the oil-bearing formation. This maintains underground pressure and pushes still more oil towards the producing wells. This can bring an additional 20 percent of oil in place to the surface.
- The third step is to utilize enhanced recovery techniques to mobilize the remaining oil. There are three common approaches: 1.) thermal recovery, which entails injecting steam into the formation; 2.) gas injection, which utilizes gases to lower the viscosity of oil and increase flow; and 3.) chemical flooding, which involves mixing dense, water soluble polymers with water and injecting the mixture into the field. These techniques are used to bring as much as 60 percent of the reserve to the surface.

*Reprinted with permission from the Oklahoma Energy Resources Board, [www.oerb.com](http://www.oerb.com).*

Gasoline is among the lighter components, with a boiling range of 104 to 401 degrees Fahrenheit depending on the many compounds found in the gasoline. Such light fractions rise to the top of distillation towers as vapor and, once separated from the other fractions, condense back to liquids.

- Conversion essentially splits molecules to create higher-value products. “The most widely used conversion method is called cracking because it uses heat and pressure to ‘crack’ heavy hydrocarbon molecules into lighter ones,” according to Chevron. “A cracking unit con-

sists of one or more tall, thick-walled, bullet-shaped reactors and a network of furnaces, heat exchangers and other vessels.”

When the goal is to create gasoline, the process is called fluid catalytic cracking, or “cat cracking.” It converts heavier fractions into smaller gasoline molecules using heat of about 1,000 degrees Fahrenheit, low pressure and a powdered catalyst—a substance that accelerates chemical reactions, according to Chevron.

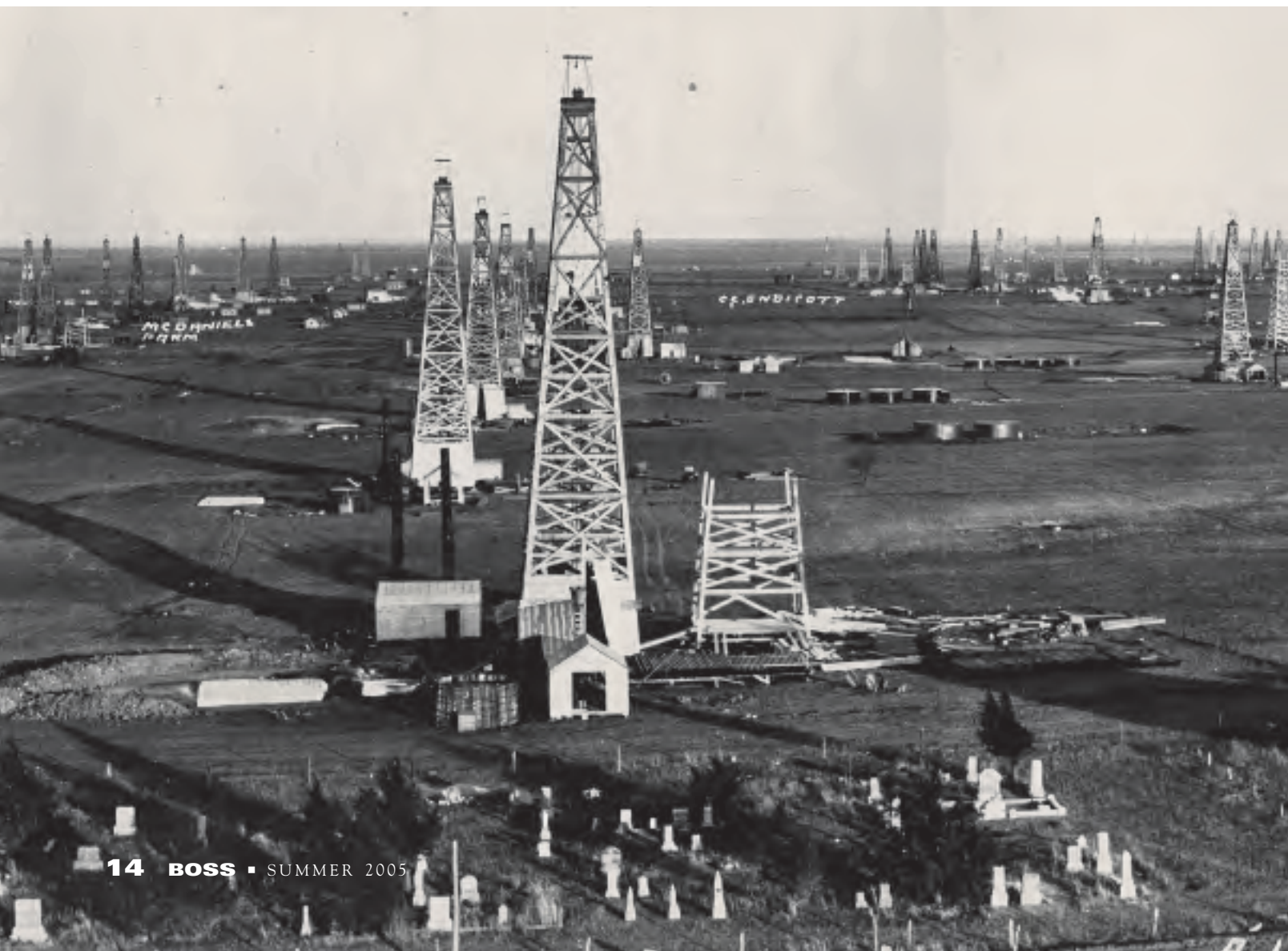
- During treatment, hydrocarbon molecules are combined with other chemicals, known as additives, to form a finished product. When that product

is gasoline, considerations include octane and vapor pressure ratings.

## TRANSPORTING

According to a report by Dr. Jean-Paul Rodrigue, professor at the Université de Montréal, “each year, about 1.9 billion tons of petroleum are shipped by maritime transportation, which is roughly 62 percent of all the petroleum produced. The remaining 38 percent, is transported either using pipelines, trains or trucks. Most of the petroleum follows a set of maritime routes between regions where it is being extracted and regions where it is being refined and consumed.

**Three Sands Oil Field, Tonkawa, OK 1921**



About half the petroleum shipped is loaded in the Middle East and shipped to Japan, the United States and Europe. Tankers bound for Japan use the Strait of Malacca while tankers bound for Europe and the United States will either use the Suez Canal or the Cape of Good Hope, pending the tanker's size and the destination."

"The world tanker fleet capacity (excluding tankers owned or chartered on long-term basis for military use by governments) was about 280 million deadweight tons in 1996. There are roughly 4,000 tankers available on the international oil transportation market. Transportation costs thus account for about 5 to 10% of the added value of oil," reports Rodrigue.

## SHIPPING

It is hard to understate the size and capacity of a typical vessel that transports oil. The world's largest tanker, *Jahre Viking*, is 1,504 feet long and 226 feet wide. It is so long that if the Empire State Building could be laid along its deck, the ship would have 253 feet of deck space to spare. The *Jahre Viking* can carry 4.1 million barrels of crude oil—about 172 million gallons.

The next time you're filling up the tank, you might consider the incredible journey – of geologists, chemists and tanker pilots – that makes your journey possible. ■

### Dixon Valve & Coupling Company offers the following products for the oil industry:

- Rotary Hose Fittings
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- Valves
- Hydraulic Couplings
- Dry Disconnect Couplings
- Gauges

## OIL AND WATER: OFFSHORE DRILLING

Finding oil beneath the sea is more difficult than prospecting on land, but requires the same analysis of seismic survey data and exploratory drilling. Likewise, offshore drilling operates much the same as drilling on land, but with rigs adapted to float or rest on the sea floor. There are several types of rigs:



### Platform

An immobile structure that rests on the sea floor. Built of concrete or steel, platforms can be used as permanent pumping sites and often are much larger than other types of drilling rigs.



### Semi-submersible

A floating unit containing pontoons that, when filled with seawater, submerge to a predetermined level and cause the unit to sit low in the water. Much of the structure sits underwater. Anchors hold the unit in place until it is ready to be moved to the next drilling site.



### Jack up

A mobile unit that sends legs to the seabed, raising the rig out of the water.



### Drill ship

These units can sail to a drilling location under their own power and then begin drilling.

Once oil is discovered, the drilling rig is generally replaced by a platform which is assembled at the drilling site. Depending on the area to be drilled, the depth of the water and distance from shore, the platform will vary in size, shape and type.

The platforms are made of steel that house all the processing equipment and are fixed to the sea bed. In addition, the platforms need to accommodate up to 80 workers who typically work a 12-hour day, one week on and one week off. Concrete tanks hold oil pumped from the offshore well. The world's biggest platforms are bigger than a football field and rise above the water as high as a 25-story building.

Once retrieved, the crude oil is transported to land through deepwater pipes or by worldwide tank transfers.

## Oil Facts

### How many gallons are in a barrel of crude oil?

42

### How much crude oil does it take to make a gallon of gasoline?

Some refineries can turn more than half of every barrel of crude oil into gasoline—more than 21 gallons. Seventy years ago only 11 gallons of gasoline could be produced.

(Source: Chevron)

### What does crude oil look like?

Crude oils vary in color, from clear to tar-black, and in viscosity, from water to almost solid.

(San Joaquin Geological Society)

### Countries with the Highest Oil Reserves as of January 1, 2005 (Billion Barrels)

Saudi Arabia	261.90
Canada	178.80
Iran	125.80
Iraq	115.00
Kuwait	101.50
United Arab Emirates	97.80
Venezuela	77.23
Russia	60.00
Libya	39.00
Nigeria	35.26

Source: PennWell Corporation, Oil & Gas Journal, Vol 102, No. 47 (December 20, 2004).

### A 37.5 million gallon vessel carrying refined oil...

- Is enough oil for 300 jet flights from London to Houston.
- Allows 200,000 cars to drive from New York to Los Angeles and back.

Country	Demand <sup>1</sup>	Total net imports <sup>3</sup>	Oil in Reserve <sup>4</sup>
United States	20.25	11.75	21.891
Mexico	2.04 <small>(2004 average)</small>	-1.63	14.6
Canada	2.33	-1.05	178.8
Australia & New Zealand	1.05 <small>(2004 average)</small>	1.491	N/A
Japan	2.93	6.05	.059
France	2.01	1.89	.146
Germany	2.43	2.55	N/A
Italy	1.76	1.71	.622
United Kingdom	1.70	-0.442	4.487
European Countries <sup>2</sup>	7.22	3.70	9.34

millions of barrels  
per day

billions of  
barrels

1 - United States: EIA, Petroleum Supply Monthly, March 2005. Other OECD Countries: IEA, Monthly Oil Data Service, April 12, 2005.

2 - Other European countries consists of Austria, Belgium, Czech Republic, Denmark, Finland, Greece, Hungary, Iceland, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland and Turkey.

3 - United States: Energy Information Administration (EIA), Petroleum Supply Monthly, March 2005. Other OECD Countries: International Energy Agency (IEA), Monthly Oil Data Service, April 12, 2005.

4 - PennWell Corporation, Oil & Gas Journal, Vol 102, No. 47 (December 20, 2004)





## Filling Holes

By MICHAEL JOSEPHSON



You may have heard the story about two fellows hard at work alongside a road. One diligently dug holes while the other waited a short interval and then filled them up.

It all seemed rather foolish, and eventually the workers were confronted by a supervisor who demanded an explanation. The fellow who dug the holes asked what the problem was. He said he had been doing the same job for more than ten years. His cohort quickly chimed in that

he had been filling the holes for the same period.

Upon further questioning, they admitted it made more sense in the past when a third fellow worked with them. His job had been to put a new tree into the hole. But when he retired he was never replaced, so the two just kept on working as before.

“Why didn’t you tell somebody?” the supervisor sputtered. “My gosh, you signed Phil’s retirement letter. We figured you knew.”

The kinds of unproductive, inefficient and even counter-productive practices that go on in most workplaces defy logic and reveal a great deal about character. You see, the ethical principle of responsibility includes a moral duty to produce and demand quality. Yet basically good people in virtually every workplace regularly engage in or witness some process or practice that is unhelpful, wasteful or even harmful to the ultimate goals of the organization.

While management is ultimately to blame, people of character shouldn’t passively demean the value of their work by becoming part of anything second-rate or stupid. It may take tact and timing, maybe even some courage, but it’s our duty to be a force for excellence. The benefit is that the quality of our lives improves dramatically when we take pride in our work. ■

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Henry

**H**enry J. Kaiser was an opportunist in the very best sense of the word, a natural entrepreneur with a persuasive manner and an indomitable spirit. His flair for business would manifest itself early, and would carry him to become a multimillionaire in construction and shipbuilding.

Born in upstate New York in 1882, Kaiser's German immigrant parents instilled in him the values of discipline and hard work. Following elementary school, he worked as a store clerk in Utica, New York, where he developed a keen interest in photography. He was soon a traveling photographer, selling his photos and taking commissioned portraits.

by Bill Vance

# J. Kaiser

His Legend and His Cars

One of his calls, a camera store in Lake Placid, New York, impressed young Kaiser so much that he wanted to join the business. Henry convinced the reluctant owner to let him work for nothing, confidently predicting that he would double the shop's business within a year. Henry did even better; he tripled it and had soon bought the business and branched out to other shops.

Although this was a successful enterprise, the ambitious Henry soon tired of it. At age 26, he brashly uprooted his young wife, Bess, and their three sons and headed west. He had no prospects, but he had the confidence of youth and was sure that, with his innate abilities, he would succeed.

In Spokane, Washington, Kaiser discovered a hardware store that seemed perfectly suited to his sales skills. There were no vacancies, but Henry convinced the owner to let him try selling a large stock of tarnished silverware lying in the stockroom.

Henry organized a group of young women to polish the silver— soon, the entire stock was sold. He made enough to pay his crew and earn a little profit for himself, and the happy store owner gave him a job.

The hardware store brought Henry into contact with local building contractors, and his interest in construction soon led to jobs in the sand, gravel and concrete business. By 1914, he was able to establish his own paving firm, the Henry J. Kaiser Company.

Henry and his small, core staff moved from site to site working out of a tent. One of his men went ahead scouting out their next job. Henry took his family from one road construction location to another, often living in their car. They hired local labor as required and established a reputation for quality work that was completed on

**Welders fixing ribs of an innerfloor section of a Liberty class ship in place before adding steel sheathing at ship builder Henry J. Kaiser's shipyard.**

time. Among his early jobs was building the first piece of paved road in Vancouver, British Columbia.

Although times were difficult and inflation was high during World War I, Kaiser and his loyal staff managed to expand the business. It didn't take long for the Henry J. Kaiser Company to become well-known up and down the West Coast. Despite these difficult times, Kaiser persevered and was always positive. He would often tell his staff, "Problems are merely opportunities in work clothes."

In 1921, Kaiser's company got a big break when it won the contract to build a 30-mile highway from Redding to Red Bluff, California – a job big enough to cause Kaiser to move his headquarters down from Washington to California. Once the construction was underway, Kaiser's crew demonstrated that, by the innovative use of equipment, it could build a mile of road a week, double the normal rate. This added to Kaiser's fame, and by 1927, the company had received a contract to build 200 miles of roads in Cuba. In spite of primitive conditions and the logistical nightmare of assembling staff and materials in a foreign land, Kaiser completed that job a year ahead of schedule.

But all of this was preliminary to what was to come. The U.S. Bureau of Reclamation was planning a series of huge dams in the West. The first, the Hoover Dam, was considered too large for one company to handle, so a new entity called Six Companies, Inc. was established. Kaiser became part of the Six Companies conglomerate, which completed the Hoover Dam in five years, more than two years ahead of



schedule. Henry J. Kaiser was becoming a legend for his ability to organize and motivate staff into a cooperative and efficient crew.

Kaiser participated in more mammoth projects, such as the Grand Coulee and Bonneville Dams on the Columbia River, both of which he supervised; the San Francisco-Oakland Bay Bridge and the excavation of a set of locks for the Panama Canal.

In the late 1930s, with trouble brewing in Europe and war seeming inevitable, the U.S. government wanted to expand its woeful merchant marine fleet, most of which dated back to World War I.

But established shipbuilders were already producing at capacity, so into



Henry J. Kaiser was becoming a legend for his ability to organize and motivate staff into a cooperative and efficient crew.

the fray stepped the Six Companies. They had more confidence than experience, but were determined to learn shipbuilding. Their first two shipyards, in Richmond, California, and Portland, Oregon, were placed under Kaiser's management. Typical of his style, the keels of ships were being laid before the buildings were completed.

The Japanese attack on Pearl Harbor, Hawaii, in December 1941, brought the U.S. into World War II and intensified the need for more sea power. The U.S. government ordered the construction of a fleet of Liberty ships, a cargo vessel of standardized design. This led to the establishment of seven more shipyards—Kaiser owned three of them.

The first Liberty ship took 226 days to produce. But by such methods as prefabricating sections and other innovative time-saving measures, its production time would fall to about 27 days. The Kaiser company's around-the-clock workers even completed one in the incredible time of just four days, 15 hours and 26 minutes. By war's end, Kaiser's shipyards had produced 821 Liberty ships and more than 600 others of various types, from small aircraft carriers to large tankers.

Henry Kaiser knew that peace would bring an end to his shipbuilding, but he also knew there would be a huge demand for new cars. The auto industry had ceased civilian production in February 1942 and would not

be able to resume until the fall of 1945. With no new cars available for more than 3 1/2-years, the astute Kaiser decided it was a sellers' market too good to ignore.

Kaiser had nurtured a dream of building a small, affordable car and had even established an experimental shop in Emeryville, California, to study many of the world's production cars. But since Kaiser really didn't know much about the car business, he wisely teamed up with someone who did: Joseph W. Frazer.

Frazer had grown up in the automobile industry. He was born in Nashville, Tennessee, in 1892, and after a stint at Yale, began working as a mechanic with Packard, soon moving

The first production car rolled off the Willow Run line in June 1946, less than a year after the corporation had been formed.



into sales. He joined General Motors in 1919 and helped found GM's new finance company, General Motors Acceptance Corporation.

Finding GM too big, Frazer went to Maxwell Motors in 1923, which Walter Chrysler turned into the Chrysler Corporation in 1925. By 1927, Joe was Chrysler's general sales manager. He stayed with Chrysler until 1939 then departed to become president and general manager of Willys-Overland (W-O), which would prosper mightily by producing the famous World War II Jeep.

After differences with W-O over its post-war car plans, Joe joined car manufacturer Graham-Paige Motors (G-P) as chairman and president in 1944. G-P had not built a car since 1940, but it was prospering on war contracts.

Henry Kaiser, the construction magnate, met Joe Frazer, the ace car sales-

man, in San Francisco in July 1945. They hit it off immediately, and before month's end, a new automobile company, Kaiser-Frazer Corporation (K-F), had been registered in the state of Nevada. Kaiser brought his drive, enthusiasm and money. Joe came to the table with his interest in Graham-Paige and his vast auto industry knowledge. Kaiser became K-F's chairman, and Frazer was president and general manager.

K-F leased a huge war surplus bomber plant in Willow Run, Michigan, and began converting it into an automobile plant. Howard "Dutch" Darrin, an experienced automobile stylist, was given the job of designing the new car. Although there were early experiments with front-wheel drive and torsion bars, the car that emerged was a conventional, front-engine, rear-drive, body-on-frame sedan. The use of

a 100-horsepower, Continental industrial side-valve six saved the tooling costs of a new engine.

The styling was somewhat conservative, a "pontoon" shape featuring a fender line that ran level from front to back and a 123-1/2-inch wheelbase that provided ample interior space for six passengers. There were two mechanically identical models, Kaiser and Frazer, with Kaiser being the popular priced entry. The fancier, luxurious trim of the Frazer was aimed at more upscale buyers.

The new cars were shown at New York's Waldorf Astoria hotel in January 1946 as 1947 models. By the time the show ended, more than 9,000 orders had been received. The first production car rolled off the Willow Run line in June 1946, less than a year after the corporation had been formed. In spite of



having to build a dealer network from scratch, almost 150,000 K-F cars were produced in 1947. This number rose to 181,000 in 1948, which would prove to be its highest recorded sales year.

But, by 1949, the post-war car shortage was disappearing and the established companies had their new models. K-F marked time until 1951, then fought back valiantly with the all-new and very attractive Darrin-styled Kaiser Manhattan. In spite of its handsome new car, the novelty of the industry's first hatchback, the introduction of the compact Henry J and the attractive fiberglass-bodied Kaiser-Darrin sports model, K-F sales continued to decline.

In an attempt to stimulate interest,

K-F purchased Willys-Overland in 1953, bringing the Willys Aero line of cars, along with the renowned Jeep utility vehicle, into its stable. Willow Run was relinquished and all production was concentrated in the W-O plant in Toledo.

Since K-F couldn't afford to produce a V-8 engine to compete with proliferating V-8s from others, they supercharged the old six for 1954, raising horsepower from 118 to 140. But it still lacked the smoothness of an eight.

It all became too much, and when less than 8,000 Kaiser and Willys cars were produced in 1955, K-F ceased automobile production in the U.S. The operation was moved to

Argentina, where it would last for seven more years.

Frazer's influence had begun to fade in 1950 and he severed all connections in 1952. Kaiser went back into the construction business, building hotels and apartment complexes in Hawaii. Always concerned about his employees' health, in the 1960s, he established 19 hospitals in the western U.S., a lasting legacy now known as the Kaiser Foundation.

Henry J. Kaiser had been a success in everything he had tackled, everything, that is, except the automobile business. It is ironic that the one thing for which he is best remembered is the only endeavor that defeated him. He died in 1967 at the age of 85. ■

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# AWESOME AUSTRALIA

*AUSTRALIA MAY BE BEST KNOWN AS THE LAND DOWN UNDER, BUT IT IS RICH IN NATURAL SPLENDOR AND HAS BEEN VALUED FOR CENTURIES.*

**A** SURVEY RELEASED BY TRAVEL Web site Lonely Planet ranked Australia as the number one destination global independent travelers would like to visit next as well as the top place they have previously visited. According to Tourism Australia, 4.4 million travelers visited the country in 2003.

Travelers flock to Australia for its endless sun-drenched beaches, breathtaking sunsets and tropical rainforests with beautiful wildlife. Scattered along its coasts, Australian cities are destinations in their own right. Each offers the visitor a new experience. Some are known for their outdoor lifestyle, others for fabulous dining, fashion or art. Each has its own sense of history and charm.

Sunny, sexy and sophisticated, Sydney is the shining star of the Southern Hemisphere. The stunning Sydney Opera House and Sydney Harbour Bridge are the pride and joy, but there's much more. Visitors to Sydney frequent the newest restaurant, cafe or bar, the grooviest new promenade, or the smartest, nearest beach. There's an energy and boldness in Sydney that is irrepressible and uplifting. It's urbane, but fresh and curious.

STORY BY LINDA ESTERSON



(left) Sydney's sparkling harbor is one of the many jewels of Australia. (below) Koalas happily reside in Australia's many forests. (right) A cultural hub of Australia, Melbourne, is known for its style and sophistication in architecture, food and fashion.



With its wonderful climate and care-free lifestyle, Sydney has inspired some stunning young designers who have taken the multilayered cultural influences and translated them into fashion. Sydney is a find for “shopaholics.”

It is said that Sydney never sleeps. In daylight hours the city buzzes with life and it doesn't close down when workers leave their offices. Late-night meals or a final coffee are not problematic. Be seen on trendy Oxford Street from Darlinghurst to Paddington or try the Woolloomooloo Finger Wharf, Surry Hills, the Quay or the Rocks. So many choices make it hard to decide what to do.

Sydney is also an architectural dream. Many homes overlook the

water or nestle in the bush and are suspended over cliffs or dug back into the scenery. Sydney's sparkling harbor is the jewel in the city's crown. It's flanked by golden beaches and bushland and is bisected by one of the most famous bridges in the world. Islands sprinkle its waters, and it's crisscrossed by all manner of craft, from water taxis and yachts to tour boats and ferries.

Melbourne, Victoria's capital and cultural hub, is known for the good things in life—fashion, food and sport. This is a city of style, architecture, trams and art. Canberra, the nation's capital, is home to many of Australia's most important public buildings and art works.

Melbourne has mastered the art of mixing the old with the new. Gracious older buildings sit side by side dynamic new architecture. Melbourne's rich history is explored along the Golden Heritage Mile. Melbourne is the center of architectural adventure in Australia and this is evident in the brave new designs appearing in some of its newer developments. The distinctive and striking

## First Settlers



In 1788, the first settlers set foot on Australian soil as Captain Arthur Phillip, Australia's first governor, led an 11-ship fleet carrying 736 convicts and their guards into Port Jackson, now known as Sydney Harbour. Convicts holding sentences of varying severity, some as moderate as stealing a loaf of bread, were sent away to work off their time. By the end of the transport in 1852, 160,000 convicts had been brought to Australia. Many who completed their sentences chose to stay

in Australia as farmers and laborers.

Australia attracted free settlers beginning in 1793 with the

promise of cheap land and convict labor. However, after the discovery of gold and copper in 1850, Australian settlement occurred in greater numbers.

Migrants from Europe, China and America all came to seek their fortunes in the gold fields. Few were successful, and many settled and endeavored as shopkeepers, farmers and laborers. The gold rush affected the economic and population levels of Australia, as well as the development of Australian nationalism. As the cities grew and road and train lines were established, Australia declared itself a federation on January 1, 1901.

Today, nearly 200 different nationalities call Australia home. Much of the post-war immigrants hailed from Britain and European countries and later, from South East Asia and New Zealand.



design of Federation Square is one of the most ambitious and complex projects ever undertaken in Australia. A fusion of arts and events, leisure, hospitality and promenading, it has changed the face of Melbourne.

Sports-mad Melbourne is home to world-famous sporting events such as

the Melbourne Cup, the Australian Open Tennis and the Qantas Australia Grand Prix. As for the biggest names from the music world, as well as major theatrical productions, it's most likely they'll be seen in Melbourne first.

And food is aplenty in Melbourne.

The influence of decades of immigration from all over the world has made Melbourne a paradise for those who love food and wine. Whole streets are dedicated to food, whether it be Indian, Spanish, Italian, Japanese, Chinese, Greek, or a host of other styles, and the world-class wines can't be missed.

Across the southern tip of Victoria, well south of Melbourne, is the Great Ocean Road, which winds around dramatic cliffs with the surf of the Southern Ocean swelling below. Victoria's Great Ocean Road passes beaches and coves, quiet seaside villages and spots to enjoy brilliant sun and surf. Some of the world's best beaches are found along the Great Ocean Road. From protected family coves to pounding surf, there is a stretch of coast to suit everyone.

On the west coast, Perth is a sophisticated, scenic city with plenty to do. A variety of tours are provided by motorized tram or courtesy bus. One of Perth's most popular icons is the 400 hectares of natural bush that form the spectacular Kings Park in the city's center.

Perth is also the home of the world's oldest operating mint, numerous museums and art galleries, his-

## Natural Resources

Australia is abundant in natural resources and thus considered the jewel of the Asia-Pacific. Its lands are plentiful with such treasures as bauxite, coal, iron-ore, copper, tin, silver, uranium, nickel and tungsten, as well as mineral sands, lead, zinc, diamonds, natural gas and petroleum.

One of the world's largest producers of minerals and metals, Australia mines more than 60 minerals and ores in addition to light crude oil and liquefied natural gas, and its large coal deposits enable the inexpensive production of electricity.

Australia is known as a chief producer of precious and semi-precious stones. In fact, the country mines 95 percent of the world's rare opals and 99 percent of black opals. The Argyle Diamond Mine in Northwestern Australia, one of the world's largest producers of natural diamonds, yields 25 to 30 million carats annually. It is renowned for its champagne diamonds and highly prized pink diamonds. In addition, Australia produces 60 percent of the world's South Sea pearls.

Gold is also mined in large quantities in Australia. The largest single mass of gold found in the world was the Holterman Nugget at Hill End, New South Wales, in 1872. It weighed 285.8 kilograms with a gold content of 99.8 kilograms.





## Australia at a Glance

- Australia is the sixth largest country in the world. Its area totals about the same size as the continental United States and is approximately 50 percent larger than Europe. Yet, Australia has the lowest population density in the world—only two people per square kilometer.
- Australia lays claim to more than 7,000 beaches—more than any other nation.
- About 95 percent of the world's opals and 99 percent of black opals are produced in Australia.
- The kangaroo is unique to Australia and one of its most easily recognizable mammals. There are more kangaroos in Australia now than when the country was first settled, with numbers estimated at 40 million.
- Australia's 140 million sheep produce more than 70 percent of the world's wool.
- With 24 million head of cattle, Australia is the world's largest exporter of beef.
- Australia supports at least 25,000 species of plants, while Europe only supports 17,500.

*Excerpted with permission from Tourism Research Australia – [www.australia.com](http://www.australia.com) — 2005.*

toric character buildings, a five-star resort and casino and a great variety of shopping. There are also world-class golf courses, countless outdoor activities and water sports on the Swan River, and over 80 kilometers of white sandy beaches, most with world-class beachside restaurants. A popular beach is Cottesloe, a pretty crescent of sand with safe swimming and a small surf break. Another location popular with locals and visitors is Scarborough, which has white sand stretching for miles.

The capital of South Australia, Adelaide, nestles between sea and hills. It is a graceful city of wide streets, elegant buildings and parkland. Cultural pursuits, good food and wine are high on the agenda.

Adelaide is compact and easy to walk around. It is known for its refinement and has a charm and grace that shows in sophisticated wining and dining, and beautiful architecture that has been well-preserved.

Adelaide's famous central market is a great way to start the day, before heading for markets in the Adelaide Hills to discover some of the region's fresh produce. Nearly 50 nationalities

showcase their specialties in what must be one of the most multicultural meeting places in the country. Fishmongers, greengrocers, fruit growers and butchers compete with a brigade of buskers. Galleries at Metal and Stone specialize in silver and jewels. The JamFactory and the Gray Street Workshop artists and craftspeople produce an eclectic range of goods in leather, jewels, metal, glassware and all sorts of functional pieces.

In Australia's Northern Territory sits Darwin, a vibrant, tropical capital city perched on a deepwater port, offering a blend of cosmopolitan and city pleasures. Darwin is set upon one of Australia's prettiest harbors, opening out onto the brilliant, jewel-like waters of the Arafura Sea. This vibrant, tropical city has a free-spirited, open-air lifestyle blessed with a range of waterfront delights. Beaches, bays and waterholes are there aplenty to explore and enjoy.

Darwin is closer to Asia than it is to Sydney so it has the vigor expected of a city that is home to 50 ethnic groups. This means the food is great! Not only do the finest chefs create masterpieces with great seafood, crocodile, buffalo,

(left) Breathtaking Ayers Rock is the world's largest monolith rising 318m above the desert floor with a circumference of 8 km. It is considered once of the great wonders of the world. (below top) Driving the Great Coast Road offers magnificent views of the warm ocean waters and seaside cliffs. (right) Snorkelers in one of the barrier reefs swim with the fish and view the spectacular water life.



camel or emu, there is a vast variety of cuisine offered with Asian and European influences. Diners never want for a “coldie,” (cold beer) in Darwin, but they also enjoy first-class restaurants serving the best in fine wines. Darwin is buzzing with a lively selection of entertainment: nightclubs, a casino, theatres, restaurants and its multicultural markets are internationally famous.

More than 20 national parks and reserves surround Darwin; some are

famous, like Kakadu National Park, and some are hidden treasures, just as rich in dramatic beauty, wildlife and Aboriginal culture.

### Friendly Fare

In Australia, the locals are friendly and accommodating, never feeling “put out” by a tourist request and always willing to lend a hand. Cabbies refuse to accept tips, always wanting to help every passenger experience the beauty of Australia.

The citizens are proud of their country and willingly share all they know about it. They work hard to accommodate tourists, especially families, and show a lot of pride in their manners and the cleanliness everywhere – restaurants, tourist spots and along the waterways.

Australia has a lot to offer, with its picturesque mountains, welcoming beaches and bustling cities. It's a great place to go to get a little bit of everything. ■



## Ways to Burn 500 Calories

*Ignite your body's fat-burning potential with these heart-pumping workouts.*

BY CAREY ROSSI

**Run for the hills.** For it, you'll simply need a relatively steep hill and some sturdy shoes with traction. Start with a five-minute light jog on flat terrain. From a point at the bottom of the hill, sprint full-force straight to the top, then either walk or jog lightly to the bottom. Continue with four to nine more sprints, depending on your fitness level. Finish with a slow jog on a flat surface for five minutes to cool down.

**For a quick,** 20-minute cardio session that will hit your whole body, use this suggestion from Dave Harris, CSCS, a strength and fitness consultant in Toronto, Canada. Warm-up for five minutes by biking or light jogging. Then jump on the ergometer or rower, row for one minute as hard and as fast as you possibly can. Then rest for two minutes by rowing real easy and slow. Do this six times.

**Wind sprints** may sound like a breeze but this high intensity activity will raise your heart rate and make your body use those fat stores in a minimal amount of time. Try the following drill from Harris: Warm up for five minutes by biking or light jogging. Sprint for 50 seconds or about 300 meters. Then walk back to your starting place. This active rest period should last no longer than 120 seconds. Repeat six times.

**Take the stairs!** Use this trio of approaches to make this challenging activity a bit more work. First, walk or run up the stairs one step at a time, then walk down. Second, walk or run up the stairs two steps at a time (hitting every other one). Again walk down, using the time as your recovery period. Third, do stair stakes, jumping side to side from one step to the next. To do this you'll jump to your right, landing on your right foot, left foot slightly behind you. Then jump to your left and



onto the next step, landing on your left foot. Again, walk down. Continue repeating the sequence for 30 minutes.

**Race against yourself.** After a leisurely 10-minute bike ride, pick a starting point that you'll remember. Now choose a time in your head: 20 minutes if you're a relative beginner, up to 30 or more if you're an expert rider. You're going to ride for that amount of time through any course you wish. See how far you can get in your chosen time, stop and rest two to five minutes, then turn around, reset the clock and retrace your route. Try to go further in the same amount of time. Once you finish, take 10 minutes to return to your original starting place at a slower cool-down pace.

**Step To It.** You'll want to visit a sports store and buy a pedometer. From the time you get up to the time you go to bed, you'll don the pedometer and aim to take at least 10,000

steps throughout the day. This is approximately five miles. Go out of your way to get steps—choose the stairs over the elevator, park the car further away in the lot if you go to the store, take a walk during lunch or after work. Careful: This particular workout may be addictive!

**Take the treadmill** to new heights. Use this workout from eDiets.com's lead fitness trainer Raphael Calzadilla to take the boredom out of the treadmill:

- 1 Begin with a warm up of five minutes at 3.0 miles per hour
- 2 On the sixth minute, increase to 4.0 mph (light jog)
- 3 On the seventh minute, increase to 5.0 mph
- 4 On the eighth minute, increase to level 6.5 or 7.0 mph
- 5 For the next two minutes (minutes nine and ten), return to 3.0 mph
- 6 Repeat steps 2-5 two additional times, but increase the level of intensity one mile per hour on each phase.

Cool down for five minutes at 3.0 mph  
Total workout time (including warm up and cool down): 35 minutes.

**Here's one for the "you-can-take-it-with-you" file.** For only a few bucks, you can buy an inexpensive jump rope and throw it in your gym bag, briefcase or suitcase. Jumping rope is a major calorie burner, too. Jump for 3-5 minutes and rest for 30-60 seconds. Do this for a total of 20-30 minutes.

Swim, bike ride and run, but who says that a triathlon's line-up is a hard and fast rule? Make up your own this weekend, based on your favorite activities. Rollerblade, bike and shoot hoops. Or perhaps run stairs, jump rope and swim. You can pick either a time period or a distance for each activity. ■

*\* Calories burned may vary depending on intensity and fitness level.*



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## The Impact of Oil Prices

Like any commodity, the price of oil is primarily based on a balance between supply and demand. For example, oil prices usually rise when supply decreases and demand increases. Conversely, oil prices may decline when supply increases and demand decreases.

A typical American family uses 25 gallons of gasoline a week. Over the course of a year, this family will use 1,300 gallons of gasoline (25 gallons multiplied by 52 weeks). If the average price of gasoline is about \$2.00/gallon, this family will have to spend approximately \$2600 per year for gasoline.

### Price in USD Regular/Gallon

Netherlands, Amsterdam	\$6.48
Norway, Oslo	\$6.27
Italy, Milan	\$5.96
Belgium, Brussels	\$5.91
Sweden, Stockholm	\$5.80
United Kingdom, London	\$5.79
Germany, Frankfurt	\$5.57
France, Paris	\$5.54
Hungary, Budapest	\$4.94
Croatia, Zagreb	\$4.81
Spain, Madrid	\$4.55
Japan, Tokyo	\$4.24
Australia, Sydney	\$3.20
Brazil, Brasilia	\$3.12
Cuba, Havana	\$3.03
Taiwan, Taipei	\$2.84
Canada, Toronto	\$2.77
Lebanon, Beirut	\$2.63
United States, Chicago	\$2.49
Panama, Panama City	\$2.19
Russia, Moscow	\$2.10
Puerto Rico, San Juan	\$1.74
Saudi Arabia, Riyadh	\$0.91
Kuwait, Kuwait City	\$0.78
Egypt, Cairo	\$0.65
Nigeria, Lagos	\$0.38
Venezuela, Caracas	\$0.12

Source: air-inc.com, collected March 2005.



Higher oil prices will impact consumers worldwide in many ways. For example, airline tickets may rise when oil prices increase. Airlines do this to pass the cost of increased fuel costs to their customers. Also, companies that rely on oil for manufacturing and transportation may increase prices.

### Driving Alternative

Hybrid-electric vehicles (HEVs) combine the benefits of gasoline engines and electric motors and can be configured to obtain different objectives, such as improved fuel economy, increased power or additional auxiliary power for electronic devices and power tools.

According to [www.fueleconomy.gov](http://www.fueleconomy.gov), a family driving a Honda Accord Hybrid will spend approximately \$897

annually for gasoline. However, the report estimates that driving the Toyota Prius and the Honda Civic Hybrid, consumers will spend closer to \$500 annually for gasoline.

There are many U.S. consumers that spend more each week on coffee or alcoholic beverages. Americans spend the following on a regular basis:

gallon of milk:	\$2.59
20oz. bottle of soda:	\$1.00
16oz. Starbucks coffee:	\$3.49
12oz. beer at a ball game:	\$6.50

### Using 128 fluid oz. per gallon the following are true

1 gallon milk	= \$2.59
1 gallon soda	= \$6.40
1 gallon coffee	= \$26.17
1 gallon beer at game	= \$69.29

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Bayco

Boss

Bradford

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Perfecting

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Customer Service

In Stock



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