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BOSS

CONNECTING TO INDUSTRY

Shaken to the Core

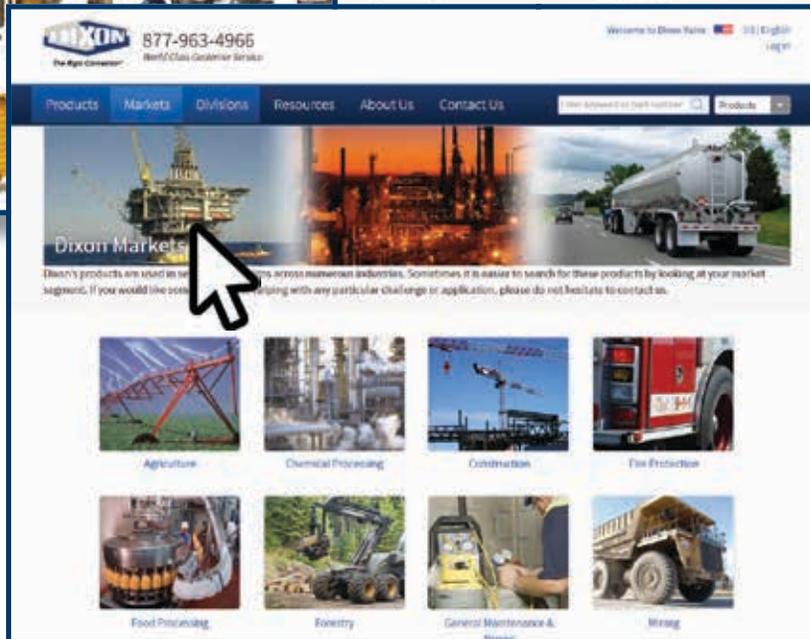
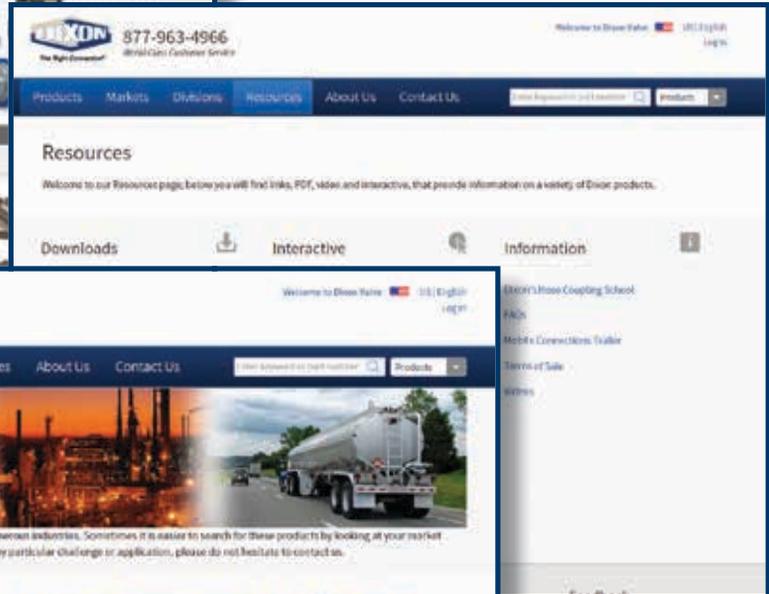
Of all the catastrophes that befall us, none marries power, pathos and unpredictability as devastatingly as the earthquake

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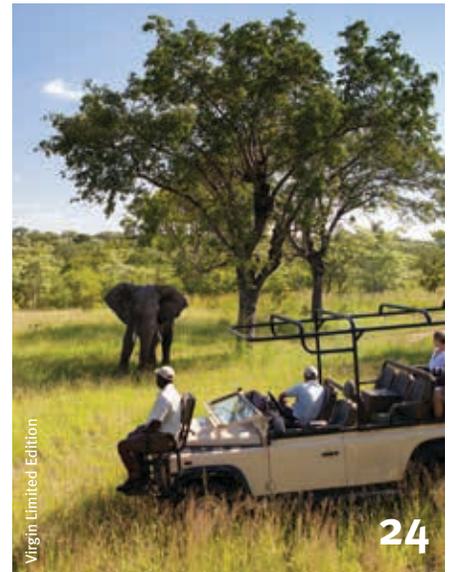
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IN THE SWIM

“Better Living Through Swimming,” p. 36, reminds me of my experiences as a member of my college swim team. I’ll always remember Joe, who tried out for the team his freshman year and was a member for all four years. Joe did not possess the natural talents of most of the other members of the team. What he did possess was an unbelievable work ethic. The coach recognized this, and although Joe was not a key to our team’s tally in points, he was an important reason for our overall success.

Joe graduated, joined the Army, became a colonel and was decorated many times. After retiring from the service, he went into teaching and became a high school swim coach. He went on to win national championships with his team.

Around this time I was asked to help start a swimming program at our local rural high school. We got pool time at a local college in the evenings and put together a small team—fewer than 15 boys and girls the first few years. I had not spoken to Joe in more than 20 years but had heard of his success. I called him up and after we swapped some war stories about our college years, I asked him if he would be interested in bringing some of his kids on the two-hour bus trip to swim against our team.

Joe said yes—and his team came over and beat us by only a few points. How did this happen, considering he had 100-plus swimmers? To be fair to us, and to give his slower kids the opportunity to compete, Joe brought his third string (or maybe fourth string).

My take-away lesson is that many years ago, a coach (leader) saw something special in Joe—something that other coaches might easily have missed. Are we looking at all of our people for—sometimes hidden—potential? Some of our company’s team members might possess national championship-caliber talent, but in order to bring that to light, we must provide opportunity and support.

Thanks for reading,

Dick Goodall

BOSS

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ON THE COVER

Workers amid damaged freeway after the Loma Prieta earthquake in California, which measured 6.9 on the Moment magnitude scale and lasted 15 seconds. It occurred during the 1989 World Series. © Mark Downey/Corbis

JOIN US!



Duty Calls

>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 10 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 counterproductive 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 make things better, to pursue excellence and 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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Beauty Born of Struggle

Beethoven's genius as a composer did not come easy

> Ludwig van Beethoven composed nine symphonies, five piano concertos, 32 piano sonatas, 16 string quartets, an opera, and many songs and pieces of choral and chamber music in his lifetime.

Today, nearly 200 years after his death in 1827 at the age of 56, Beethoven is still regarded as one of the most influential classical music composers of all time. His “Ode to Joy,” “Für Elise” and “Moonlight Sonata,” are well-known around the world.

Many of the composer's greatest works, including *Missa Solemnis*, *String Quartet No. 14* and *Symphony No. 9*, were written during the last decade of his life. What's remarkable about this is that at the time he wrote this music, Beethoven was completely deaf.

“I am resolved to rise superior to every obstacle,” Beethoven wrote in 1801. Indeed, he was such a gifted artist that he did not need to hear in order to create innovative music that ranged from heroic and powerful to deeply romantic.

“Music is a higher revelation than all wisdom and philosophy,” he once observed. “Music is the electrical soil in which the spirit lives, thinks and invents.”

Born on December 16, 1770, in Bonn, Germany, Beethoven was the son of Maria Magdalena and Johann, a mediocre court singer who was an alcoholic. His grandfather and namesake was Bonn's most eminent court musician at the time of his birth.



Ludwig van Beethoven detail of an 1804-05, portrait by Joseph Willibrord Mähler. Portrait by Joseph Karl Stieler, 1819.

Ludwig's father aspired for his son to be a musical prodigy like Mozart and began teaching him to play the violin and harpsichord at the age of 3. The boy was reportedly so small that he had to stand on a stool in order to reach the keyboard.

Young Beethoven loved music and showed a talent for improvisation, but his father was a harsh and demanding teacher. Legend has it that Johann

would come home drunk late at night and wake up his young son to practice. Other stories have Ludwig weeping over the keyboard as he practiced.

It wasn't long before Beethoven began taking lessons with professional teachers in harpsichord, piano, violin, viola, organ and horn. Although he showed talent in composition, he did not have formal training in the craft until 1781, at age 11.

At 13, Beethoven was appointed to serve as assistant court organist. He soon gained recognition as the city's most promising musician. When he was sent by the court to Vienna to study with Mozart, the eminent musician was said to remark after hearing the teen improvise, "Keep your eyes on him; someday he will give the world something to talk about."

Depression, family strife, periods of poverty, romantic disappointments, abdominal problems and the hearing loss, which started when he was 27, all weighed heavily on Beethoven. "Sometimes I feel I shall soon go mad in consequence of my unmerited fame," he wrote.

Beethoven continued to hone his craft as a musician and composer and as more people realized his immense talent, his notoriety grew. He wrote, a fellow composer noted, "highly developed music, in conflict with all the rules." And yet it provided "such consolation, pleasure and excitement as no other composer."

Yet depression, family strife, periods of poverty, romantic disappointments, abdominal problems and the hearing loss, which started when he was 27, all weighed heavily on Beethoven. He may have been committed to "rising above every obstacle," but struggle remained a constant in his life. "Sometimes I feel I shall soon go mad in consequence of my unmerited fame," he wrote. "Fortune is seeking me out, and for that very reason I almost dread some fresh calamity."

He completed one of his most celebrated works, his Ninth Symphony,

in 1824—just three years before his death. The symphony was praised for its formal complexity and inspirational choral finale. He completed String Quartet No. 14, which has seven linked movements performed without a break, in 1826.

Shortly before his death on March 26, 1827, Beethoven summed up his remarkable life in a manner

that reflected his irreverent sense of humor by borrowing a popular line that concluded Latin plays at the time. "*Plaudite, amici, comedia finita est,*" he said. "Applaud friends, the comedy is over." After his death, some 20,000 people clogged the streets of Vienna to pay their respects to their beloved Beethoven.

Although his life had come to an end, Beethoven's influence on music lives on. Hungarian composer Franz Liszt eloquently characterized the inspirational nature of Beethoven's music, saying, "For us musicians, Beethoven's work is like the pillars of cloud and fire which guided the Israelites through the desert ... His darkness and his light trace for us equally the path we have to follow." 🍷



GLOSSARY OF MUSICAL TERMS

Chamber Music: Music for a small ensemble of instruments, intended for performance in a room or chamber (as opposed to a church or larger building). Beethoven wrote 16 string quartets and many other forms of chamber music, including piano trios, string trios, and sonatas for violin and cello with piano.

Concerto: A piece of instrumental music that contrasts a solo instrument or a small group of solo instruments with the main body of the orchestra. Beethoven wrote numerous concertos, many for piano.

Opera: An extended dramatic composition, in which all parts are sung to instrumental accompaniment. Beethoven wrote just one opera, the two-act "Fidelio," which describes how a woman disguised as a prison guard rescues her husband from death in a political prison.

Sonata: A composition for one or two instruments, typically in three or four movements in contrasted forms and keys. Beethoven's "Moonlight Sonata" is one of his most popular compositions for the piano.

Symphony: An orchestral composition generally in several movements. Often considered the most respected and demanding form that a composer might tackle. Beethoven composed nine symphonies and was working on a 10th at the time of his death.

Source: www.naxos.com

Shaken *to* the Core

Of all the catastrophes that befall us,
none marries power, pathos and
unpredictability as devastatingly
as the earthquake

BY ALLEN ABEL



A day in the life of an unfinished planet

begins at 1:32 in the morning, with a shallow underground rumbling 15 miles southeast of Kettleman City, California, just off Interstate 5. As earth-shattering events go, it is not much to speak of, registering only 2.8 on the Gutenberg-Richter scale of intensity that has been the universal gauge of earthquake severity since the 1930s. No one is reported injured, trapped under rubble or killed. Of the 10,000 quakes that will jiggle the seismographs of California in a normal year, Kettleman City will make no news.

But it is early and our shaky, breaky globe is just getting started on this early morning in June 2014. One hour and 12 minutes later, an underwater quake of the same magnitude rattles a few houses along the Puerto Rican coastline, east of San Juan. At almost exactly the same moment, there is a minor earthquake at Kenai, Alaska, followed by another one close to a hamlet called Puerto Gaitán on the slopes of the Andes in the center of Colombia. The latter quake measures 4.6, making it nearly two orders of magnitude—and thus 100 times—more powerful than the unremarkable rumble that started the day in Kettleman City. But still, all the inhabitants of all these scattered places survive.

By the time the day is half over, earthquakes as strong as magnitude 5.0 will be reported near Nafpaktos on the Gulf of Corinth in Greece; in the Prince Edward

Left: Center of Port au Prince, Haiti, after a massive earthquake in 2010.

Measuring the magnitude and intensity of an earthquake



Felt by many indoors. Dishes and doors disturbed.



Felt by nearly everyone. Cracked walls, trees disturbed.



Felt by all. Poorly built buildings suffer severe damage.



Moderate to major damage. Chimneys and walls collapse.



Major damage. Structures destroyed. Ground is badly cracked.



Almost all structures fall. Bridges wrecked. Cracks in ground.

RICHTER SCALE

3.0

4.0

5.0

6.0

7.0

8.0

The Richter scale is a logarithmic scale (base 10), meaning that whole-number jumps indicate a tenfold increase. The amount of energy released increases about 31 times between whole number values.

“
Imagine a metal spoon versus a ceramic plate. You can't out-strength an earthquake from a force perspective. So we want our structures to be ductile.
 ”

Islands of the sub-Antarctic Indian Ocean south of South Africa; along the Dyer-Obion County line about 12 miles north of Dyersburg, Tennessee; in Nicaragua; in Argentina; in a borough called Wawa in the Philippines; and in the U.S. state that, surprisingly, has had more measurable quakes in 2014 than jittery California: oil-rich Oklahoma. For Gutenberg and Richter, it is just an average day. No “Big One.” No Fukushima.

(Beno Gutenberg and Charles Richter were noted seismologists at the California Institute of Technology in the middle of the 20th century, but Gutenberg was media-shy; thus, few remember the name that precedes the hyphen.)

Like every earthquake ever recorded—and like the million billion trembles, large and small, that preceded human note taking—each of these seismological episodes has a story to tell. Some are horrific tales of crumbled cities and manifold casualties, wrought by the collision of continents and the grinding of great chunks of the Earth's crust as they float and bump like slow-motion saltine crackers in a seething cauldron of lava soup. Others are after-echoes of past tragedies—and

warning whispers of disasters to come.

Of all the catastrophes that befall our civilizations, none marries power, pathos and unpredictability as devastatingly as the earthquake. Armenia, San Francisco, Peru, Christchurch. Turkmenistan, China, Indonesia. The roster of the sites of the most destructive quakes of the past quarter century recalls scenes of immense destruction, terror and tragedy, and calls architects, engineers and scientists to action to try to predict and prevent the next catastrophe—or at least to mitigate its terrible toll.

Hard to see sometimes, amid the litany of global tragedy, is the fact that progress is indeed being made.

Christchurch, New Zealand, March 26, 2011: House in Avonside collapses in the largest earthquake Christchurch has ever experienced, with a magnitude of 6.3.



©iStockphoto.com/BluesandViews



The Golden State Freeway at the Foothill overcrossing after the 1971 San Fernando earthquake (magnitude 6.6). Right: At least 15 people died in the Northridge Meadows Apartments during the Northridge earthquake in California (magnitude 6.7).

“We certainly know how to design well now to resist earthquakes,” says Reginald DesRoches, professor of civil and environmental engineering at the Georgia Institute of Technology in Atlanta.

“One factor is modeling—our computer power is so much better that we have the ability to model not just buildings but a whole community and the soils around it. And we also are moving to create protective systems; for example, space-isolation systems underneath buildings to protect them when an earthquake occurs.”

Fifty years ago, almost nothing was known about the importance of ductility in designing buildings to withstand powerful quakes along known fissures in the Earth’s crust. In the U.S., those fissures include the San Andreas and Hayward faults of California that form parts of the notorious Ring of Fire that encircles

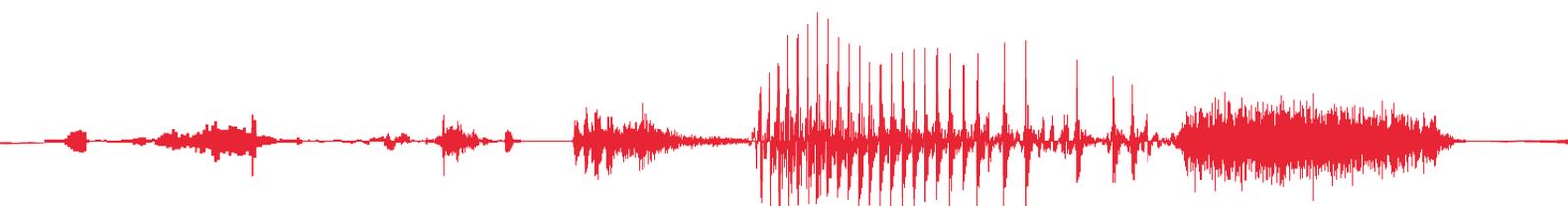
the Pacific Ocean. Ductility is the ability of a structure to undergo large deformations without sudden brittle failure. It’s the reason why our modern glass-and-steel skyscrapers are safer in an earthquake than a two-story brick walk-up or an adobe hut.

“Imagine a metal spoon versus a ceramic plate,” DesRoches says. “You can’t out-strength an earthquake from a force perspective. So we want our structures to be ductile. In the case of a reinforced concrete structure, the placement of steel in the right places has a significant impact on the ability of a component of a building—a column or a beam—to undergo large deformations without sudden failure. Over the years, we have learned that confinement is one effective way to achieve ductility—the placement of steel around a concrete element.”

Two major California quakes served as tragic testing grounds for the

old buildings that break and the new (or retrofitted) ones that don’t: San Fernando in 1971 (magnitude 6.6, 58 directly linked deaths) and Northridge (magnitude 6.7, 57 fatalities) in 1994. By the time of the second of these earthquakes, new building codes mandated that older structures be equipped with energy-dissipating isolators that lengthen the natural period of the tremor.

“Los Angeles city officials say that more than 200,000 people were living in retrofitted brick buildings when the Northridge quake hit,” DesRoches told a U.S. Senate committee in early 2014. “Not a single death or injury was reported from more than 37,000 units in 1,300 strengthened buildings. The structures that were built or strengthened under the new, stricter code experienced limited damage, while those structures that had not been retrofitted suffered greater damage.”



“ [In] New York City, something like half a million to a million people live in unreinforced masonry buildings in Manhattan alone. A Northridge [earthquake] under Manhattan would have an enormous effect on the social fabric. You’d have a very substantial percentage of New Yorkers looking for a place to live. ”

But there remain millions of buildings in the developed world—and hundreds of millions more in poorer places—that were built in the pre-ductile epoch, more than half a century ago: low-rise apartments and businesses erected with the unreinforced masonry that is most vulnerable when a significant tremor occurs.

“We know a whole lot more now than we did 30 or 40 or 50 years ago, just as we know a whole lot more about hurricanes and tornadoes, but are we out of the woods? No,” warns Professor Andrew Whittaker of the University of Buffalo in New York.

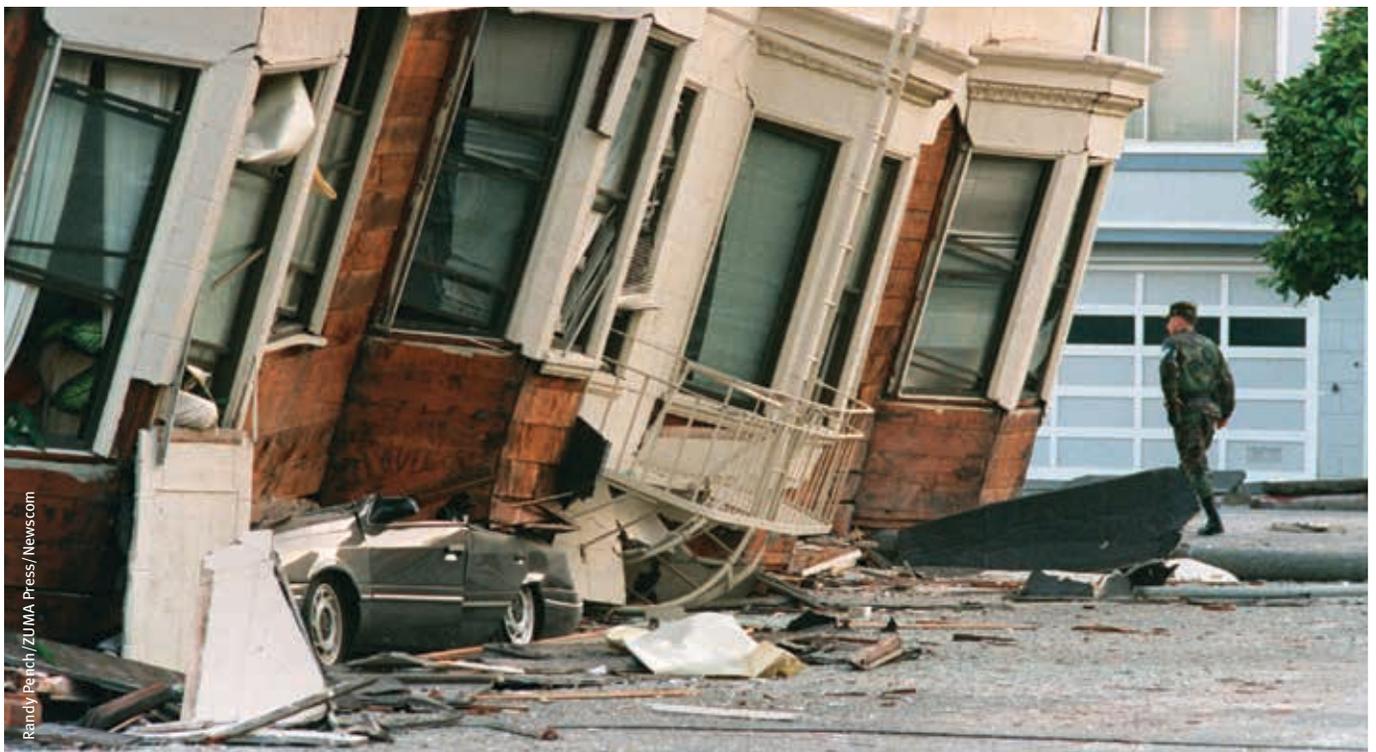
Whittaker, a native of Australia, the only inhabited continent on which damaging earthquakes are extremely rare, was driving across California’s Bay Bridge on October 17, 1989, when a magnitude 6.9 quake shattered rows of historic houses in San Francisco’s tony Marina District, collapsed the double-decker freeway known as the Cypress Street Viaduct, halted the third game of the World Series between the Giants and Oakland A’s, and killed at least 63 people.

When the 1989 quake occurred, the 48-story Transamerica pyramid, which has been San Francisco’s tallest

building since its completion in 1972, shook for more than one minute and swayed more than a foot but came through unscathed. Engineers credited the structure’s 52-foot-deep steel and concrete foundation, its precast quartz aggregate exterior interlaced with reinforcing rods, and a truss system that was designed to support both vertical and horizontal loading.

Today, Whittaker’s upstate New York research center and its 50-ton-capacity “shaking table,” along with leading institutes in earthquake-prone Japan, New Zealand, and elsewhere, offer

The crushed remains of a car sit under a collapsed Marina District apartment building, October 18, 1989, the day after the massive Loma Prieta earthquake struck Northern California.



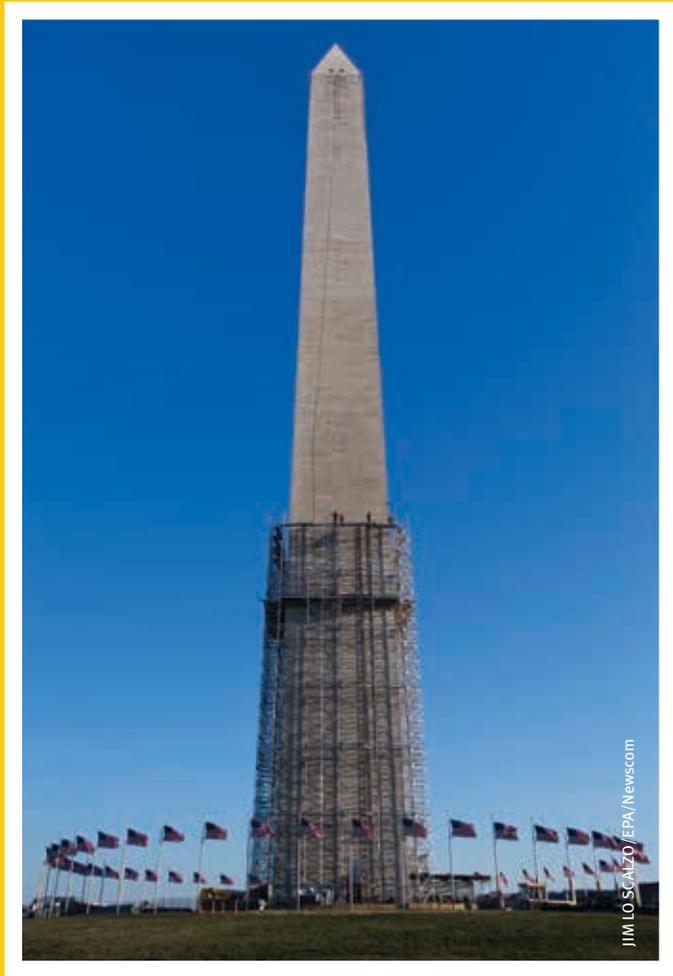
A Monument Built to Last

When a magnitude 5.8 earthquake, centered in the hamlet of Mineral, Virginia, rattled the northeastern United States on the afternoon of August 23, 2011, the roof of Mineral's town hall collapsed — but the tallest stone structure on the planet survived its hardest body-check in more than 100 years.

Three major factors allowed the Washington Monument to sustain comparatively minor and repairable damage to its marble skin and to the aluminum “pyramidion” at its summit: the fact that the tremor was centered more than 80 miles from Washington; the consistency of the soil beneath the iconic obelisk, which resonated during the quake with a frequency attuned to the natural periodicity of the shaft; and the strength of the Maryland and Massachusetts stone from which the tower was built, beginning in the 1840s.

Shards of stone flaked loose from the monument during the quake, but it was not until Hurricane Irene struck Washington, D.C., four days later and rain slanted into the observation gallery that some of the most serious cracks were discovered. Beginning in late 2012, and throughout 2013, the National Park Service oversaw extensive restoration of the 555-foot obelisk, which included vertical and horizontal joint repairs and sealing of large cracks. On May 12, 2014, nearly

The 5.8 magnitude earthquake that damaged the Washington Monument (and could be felt at Dixon headquarters in Chestertown, Md.) originated 80 miles away in Mineral, Virginia, where the Louisa County courthouse was damaged.



Scaffolding rises around the Washington Monument, where construction workers repaired cracks to the masonry of the famous structure that were inflicted during the 5.8 magnitude earthquake that rattled the Washington, D.C., area.

three years after the earthquake, the monument was reopened to great fanfare and the more than 1 million visitors who ride the elevator to the top every year.

The good news for future tourists? In their final Seismic Assessment, the California-based engineers who consulted on the monument's restoration reassured the National Park Service that: “While the pyramidion may well experience some damage in a future earthquake, the recurrence of damage even of the severity of what occurred during the August 23 Mineral event, with an estimated return period between 2,000 and 3,000 years, is relatively remote.”



A four-story wood frame building is tested under the conditions of a number of historical earthquake data using the world's largest outdoor shake table by researchers at the University of California San Diego. Tangshan, China: A partial view of Tangshan City in Hobei province where an earthquake with a force of 7.8 on the Richter scale rocked the city on July 28, 1976.

manufacturers and engineers a way to test new machinery and architectural prototypes against simulated tremors of many types.

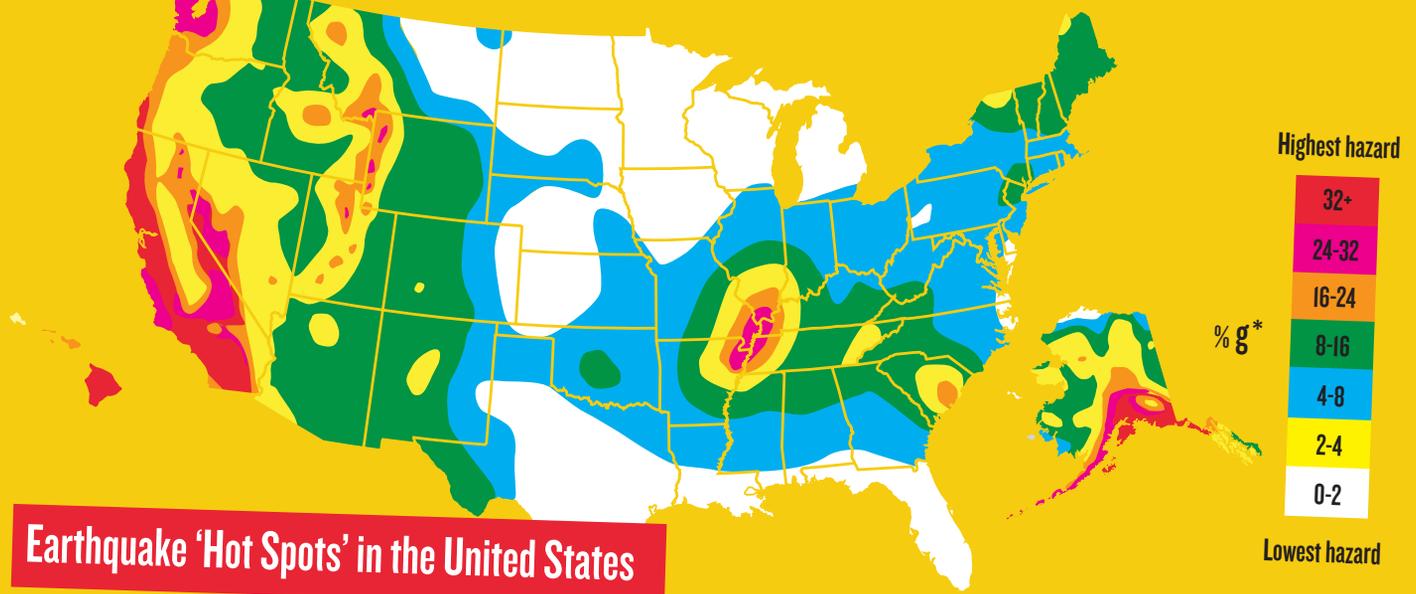
“If you are going to build a hospital or school in California, you have to seismically qualify every piece of equipment that will go in it,” Whittaker says. “If you’re going to put a chiller in a hospital, or an MRI in a clinic, you have to demonstrate that your MRI will

survive the effects of a significant ground motion without collapsing on someone inside the machine. And you wouldn’t want your chiller coming apart in a hospital that has to perform post-earthquake functions.”

Though modern buildings in the United States are designed to have a 1 percent probability of collapse due to earthquake shaking in a 50-year period, Whittaker is quick to point out that no

structure is “earthquake-proof.” And he adds, “If there’s a big event in Los Angeles tomorrow, the losses will be acute because when you look at the buildings there, only a small fraction of the inventory is new. And if you focus on New York City, something like half a million to a million people live in unreinforced masonry buildings in Manhattan alone. A Northridge [earthquake] under Manhattan would





Earthquake 'Hot Spots' in the United States

*The forces caused by the shaking during an earthquake can be measured as a percentage of gravity, or percent g. Map is approximate and based off of a United States Geological Society seismic map.

have an enormous effect on the social fabric. You'd have a very substantial percentage of New Yorkers looking for a place to live."

With this as perspective, the earthquake that struck the nation of Haiti in January 2010, killing 316,000 islanders, stands out as a truly horrific confluence of poverty, poor planning and fate. In modern times, it is comparable only to the quake centered in Tangshan, China, in 1976 that killed a quarter million men, women and children. (At Tangshan, the safest place to be was underground. Of 10,000 coal miners working at the time the quake occurred, only 17 were killed.)

"Haiti," says Georgia Institute of Technology's DesRoches, whose parents emigrated from Port-au-Prince to New York City when he was a child, "was a tragedy like we had never seen on that scale—probably the most catastrophic event in the Western Hemisphere in the last century." He returned to his birthplace a week after the quake to help lead U.S. aid efforts.

"It was almost a perfect storm. You have a country that's very poor and they use very poor materials; there's a lack of

education about earthquakes, it wasn't really taught; and they had not had a recent history of earthquakes and it took everyone by surprise.

"I had been to other earthquakes, but it was almost numbing to me to see not only the devastation in terms of the infrastructure, but you could sense the death all around you. People would point to buildings and say, 'There are 40 bodies in here. There are 40 bodies

Plain. The area, which encompasses northern and eastern India, parts of Pakistan, southern Nepal and nearly all of Bangladesh, is home to nearly 1 billion people. Most live in sprawling cities of roughly cemented, rudely plastered, slipshod little homes.

"There are earthquake standards for concrete structures, but the implementation is zero," says T.G. Sitharam, a professor in the department

“Haiti was a tragedy like we had never seen on that scale—probably the most catastrophic event in the Western Hemisphere in the last century.”

in there.' It was the most difficult experience I've had in my life in many ways."

Yet Haiti someday—perhaps tomorrow—may be dwarfed by an even greater cataclysm, should the Eurasian and Indian plates clash abruptly beneath the Indo-Gangetic

of civil engineering at the Indian Institute of Science in Bangalore, India. "Not 10 percent implementation ... zero! If an earthquake strikes that area, there is going to be a catastrophe. We will not just be counting [single] bodies. We will be counting millions."



Josef Kraus/picture alliance / Peter Kraus/News.com

The destroyed center of Tokyo.

Facts & Figures: Destructive Quakes in History

Year	Magnitude	Place	Fatalities
1556	8.0?	Shaanxi Province, China	830,000
2010	7.0	Haiti	316,000
1976	7.5	Tangshan, China	242,767
1138	?	Aleppo, Syria	230,000
2004	9.1	Sumatra, Indonesia	227,898
856	?	Damghan, Iran	200,000
1920	7.8	Ningxia Region, China	200,000
893	?	Ardabil, Iran	150,000
1923	7.9	Tokyo-Yokohama, Japan	142,800
1948	7.3	Ashghabad, USSR	110,000

Source: United States Geological Survey

Sitharam notes that there has not been a major quake in Northern India for more than 150 years, but this is no guarantee that one won't happen next week. Construction standards are so lax in many developing countries that it may not even require a slippage of major continental plates to cause a tragedy: In 1993, an intraplate earthquake measuring only 6.2 struck a district called Latur east of Mumbai at 4 a.m. and killed more than 10,000 Indians as they slept in what would become their concrete tombs.

In the United States, the list of most vulnerable cities includes such unexpected names as Charleston, South Carolina, where an intraplate quake in 1886 pulverized nearly every building in town, and Atlanta and Memphis, which lie in the unstable zone that spawned the magnitude 8 New Madrid earthquakes of 1811 and 1812.

With such vulnerability abounding, it is heartening to know there are



A magnitude 6.6 earthquake on Aug. 31, 1886, destroyed or damaged most buildings in the Charleston, S.C., area, including these homes on East Bay Street in Charleston.

architects around the world who are pushing to quake-proof their dream buildings and engineers who are tirelessly testing their innovations.

Meanwhile, an unmemorable day of earthquakes continues: in Kettleman City, again—and then again ... on Little Sitkin Island in Alaska ... in Helena, Oklahoma ... and even on the bucolic island of Anguilla in the deceptively calm Caribbean.

“The engineering solutions are plenty,” says Sitharam in Bangalore. “There are architectural shapes for structures that could resist even reasonably large earthquakes. There is no lack of engineering knowledge. What is lacking is knowing how much force is going to come.

“We can tell you where it will happen. But when? Nobody in the world can tell you [that].”

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“Fast Eddie”

Racecar driver, flying ace, CEO ... no matter what adventure he undertook, Eddie Rickenbacker sped through life at full throttle

BY BEN MUSACHIO

On an October day in 1942, delirious ramblings filled the air as seven Americans clung desperately to three life rafts in the Pacific Ocean. They had been floating in placid blue waters for more than three weeks, after the B-17 they'd been flying in had been forced into an emergency landing. Several in the group had been injured, and all were crisped brown by the relentless South Asian sun.

As the unofficial leader of the group, Eddie Rickenbacker, 52, tried to ensure that the others in the unfortunate band didn't panic or worse, drown themselves to escape the misery of starvation and dehydration.

Fortunately, Rickenbacker was no stranger to crashes: He had nearly died a year earlier in a domestic plane crash outside Atlanta and had survived countless fiery automobile wrecks during his years racing cars. “No one living has cheated the old grim reaper oftener than I have,” Rickenbacker had famously uttered.

But this time, the storied racecar driver, World War I fighter pilot ace, and air transportation pioneer didn't know how he was going to get out alive...



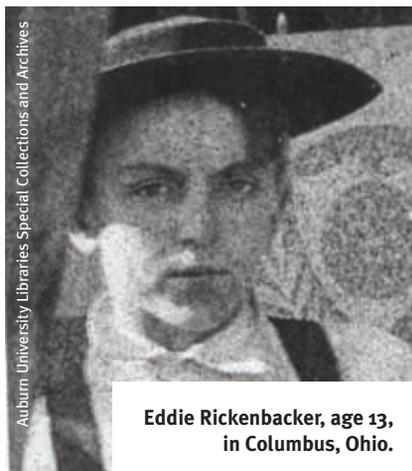
A Need for Speed

Born on October 8, 1890, in Columbus, Ohio, to German-speaking Swiss parents, Eddie was christened Edward Rickenbacher. (The anglicization of his name would come later.) Even at an early age, he had an uncanny knack for getting hurt. Among a long list of injuries, the young daredevil sustained a nasty knock to the head from his mother's gardening hoe, survived a botched tonsillectomy and got his foot stuck in railroad tracks after leaping from a moving car.

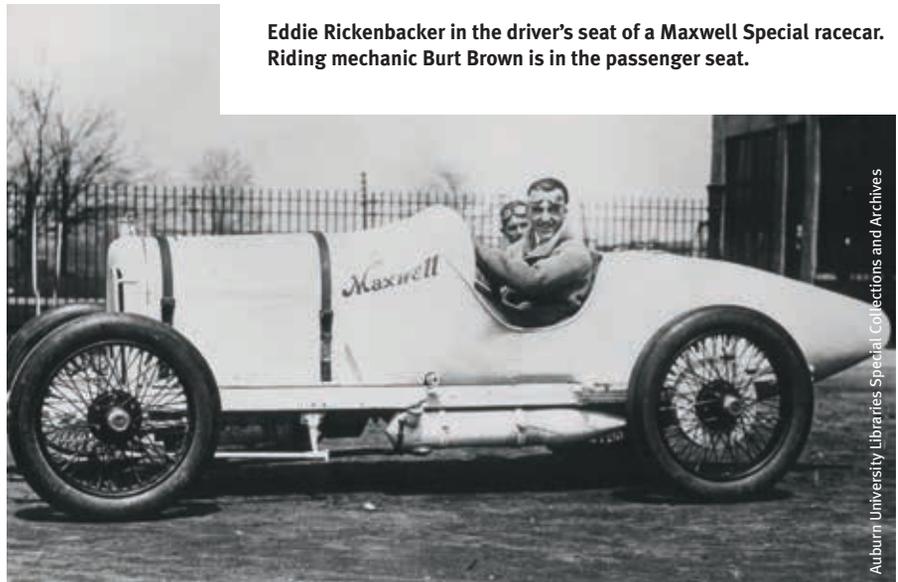
After his father died in 1904, Eddie dropped out of school at 13 to support his family. Times were tough and his desperate mother needed all the help she could get in feeding her seven children. The youngster shifted from job to job, eventually settling into an entry-level position at a machine shop for the Pennsylvania Railroad. Before long, he proudly presented his mother with a weekly check of \$5 (about \$137 today).

In his spare time, Eddie was drawn to the exciting new world of automobiles. His first car ride—in an early two-seater Ford Runabout that jounced around at a snail-like 10 mph—left an indelible impression. “He never forgot the thrill,” noted biographer W. David Lewis in *Eddie Rickenbacher: An American Hero in the Twentieth Century*.

Eddie's talent for solving technical problems, as well as his diligent after-hours study of basic mechanics, led to



Eddie Rickenbacher, age 13, in Columbus, Ohio.



Eddie Rickenbacher in the driver's seat of a Maxwell Special racecar. Riding mechanic Burt Brown is in the passenger seat.

a position at the Frayer Miller Aircooled Car Company around 1905. The company supplied cars for national auto races, and before long “Fast Eddie” was a regular on the auto racing circuit.

“You didn't win races because you had more guts. You won because you knew how to take the turns and baby your engine. It wasn't all just shut your eyes and grit your teeth,” he said,

“You didn't win races because you had more guts. You won because you knew how to take the turns and baby your engine. It wasn't all just shut your eyes and grit your teeth.”

Early automobile racing was not for the faint of heart. Drivers risked life and limb as they raced their specially designed vehicles around tracks of variable quality. Rickenbacher himself crashed during one of his first races in Red Oak, Iowa. He was thrown from his car “with great violence” and “was seriously bruised and cut up about the face,” according to an automotive racing reporter on the scene at the time.

Nevertheless, Fast Eddie became “one of the most successful racecar drivers of the day. He earned an average of \$40,000 a year (nearly \$1 million today) while racing in four Indianapolis 500s and setting a world record of 134 mph at Daytona Beach, Florida.

in explaining the considerable skill required to achieve at such a high level during that era.

In assessing his racing legacy, *Motor Age* designated Rickenbacher as “unquestionably ... one of the greatest American drivers.”

Adventures in the Air

Rickenbacher hung up his racing gloves in 1917 for a new brand of adventure: throttling through the air at more than a hundred miles an hour, evading and gunning down German pilots.

Americans during the Great War (1914-1918) had a strong distaste for everything German and the surname Rickenbacher didn't win Eddie any

favors. So he replaced the “h” with a “k” (“to take the Hun out of it”) when he set out to become a fighter pilot. His relatively old age (27 years in 1917) made acceptance into flight training a bit of a long shot. But Rickenbacker was used to betting—and winning—on long odds. Colonel Billy Mitchell of the U.S. Army Air Service was so impressed with Rickenbacker’s mechanical prowess as a car repairman that he personally arranged his training in the flight school at Issoudun, in the center of France.

Rickenbacker had a tough time at first. He didn’t get on well with the other, generally younger and more rigorously educated, pilots-to-be. After he graduated from flight training, his strong mechanical skills actually impeded his high-flying aspirations: He was commissioned as an engineering officer.

Eventually, however, Rickenbacker was permitted to join a brand new fighter unit, the 94th Aero Squadron, informally known as the “Hat-in-the-Ring” squadron, owing to their colorful insignia.

On April 29, 1918, he made his first hit in the air, above Beaumont, when he downed a German Pfalz in his Nieuport 28. “At 150 yards I pressed my triggers. The tracer bullets cut a streak of living fire into the rear of the Pfalz’ tail. ... I had brought down my first enemy aeroplane and had not been subjected

Eddie Rickenbacker with his SPAD S.XIII.



National Museum of the U.S. Air Force

to a single shot!” he recounted in his autobiography *Fighting the Flying Circus*.

On May 28, just two months after donning his flight jacket, Eddie earned the widely coveted “Ace” status when he outmaneuvered and outshot two German planes in a span of a few hours to raise his kill count to five, the minimum required to receive the Ace moniker.

Before long, American engineers devised deadlier aerial capabilities in the form of the SPAD S.XIII—a fighter plane that featured awe-inspiring firepower and thick armor. The entire 94th Aero Squadron adopted this new model of warplane to great success.

Rickenbacker was particularly taken with the SPAD. Over a three-month period, he bested one German pilot after another, including those in the infamous “Flying Circus” Squadron commanded by the “Red Baron,” Manfred von Richthofen.

Rickenbacker took no great pleasure in the killing. “Fighting in the air is not sport, it is scientific murder,” he would tell anyone who asked.

By the time the smoke cleared and the war ended on November 11, 1918, Rickenbacker had earned 26 “scores”—the highest of any American fighter pilot. He left the service with the rank of captain and a long list of military awards and accolades to his credit. (He would belatedly be awarded the Medal of Honor by President Herbert Hoover in 1931.)

Rickenbacker had also earned the undying respect of the men he led as commander of the 94th Squadron, largely due to his self-described leadership style: “[I] would never ask anybody to do anything that I would not do myself first,” he said, “or do at the same time.”

Getting Down to Business

After the war, Rickenbacker met and married Adelaide Frost Durant, a moneyed Michigan socialite, and the two enjoyed an expensive European



Eddie Rickenbacker (second from left) with a group of officers from the 94th Aero Squadron at an aerodrome in France.

Auburn University Libraries Special Collections and Archives



Rickenbacker at his desk in his Eastern Air Lines office in New York City, talking with news photographers after his rescue from the Pacific.

honeymoon. Rickenbacker had become a sweetheart with the media and everywhere the newlyweds went, adoring reporters and photographers surrounded them. *Fighting the Flying Circus*, published in 1919, proved a hit with the American public, and Rickenbacker was frequently called upon to give speeches and lectures.

Throughout the Roaring Twenties, as the couple built their family by adopting two sons—David Edward in 1925 and William Frost in 1928—Eddie turned his attention toward the world of business.

Rickenbacker was an innovator. And with his first company, Rickenbacker Motors, he sought to bring racecar technologies into the consumer auto industry by introducing four-wheel braking. Feeling threatened, his competitors (who relied on two-wheel braking) put out a series of advertisements alerting the consumer to the “dangers” of Rickenbacker’s braking system. Their campaign worked and sales were dismal: Rickenbacker stepped down from his failing company in September 1926. Ironically, four-wheel brakes would go on to become the industry standard.

Undeterred by that business failure—and the quarter-million-dollar debt he incurred as a result (\$3.2 million today)—Rickenbacker purchased the Indianapolis Motor Speedway in 1927.

To get the money he needed for the purchase, he hit the road, hawking LaSalles to car dealerships in 75 different cities over the course of 81 days. Once the speedway was his, he went on to modernize it through the introduction of banked curves and other amenities.

He next turned his attention back to the sky, signing on in 1935 to lead the day-to-day operations of Eastern Air Lines. Through his sound business management, what started as a small mail carrier evolved into a commercial airline company that had a near monopoly on domestic airmail routes, particularly in the American South. Ever the innovator, he oversaw radical changes that impacted the entire



Eastern Air Lines Lockheed Constellation in flight.

commercial airline industry, in part by supporting the development of new, faster airliners, including the four-engined Lockheed Constellation and the Douglas DC-4.

As war began brewing again in Europe, Rickenbacker took a break from the business world to serve his country—this time in a more senior and non-military role. Secretary of War Henry L. Stimson dispatched him to various Allied bases to measure their preparedness and give the troops a well-deserved lift. He visited Allied troops in Hawaii, England, Egypt, and even in the Soviet Union, where he was hopeful that capitalism (Rickenbacker’s favored economic system) would eventually win out.

It was on one of these trips, on October 21, 1942, that the B-17 he was riding in ran out of fuel after overshooting its destination and made a crash landing into the Pacific.

For nearly 24 days, Rickenbacker and his compatriots drifted in rubber rafts as bloodthirsty sharks circled. As one day melted into another, the courageous band survived off of rainwater, the occasional fish and a seagull.

Used to being in charge, Rickenbacker assumed informal command of the group, reportedly saving one comrade from an ill-conceived suicide attempt.

Miraculously, after more than three weeks at sea, the men were rescued

For nearly 24 days, Rickenbacker and his compatriots drifted in rubber rafts as blood-thirsty sharks circled. As one day melted into another, the courageous band survived off of rainwater, the occasional fish and a seagull.

when two low-flying Navy planes spotted them floating below—only Rickenbacker had the energy to wave at the pilots overhead. Of the original seven, six survived the trying ordeal. Stories celebrating Rickenbacker's rescue as "a national Christmas present" dominated American newspapers, pushing wartime news about the Pacific campaign to page two.

"All of America is glad to see the 'Indestructible Eddie' return," noted Army Major General Barney M. Giles, in an autographed photograph of the period.

A Life Well Lived

When World War II ended, Rickenbacker was at the peak of his popularity. He resumed his business duties as CEO of Eastern Airlines, and over the next decade or so he led it to become the most profitable post-war airline.

His stint as CEO ended in 1959, after a failed merger attempt with American Airlines as well as some business decisions (including his sale of 100,000 shares of Eastern stock—a vote of no confidence in the company's future) that

proved unpopular with Eastern's board of directors.

Throughout the 1960s and 1970s, ever the adventurer, Rickenbacker traveled the world with his wife, to far-flung locales including Japan, New Zealand and Nairobi.

Eddie Rickenbacker died on July 30, 1973, of pneumonia, during a trip to Zurich, Switzerland. He was a few months shy of his 83rd birthday. The quintessential American hero was interred in the Green Lawn Cemetery in Columbus, Ohio, not too far from his childhood home.

Summarizing Rickenbacker's wildly varied life of adventure is difficult, but his biographer David Lewis may have done it best: "He was a man of valor who knew that courage could not exist in the absence of fear, the eternal warrior who intuitively realized that a life well lived is not a state of existence for the timid but a combat zone." ●

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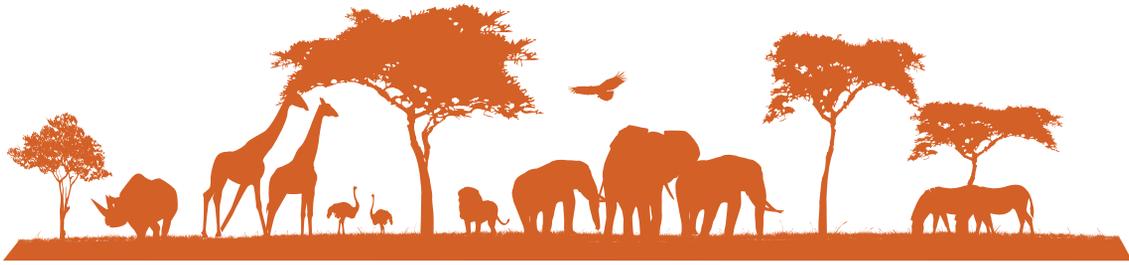
- The Dixon Price List Catalog has more than tripled in size to nearly 900 pages
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HOOKED ON SAFARI

AFTER TRACKING LIONS AND ELEPHANTS BY DAY, AND SLUMBERING BENEATH THE VAST, STAR-STUDED SKY AT NIGHT, YOU'LL BE SURE TO CATCH AFRICA'S "KHAKI FEVER"

BY CARRIE HAMPTON

Your safari guide suddenly stops the vehicle and you know he's seen something—but what? And where? The guide's eyes are tuned in to spotting well-camouflaged animals, and yours will be, too, in a couple of days. He points to a bough of an old Leadwood tree and says quietly, "Ingwe (leopard)." And there it is glaring at you with piercing golden eyes, claws firmly grasping an impala that he pulled into the tree so that the meal doesn't get stolen by lions or hyenas.

It's times like this that make it worthwhile to embark on the long journey of an African safari.

You may consider a safari to be a once-in-a-lifetime vacation. But let me warn you: You will get hooked! If you didn't see a lion kill this time, or spot a cheetah, or snap a photo of a yawning hippo as the sun sinks over the Chobe River, you'll be eager to return.

"Mind-Blowing" Adventure

For some, the lure of Africa is too great to go unheeded. Susan White Mathis, owner of Mateya Safari Lodge in South Africa's Madikwe Game Reserve, became enamored with Africa after visiting from her native Georgia, in the United States. She built her dream safari lodge for herself and paying guests and filled it with one of the world's finest private collections of African books, art and artifacts.

Then there was a New York City business executive who met and fell in love with the game ranger at Tswalu Kalahari Reserve in South Africa, during her visit. "Khaki fever" sometimes renders people defenseless, and in this case it ended happily with Wendy and Mark Rutherford getting married, having two young children and starting their own game reserve—Gondwana Game Reserve, along the Garden Route near Cape Town.

Of course, every safari has a narrative. Your story will be shaped by the lodges where you stay and the animals you see.

For Lisa Starkey, a bumpy Land Rover ride through the Serengeti will remain indelibly etched on her memory. "The roof was off so you could stand up and look out—we did a 360-degree turn and all you could see were thousands of zebras. Nothing but stripes for miles. It was mind-blowing!" says the Centreville, Md., resident, who traveled with her 22-year-old daughter, Sarah. On another day, Starkey recalls, "we got within five feet of 20 elephants. We were in awe."

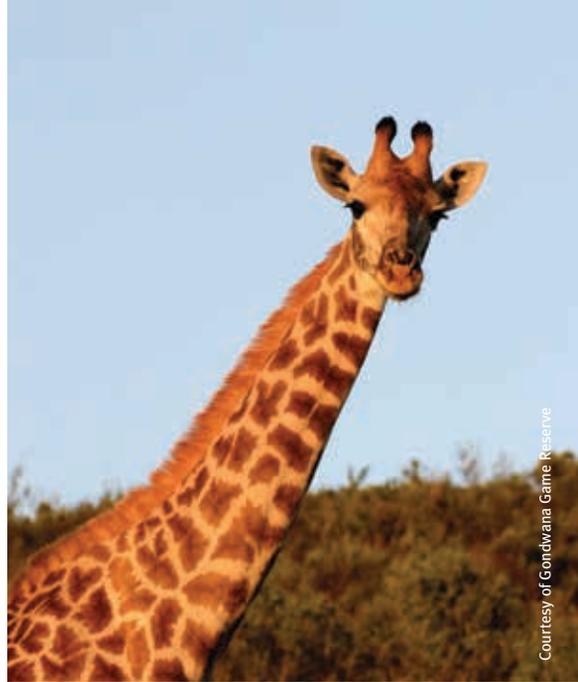
Over the course of their two-week trip, the Starkeys spotted all of the Big Five (lion, elephant, Cape buffalo, leopard and rhinoceros), as well as countless giraffes, hyenas, wildebeests, ostriches and cheetahs (including one

Clockwise from top: African acacia trees in the warm light of a late afternoon, Serengeti National Park, Tanzania/East Africa; giraffe on Gondwana Game Reserve; zebra on Gondwana Game Reserve; safari vehicle from Mateya Safari Lodge; image of the grounds of the Gondwana Game Reserve; elephant on Gondwana Game Reserve.

"Safari Silhouette" ©iStockphoto.com/bandian1122



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Courtesy of Gondwana Game Reserve



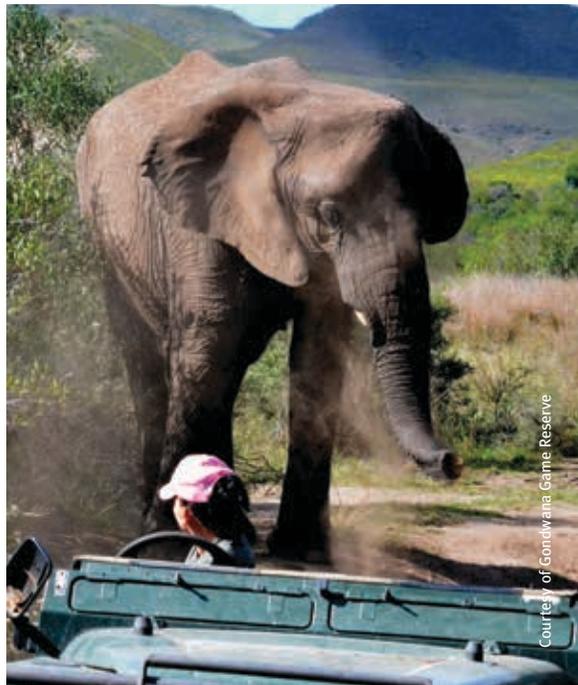
Courtesy of Gondwana Game Reserve



Courtesy of Mateya Safari Lodge/Kumari Trivedi



Courtesy of Gondwana Game Reserve



Courtesy of Gondwana Game Reserve



Courtesy of Camp Jabulani/Rikki Hibbert



©iStockphoto.com/Avatar_023

From left: Rhinos at Camp Jabulani; two Maasai warriors; Mt. Kilimanjaro, the highest mountain of Africa.

whose belly was swollen with a freshly eaten gazelle). “By the end of the tour, gazelles and antelopes were as common to us as dogs and cats,” Lisa recalls.

With literally hundreds of safari tours and lodges competing for your business, how does one stand out from the rest? By offering superior guides, distinctive interior decor, high-quality cuisine, frequent animal sightings and additional activities like visits to rural villages. When you are planning your safari, be sure to ask about these amenities.

For the Starkeys, a big highlight of their trip was the day they spent in Kenya visiting with the rural Maasai

tribe, a people that has stayed true to its primitive roots. “They still drink cow’s blood. It was eye-opening to be with them—like taking a step way back in time,” says Lisa. While on the Maasai Mara Game Reserve, the duo also enjoyed a sunrise hot air balloon ride, which offered a panoramic view of running animals below.

If you want almost guaranteed sightings of the Big Five, head straight for one of the many South African lodges inside Sabi Sands Private Game Reserve and other private reserves bordering Kruger National Park. Lodges like Richard Branson’s Ulusaba and the family-run Londolozi are well-known.

If you desire close-up elephant encounters and grand colonial style, choose Camp Jabulani, where elephant-back riding is a popular perk. For the best spa in the bush and Chaîne des Rôtisseurs gourmet food, the choice is Royale Malewane in the Thornybush Reserve close to Kruger Park.

If you have a yearning for something wilder and altogether more remote, Botswana’s Okavango Delta is calling you. The number of lodges and visitors is restricted by the government, making it high price but low volume and therefore exclusive. It’s quite possibly the best all-round safari destination on earth—a watery



Planning Your Safari

Each southern and eastern African country is renowned for iconic safari adventures:



KENYA: Encounters with Maasai people; flamingoes on Lake Naivasha; hot air ballooning over the Maasai Mara during the wildebeest migration (pictured at left).

TANZANIA: Serengeti plains dotted with wildebeest; the wildlife haven of the Ngorongoro Crater; climbing the ice-topped Mount Kilimanjaro and relaxing on the beaches of Zanzibar.

MALAWI: Snorkeling in the warm waters of Lake Malawi with hundreds of colorful fish; village visits to meet friendly locals.



ZAMBIA: Walking safaris in wild reserves; game lodges along Lower Zambezi; Victoria Falls (pictured at left) with accommodation alongside the Zambezi River.



©iStockphoto.com/Vaharov



wonderland of fast flowing channels and tranquil lily pad lagoons interspersed with lush grasslands and riverine forests. You can get a bird's-eye view of the complex ecosystem from the air if you fly in on a six-seater light aircraft; other ideal observation opportunities include 4x4 game drives and boat and canoe rides. There's never a dull moment in the Okavango; you don't even have to leave your lodge to see game, and in the dark of night, the likelihood of a lion coming to camp is very real. Footprints in the sand the next morning will reveal who came a-visiting.

Of course there are other considerations that will inform your



ZIMBABWE: A wild canoe trip along the Zambezi from Mana Pools dodging crocodiles and hippos (pictured at left); Hwange National Park with hundreds of elephants; visit the other side of Victoria Falls.

BOTSWANA: Canoeing silently past hippos through the Okavango Delta; boat cruises on the Chobe River for iconic sunset photos; elephant-eating lions in Savute.

NAMIBIA: Incredible desert landscapes; wildlife in Etosha National Park; nomadic Himba tribe.



SOUTH AFRICA: Sophisticated game lodges; close-up animal sightings; good value public rest camps inside Kruger National Park (pictured at left); climb Table Mountain in Cape Town.

Photo credits: "Maasai Mara" ©iStockphoto.com/Serge_Vero; "Victoria Falls" ©iStockphoto.com/maiteali; "Zambezi" ©iStockphoto.com/Bobbushphoto; "Kruger National Park" ©iStockphoto.com/DavidCallan; "Map of Africa" ©iStockphoto.com/Booka1

Wild Nights with a Difference



Some zoos in the United States offer overnight stays to experience the spooky things you miss in daylight, like the “Roars and Snores” package at Philadelphia Zoo and “Bunk with the Beasts” at Denver Zoo, but there’s nothing quite like sleeping in a treehouse surrounded by wildlife that is truly wild! These are some African versions of wild nights:

SLEEPOUT PLATFORM IN KRUGER PARK

Bring out the explorer in you with a two-hour walk through Kruger Park from Rhino Post or Plains Camp to the Sleepout Platform. It’s a multilevel tree house built in the boughs of a huge tree. Peek out of your mosquito net in the dead of night to see who’s at the waterhole.

HONEYMOON NIGHTS

For romance in the wild, book the sleep-out options in Lion Sands or Kapama Game Reserve. Their wooden structures deep in the bush have a four-poster bed, white linen and billowing mosquito nets, with bathroom facilities. Sleep under the stars all snug and safe, but very alone. There are similar offerings at Garonga Camp in Makalali Reserve and Makanyane Safari Lodge in Madikwe, all in South Africa.

DESERT NIGHT SKY

You’ll be mesmerized by the African night sky at Tswalu Malori Sleepout Deck in South Africa’s largest private reserve in the Kalahari Desert. It’s very exclusive, with a price tag to match.

TREEHOUSE WITH RESIDENT SNAKE

“Ignore the snake, he won’t hurt you,” is the advice offered when staying in the Treehouse at Delta Camp in Botswana’s Okavango Delta. Other possible visitors are a large spotted genet (relative to the mongoose), Meyer’s parrots and assorted woodpeckers and pigeons.

IN BED WITH ELEPHANTS

Fall asleep to the snores of elephants at Botswana’s original elephant-back riding camp, Star Bed at Abu Camp. This habituated herd is bedded down for the night within sight and sound of the camp-out platform.

Travelers willing to forgo luxury can sleep under the stars at Garonga Camp (left) and at Makanyane at the Star View Sleep-out Hide.



Courtesy of the Garonga Camp



Courtesy of Makanyane Safari Lodge (www.makanyane.com)



Leopard siting at Londolozi. Children climbing a tree while participating in the Londolozi Cubs program.

final choice of safari destination and accommodation—like can I take the kids? Some lodges have special activities for youngsters, but you should definitely leave the smallest toddlers at home. For advice on planning a family safari, contact Jenni Saunders, whose company Villas & Africa (<http://www.villasandafrica.com/why-us>) specializes in family travels

and sole-use villas in all the best African safari and beach locations. She, her husband and two young sons have tested them all out—a perk of the job.

Wherever your safari takes you, just make sure to budget on coming again, because once is never enough—as Lisa and Sarah Starkey can attest.

“We developed a ‘bucket list,’ with the goal of visiting every continent,”

says Lisa. “But now that we’ve been to Africa, who needs to go anywhere else? We’re dying to go back.”

Travel writer Carrie Hampton has been to more than 200 safari lodges, written coffee table books and guidebooks and has a blog called www.safaritart.com. She visited Africa on vacation 18 years ago and never left.

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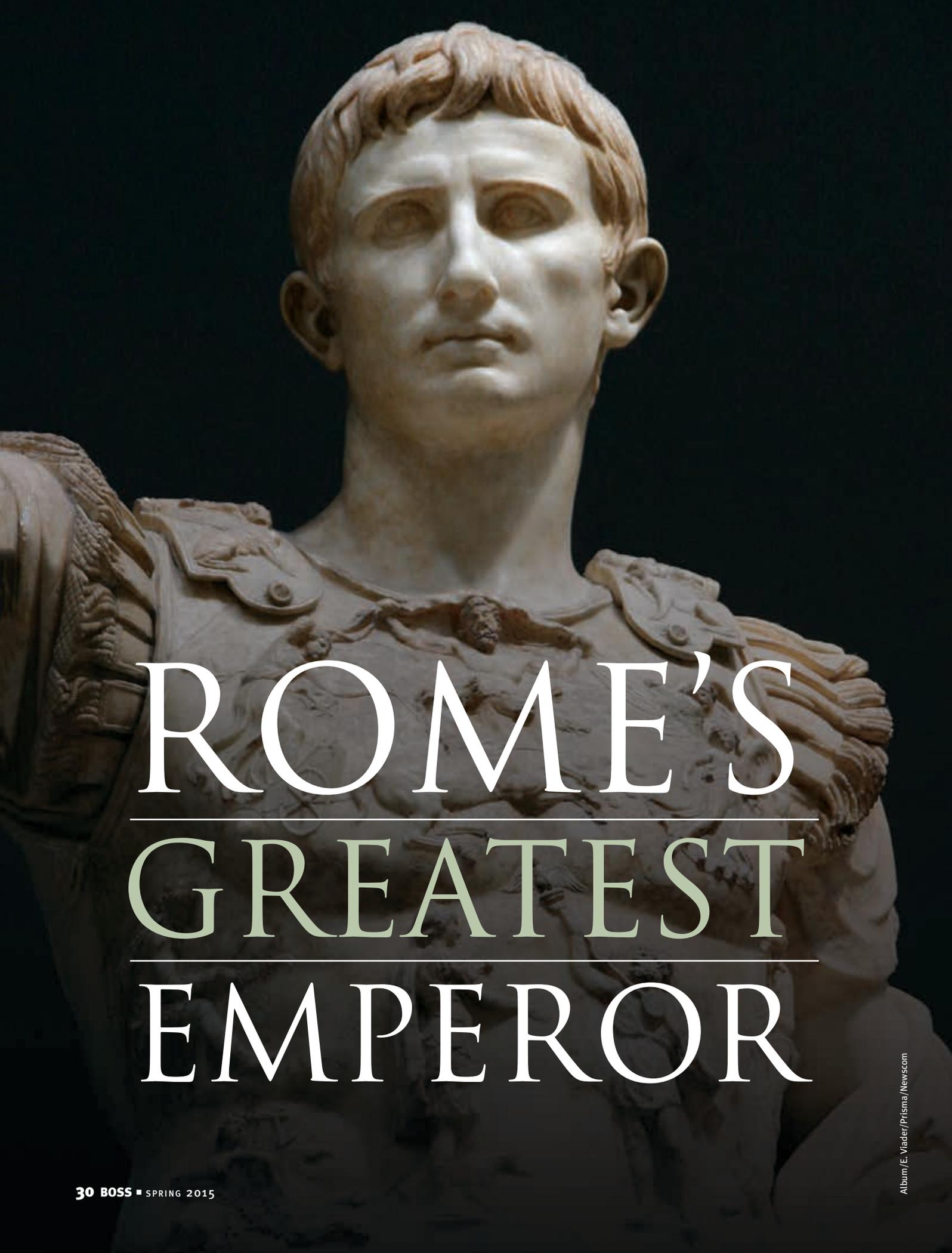
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A detailed marble bust of a Roman emperor, likely Augustus, shown from the chest up. The emperor has short, curly hair and a serious expression. He is wearing a highly ornate military breastplate (cuirass) with intricate relief carvings of figures and symbols. The background is dark, making the light-colored marble stand out.

ROME'S GREATEST EMPEROR



OCTAVIUS CAESAR'S REFORMS ENSURED HIS NATION'S STRENGTH, PROSPERITY AND STABILITY FOR TWO CENTURIES

BY EUGENE FINERMAN

In February, 44 B.C., the Senate of Rome—once the ruling body of an empire—ceded its significance to Julius Caesar, naming him “Dictator Perpetuus”: dictator for life. That life would last only another month. Julius Caesar, one of the greatest generals in history and the victor of campaigns throughout the Roman world, had nothing more than a pen to defend himself against the daggers of 23 men.

By killing Caesar, the self-proclaimed “Liberators” imagined that the Roman Republic would be saved from dictatorship and revived. But it was the corrupt nature of the Republic that had allowed the rise of Caesar in the first place. The Senate knew how to conquer but not govern. The tribute and taxes of the vanquished enriched only the senators, not the people or the state. Even the legions had more loyalty to their generals than to Rome itself. This empire needed an emperor. In the chaos of Caesar’s death, one would arise and he would be remembered as Rome’s greatest emperor: Augustus.

Augustus was actually a title, a mark of Rome’s esteem. He was born Caius Octavius in 63 B.C., inheriting the usual advantages of aristocracy but with the unique distinction of being the great-nephew of Julius Caesar, who never had a son and showed a paternal regard for him. The adolescent Octavius proved no soldier; he was puny with a sickly disposition. Yet, he possessed

a sharp mind and serious character that impressed Caesar. The young scholar was encouraged to study in Greece; he was there when he learned of Caesar’s assassination. Despite the political uncertainty and dangers, the vengeful Octavius resolved to return to Italy.

His audacity was matched by his luck. Rome was at peace. The expected bloodbath had been averted by the brilliant machinations of Marc Antony, a popular politician and Caesar’s lieutenant. The majority in the Senate had not been involved in the assassination, and it hoped to

avoid a civil war—at least in the streets of Rome. Antony proposed this compromise: Julius Caesar had simply died. The death was neither a patriotic act nor an assassination. If there was no crime, there could be no punishment. However, the chief conspirators from the Senate—among them Brutus and Cassius—were appointed to important posts far from Rome. While the two realized that they were tactfully exiled, by controlling the rich provinces of the East they could raise an army to challenge their enemies in Rome. Antony knew that as well, but he could

A lithograph showing the death of Julius Caesar on the Ides of March in 44 B.C., in the ancient Roman Senate.





Cicero

OCTAVIUS ENDEARED HIMSELF TO THE ROMAN MULTITUDES BY SPONSORING GLADIATORIAL GAMES IN HONOR OF JULIUS CAESAR.

Appian, Antony offered two answers to young Caesar's objections. The first was a detailed account of the political situation that faced Caesar's family and friends, and how the compromises and expenses were protecting them until the day that they could exact their revenge. Antony's second explanation was more personal: He really did not need to explain his actions to a presumptuous brat.

But Octavius was not one to be cowed. The name Caesar conferred a power and popularity as well as an excellent credit rating. Octavius endeared himself to the Roman multitudes by sponsoring gladiatorial games in honor of Julius Caesar. Though Antony dismissed the audacious adolescent, the Senate embraced him. Men such as Cicero saw Octavius as someone to undermine the growing power of Antony. So this young Caesar received flattering titles from those trying to manipulate him. He was a senator at 19, and a general when he was 20. Cicero liked the lad but certainly underestimated him, noting, "He is an admirable youth who should be praised and ignored."

Octavius had no delusions as to the Senate's motives or his military ability. Indeed, he had better ideas than to risk his life for the Senate's benefit. Instead of fighting Antony, he and his rival joined forces. Their personal enmity could be overlooked until they had avenged Julius Caesar. Together, with the added legions of a general named Lepidus, they took control of Rome in 43 B.C. Their triumvirate was a tyranny. Thousands were executed, including 300 senators; that was approximately one-third of the assembly. Cicero's head was displayed in the forum. With Italy left to the loyal and the dead, the triumvirate's legions were ready to fight the amassed armies of Caesar's assassins.

In October 42 B.C., at Philippi in northeastern Greece, two Roman armies met to slaughter each other. Brutus commanded 100,000 men (together with a Cicero favorite named Crassus); so did Antony and Octavius. When the fighting ended, Julius Caesar was avenged, in a victory for the triumvirate and a triumph for Antony. His valor and leadership determined the battle; indeed, Octavius missed some of the fighting because of illness. Antony made

raise an army, too. Indeed, Antony had just acquired a fortune and immediately began hiring legions of unemployed veterans. That fortune, however, actually belonged to Octavius.

Marc Antony was the executor of Caesar's will, but Octavius was the heir to the estate. Julius Caesar had also bequeathed his name to his great-nephew. Octavius was now a Caesar. Upon arriving in Italy, he learned of his inheritance as well as of Antony's control of it. The indignant adolescent showed up, unannounced, at the home of Antony. Octavius was kept waiting, but Antony eventually saw him. According to the historian

EXTENT OF THE ROMAN EMPIRE UNDER AUGUSTUS

Map illustration is approximate.

Training that's More than Educational ... At Dixon Academy, it's Hands-On

An interview with Dion Gunderson, Dixon's National Sales Manager

Q. Tell us about the training programs Dixon offers distributors.

DG: At **Dixon Academy**, we offer two major programs. We've conducted our **Hose Coupling Workshops** all across North America for more than 20 years. Designed for everyone from hose fabricators to management, these are 1-day workshops that focus on safe and efficient processes for recommending



Dion Gunderson

and fabricating industrial hose assemblies. Participants have classroom training in the morning – then fabricate hose assemblies in the afternoon according to the assembly procedures they were taught. The students get exposure to industrial-grade crimpers as well as hydrostatic testing procedures.

Beginning in 2014, we also offer **Selling the Right Connections** (SRC),

a 2-day workshop that teaches distributors how best to sell Dixon products to end-users. This intensive program is offered to our distributors' sales representatives, who we bring to Dixon's Innovation Center in Chestertown, MD, a state-of-the-art facility we built expressly for product R&D, instruction and training.

Participants compete as teams in connecting hose fittings, identifying product applications, and building systems like they would see at an end-user's facility. Also, our 3D printing capabilities show how fast we can respond to new product ideas.

Q. In what ways are these training programs unique in the industry?

DG: Led by our longtime training specialist Phil Kimble, our Hose Coupling Workshops combine classroom instruction with hands-on training. We also combine "how to do" with "how to sell," with veteran marketing specialist Joe Dawson and northeast regional manager Jeff Newell heading up our SRC



Phil Kimble demonstrates industrial crimping techniques for participants at a Hose Coupling Workshop at Dixon Academy.

workshops. When you consider the scope of these programs, there's really nothing else like them in our industry.

Q. Who can people contact for more information or to participate in these programs?

DG: We keep a Hose Coupling Workshop schedule on the Dixon website, and folks can call Customer Service at **800-355-1991** to register. Our regional and territory managers can answer questions about this program and the SRC workshop as well. We look forward to continuing our Dixon Academy workshops in 2015 and beyond!

Solutions On the Road: Dixon's SOS Vans

Because customers of Dixon's products are located all across North America (and beyond), providing the right answers to end-user needs is best handled "out there" rather than "in here."

That was the driving force behind developing Dixon's Mobile Connections Trailer program for training and product display. Since the program's inception a decade ago, literally hundreds of facilities have received visits from one of Dixon's 35-foot trailers.

And now there's a new way to bring Dixon innovation directly to end-users: **Solutions on Site (SOS) Vans**. They're designed to help deliver the best engineering solutions to customer challenges in a highly responsive and streamlined fashion.

"More than just showing products, it's also a good way to demonstrate how

we can improve existing products – or manufacture something completely new – that will make the customer's life easier," says Scott Jones, vice president of sales and marketing.

With the SOS vans – which are outfitted with product samples, application videos and other educational resources that are specific to segments like the oil and gas industry – it's easier than ever for end-users to learn what Dixon products can do, and how Dixon



comes up with "just the right solution" for even the most challenging problems.

There's another benefit beyond solving the end-user' challenges, too. As Scott Jones notes, "The Solutions on Site Vans make us more market-oriented, providing yet another way to help our distributors grow their business. It's why we're expanding the SOS program – not just here in North America but also overseas."

For more information about the Solutions on Site Vans, contact your territory manager.



The Right Connection®

dixonvalve.com



Second Triumvirate, 43-42 B.C. (Mark Antony, Octavius and Marcus Lepidus)

derisive note of that. The triumvirate now controlled all the empire, and Antony wanted the eastern half.

Octavius would rule Italy and Western Europe. (Lepidus held North Africa until Octavius demoted him.) If no swaggering warrior, Octavius was an ambitious and effective administrator. He eliminated piracy from the western Mediterranean, built a new aqueduct for Rome and began his life's work of beautifying the capital: "I found Rome a city of brick and left it a city of marble." But he remained conscious of his rival in the East. In an effort at a lasting and amicable alliance, Octavius offered his sister in marriage to Antony. This would be Antony's fourth marriage, but at the same time he was creating a family in Egypt with the infamous Cleopatra, and his preference was obvious. Indeed, Antony's passion for her proved quite useful to Octavius. He could present himself as the champion of Roman virtue against Egyptian corruption. Antony was portrayed as a besotted fool ... but Cleopatra was the real enemy.

And there was justification for thinking so. Cleopatra was building a massive fleet for Antony. A treaty between Octavius and Antony ended in 33 B.C.—and war began the next year. In 31 B.C., two fleets converged upon Actium in western Greece. The ships seemed to personify their leaders. Antony's galleys were grand and



By forming an alliance with Cleopatra, Marc Antony became an enemy to Rome.

powerful but lumbering. Their oarsmen could barely move them. Octavius' galleys were small, quick and decisive. They kept moving, shooting and ramming Antony's paralyzed behemoths until they literally were dead in the water. Realizing defeat, Cleopatra fled the battle and sailed home to Egypt. Antony followed her, abandoning the remnants of his fleet as well as his army. Without their commander, those 19 legions surrendered to Octavius. The following year, Octavius occupied a defenseless Egypt; Antony and Cleopatra killed themselves.

The Battle of Actium on 2 September 31 B.C. (Painting, 1672, by Lorenzo A. Castro; oil on canvas.)



Now the Roman world had one leader. Looking back on his bloody ascent and his great-uncle's fate, Octavius wanted to give Rome a peaceful, strong government. Rome needed a firm leader who could work with the Senate, yet maintain an impartial oversight in administering the empire. Octavius would become his own experiment in governance. In 27 B.C., he relinquished his dictatorship, presenting in its place a new constitution for the republic. Octavius would maintain certain controls—and always the last word—but a number of responsibilities were restored to the Senate. Even the title for this leader demonstrated the tact and cunning of Octavius. *Princeps civitas* simply means "first citizen." In time, *princeps* would acquire a more regal meaning, but it would be the official title for Octavius and his successors. The reforms of Octavius ensured Rome's strength, prosperity and stability for two centuries.

Rome would have other great emperors, but they all looked to Octavius as their model. Indeed, he would be remembered by the honorific name conferred on him by a grateful Senate: Augustus. It means "the revered." ●

THE DIXON DRILLER

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PRODUCT SPOTLIGHT

Vent-Lock Cam and Groove Couplings

Application: Used for the transfer of fluids and solids in construction, chemical, agricultural, railcar and other industries, allowing the assembly to be vented before disconnection

Sizes: 1" and 2"

Materials:

- 316 stainless steel
- consult Dixon for availability of other materials

Features:

- safety-release design permits a disconnect without end separation, allowing for the safe release of static pressure
- venting design promotes a safe working environment by preventing catastrophic disconnections
- once the cam arms are opened, the pressure in the connection is safely released

- rated to 250 PSI at ambient temperature (70°F), with standard Buna-N seal
- does not interchange with standard cam and groove products; use only with Dixon L-style fittings

For additional information, please call Dixon at 877.963.4966, or visit dixonvalve.com

Did you know that...

TRIVIA

The line between the two numbers in a fraction is called the vinculum.

Flamingos get their color from the carotenoid pigments in the foods that they eat, like algae and shrimp.

The U.S. pizza industry serves up to 100 acres of pizza every day.

A standard 3x3 Rubik's Cube has 43,252,003,274,489,856,000 different possible configurations.

Camels have three eyelids to help

protect them from sand blowing in their eyes.

The founders of Hewlett-Packard flipped a coin to determine whose name would come first.

The rings of Saturn are only 30 feet thick.

There are more synapses (nerve connections) in your brain than there are stars in the galaxy.

The red and white Coca-Cola logo is recognized by 94 percent

of the world's population.

More than 80 million "mouse ears" have been sold at Walt Disney World to date.

Samsung accounts for 20 percent of Korea's gross domestic product.

Cereal is the second-largest advertiser on television today, behind automobiles.

Google was originally called BackRub.
buzzfeed.com

ON THE LIGHTER SIDE

A lady was complaining to her husband about remodeling her kitchen. "You have been telling me you were going to get me new cabinets for 10 years!" said the wife. "They are a luxury and the ones we have are fine," the husband replied.

The next day the wife left to visit her mother for two weeks. When she returned, she was overjoyed to see a brand new kitchen waiting for her. She was so thrilled that every night when the husband got home she would have his favorite meal on the table and after dinner she would rub his feet as he read the paper in the recliner. A couple

of weeks later a neighbor came by for a visit. After admiring the new cabinets she said, "All of us were so glad that the fire your husband had while you were gone was confined to the kitchen."

In class one day, Mr. Johnson pulled Johnny over to his desk after a test and said, "Johnny I have a feeling that you have been cheating on your tests." Johnny was astounded and asked Mr. Johnson to prove it. "Well," said Mr. Johnson, "I was looking over your test and the question was, 'Who was our first president?' and Mary, the little girl who sits

next to you, put 'George Washington,' and so did you."

"So, everyone knows that he was the first president."

"Well, just wait a minute," said Mr. Johnson. "The next question was, 'Who freed the slaves?' Mary put 'Abraham Lincoln' and so did you."

"Well, I read the history book last night and I remembered that," said Johnny.

"Wait, wait," said Mr. Johnson. The next question was, 'Who was president during the Louisiana Purchase?' Mary put 'I don't know,' and you put, 'Me neither.'"

bestcleanjokes.com

Dates in History

1762: On March 17, the first parade honoring the Catholic feast day of St. Patrick, the patron saint of Ireland, was held in New York City by Irish soldiers serving in the British army. St. Patrick, who was born in the late 4th century, was one of the most successful Christian missionaries in history.

1789: On March 4, the first session of the U.S. Congress was held in New York City as the U.S. Constitution took effect. However, of the 22 senators and 59 representatives called to represent the 11 states that had ratified the document, only nine senators and 13 representatives showed up to begin negotiations for its amendment.

1839: On March 23, the initials "O.K." were first published in *The Boston Morning Post*. Meant as an abbreviation for "oll correct," a popular slang misspelling of "all correct" at the time, OK steadily made its way into the everyday speech of Americans.

1941: On March 11, President Franklin D. Roosevelt's Lend-Lease program, which provided money and materials for Allies in the war, went into effect. Roosevelt devised the program as a means of aiding Great Britain in its war effort against the Germans, by giving the chief executive the power to "sell, transfer title to, exchange, lease, lend, or otherwise dispose of" any military resources the president deemed ultimately in the interest of the defense of the United States.

history.com

Better Living Through Swimming

Look to the pool as a fountain of youth

> Swimming is “the only sport you can do from your first bath to your last without hurting yourself,” Hollywood’s aquatic starlet Esther Williams once famously remarked. Water’s delicious buoyancy makes swimming a great activity for people with physical limitations. It provides an excellent cardiovascular workout. It tones nearly every muscle in the body.

And recent studies suggest it may even be a sort of fountain of youth.

“Our research shows that habitual swimmers are biologically up to 20 years younger than their actual age,” says Joel Stager, Ph.D., director of the Councilman Center for the Science of Swimming at Indiana University at Bloomington.

“Swimming is more sustainable than, say, cycling and running because it is not weight-bearing, so it doesn’t tend to cause injuries.”

For more than two decades, Stager and his team have been studying the impact of swimming on every physiological function, from cardiovascular health to memory loss. They’ve found that swimmers exhibit many advantages over their sedentary peers, including lower resting heart rates, lower blood pressure, more elastic arteries, greater muscle mass. Even their central nervous systems—which

govern balance and learning and a general sense of well-being—seem healthier.

“All of this may not cause people to live longer, but it does cause them to live better,” says Stager. “There may be similar advantages to other activities, but, in my experience, swimming is more sustainable than, say, cycling and running because it is not weight-bearing, so it doesn’t tend to cause injuries. We see swimmers who practice daily or nearly every day for decades.”

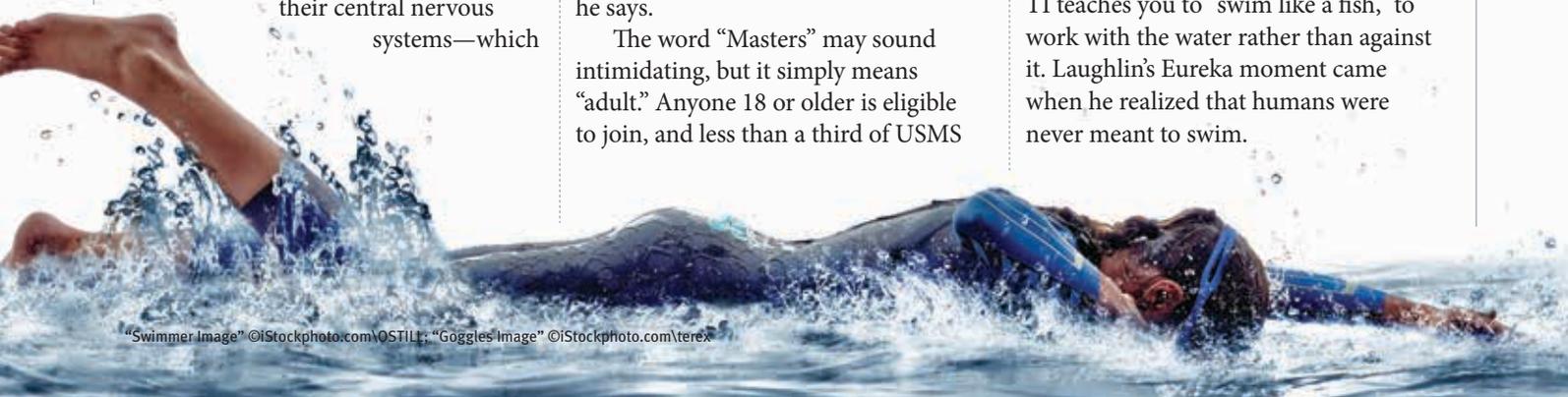
Swimming has become increasingly popular, perhaps because of the advantages it offers an aging population, says Rob Butcher, executive director of U.S. Masters Swimming, a Florida-based nonprofit that supports and promotes adult swimming programs all over the country. “In the last five years, our membership has increased 42 percent to about 60,000 swimmers,” he says.

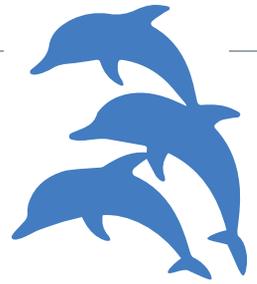
The word “Masters” may sound intimidating, but it simply means “adult.” Anyone 18 or older is eligible to join, and less than a third of USMS

members are competitive swimmers. Benefits include insurance coverage when you participate in a USMS practice or event; a magazine and newsletter; online workouts written by USMS certified coaches; online articles and discussions; and fitness and competition programs. At www.usms.org, you can find certified instructors and more than 1,500 adult swimming programs by zip code.

The good news for people who have struggled with swimming is a new emphasis on balance and aerodynamics (rather than simply propulsion—all that flailing of arms and feet) in swimming instruction. Think of swimming as a movement art, or aquatic yoga.

One of the gurus of this thinking is Terry Laughlin, author of the best-selling *Total Immersion: The Revolutionary Way to Swim Better, Faster and Easier*, and founder of a popular national coaching program, Total Immersion (TI) Swimming. TI teaches you to “swim like a fish,” to work with the water rather than against it. Laughlin’s Eureka moment came when he realized that humans were never meant to swim.





“As an anthropologist once wrote, swimming might well be the preeminent example of humans mastering something for which we were not designed,” says the veteran coach. “With TI, we’ve cracked the code of teaching terrestrial mammals to master an aquatic skill. It requires discipline and concentration, so people become passionate about it” (see sidebar).

“People sometimes say, ‘Oh, swimming is boring,’” says the Counsilman Center’s Stager. But when he asks swimmers what they see when they’re in the water, they rarely have an answer. “Their eyes are open, but swimming seems to overwhelm sensory input. I think that meditative quality is what makes it so interesting.”

HOW TO SWIM LIKE A NATURAL

Terry Laughlin, founder of Total Immersion Swimming, points out that dolphins convert 80 percent of the energy they expend to forward motion in the water, while humans convert a measly 3 percent. “We create a ‘perfect storm’ with our head-whipping, arm-churning, leg-dragging strokes,” he says. “These three technique changes might just let you swim twice the distance with half the effort.”

Align Head and Spine

Look down, not forward. Visualize your head-spine line projecting forward like a laser that always points where you want to go, even while breathing.

Lengthen Your Body

Focus more on the hand reaching forward than the one pushing back. Slice your hand in without a splash, then use it to extend your body line—completely but without strain. Extra points if you see no bubbles.

Calm Your Legs

Job one for your legs is to drift behind your upper body and gently kick, not churn the water into a froth. This is much easier when your head is aligned.

Laughlin also suggests that you count strokes, not laps, during your workout. It is a better measure of your swimming efficiency and, acting much like a mantra, makes you a more conscious swimmer.

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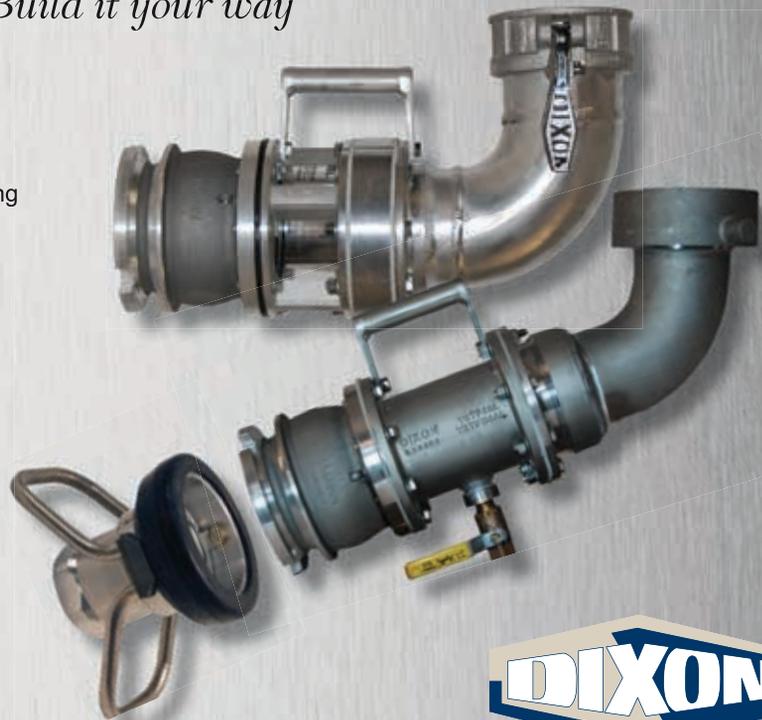
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Finding Direction

How the compass changed the world

*“And by the oracle of truth below,
The wondrous magnet, guides the wayward prow.”*

— William Falconer, “The Shipwreck” (1756)

> Every now and then, we all need help finding our way to where we’re going. Mariners knew this all too well centuries ago while navigating the often-treacherous seas.

That’s how the compass—the instrument containing a freely suspended magnetic element that reveals the direction of the horizontal component of the Earth’s magnetic field—came to be during the Age of Discovery. It went on to play a pivotal role in the economic, scientific, military and political developments of modern history.

“The magnetic compass was the first technological invention after the wheel to change the world,” writes Amir D. Aczel in his book *The Riddle of the Compass* (Harcourt, 2001).

Like gunpowder and paper, the compass originated in China and then

Chinese antique spoon compass magnetized lodestones



Ingram Publishing/Newscom

became widely used in the West. The first references to an “iron fish” suspended in water pointing south appeared in 1040 in the manuscript *Wu Ching Tsung Yao*. Around that same time, a magnetic direction-finding device for land navigation was recorded in a Song Dynasty book.

Later, Chinese alchemists used lodestones—magnetic iron ore that aligns itself in a north-south direction—in their fortune-telling boards. Early compasses with lodestones were square slabs with markings for the four cardinal direction points and the constellations.

How exactly the magnetic compass made its way to Europe from China is a bit murky, but trade routes through the Islamic world apparently played a significant role. The compass first surfaced in the Mediterranean region around the early 14th century and afforded seafarers the opportunity to utilize the Earth’s magnetic field rather than simply rely on physical landmarks on shores.

The compass enabled trade to be conducted throughout the year (even from November to mid-March when visibility was limited), thus contributing to the creation of Italian city-states and European empires along the Atlantic. It ushered in the Great Age of Exploration (1400-1550), with the likes of Columbus and Magellan.

In the 17th century, English astronomer Edmund Halley



©Stockphoto.com/JGutierrez

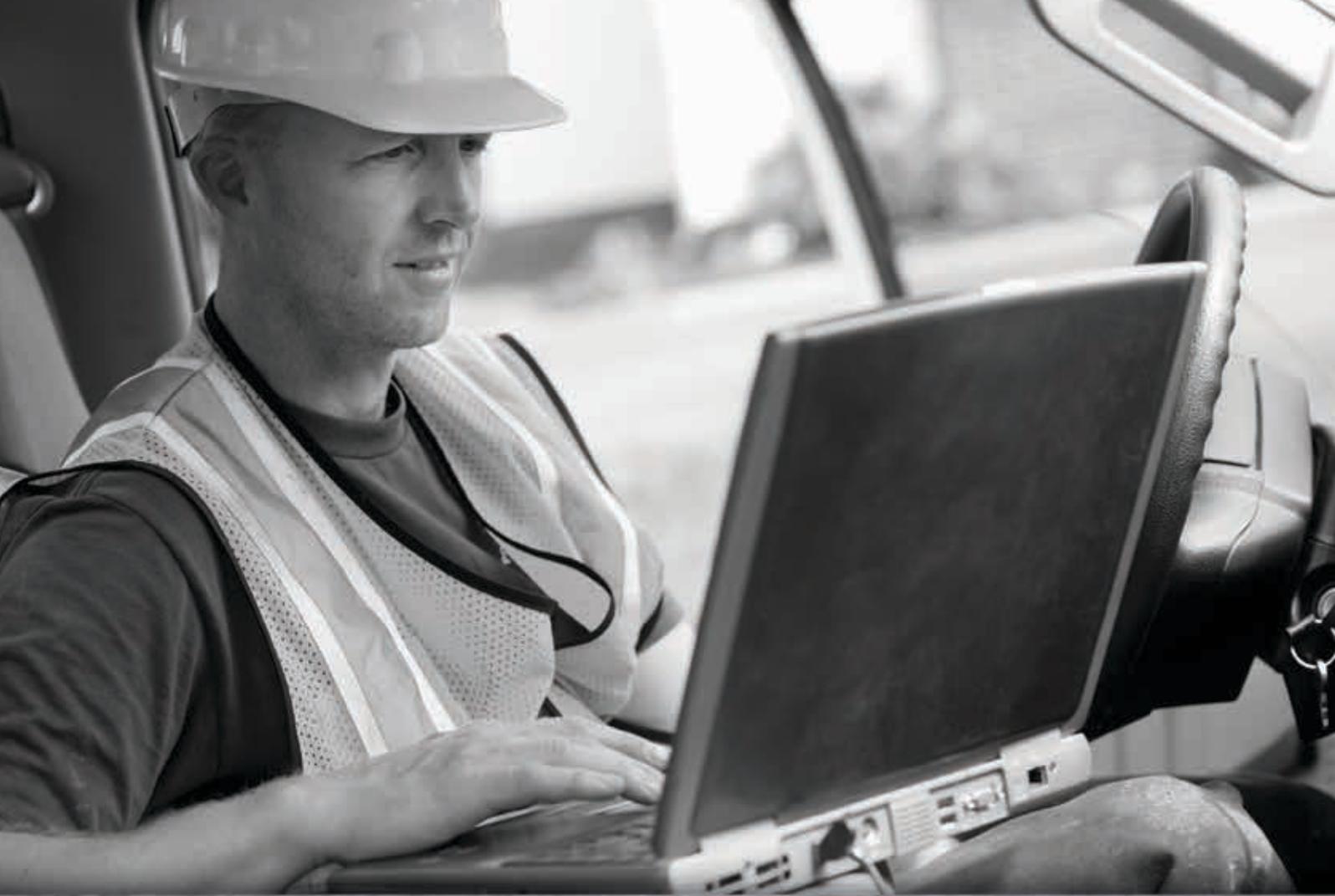
undertook expeditions to measure the Earth’s magnetic variations across the Atlantic’s northern and southern regions. Halley produced the first isogonic chart. It showed how the angle between the magnetic north and the Earth’s true north varies at different points in the Atlantic, and is still used today when geophysicists want to validate their magneto-hydrodynamic models of the Earth’s core.

By the 19th century, the compass, replete with self-lighting, was an instrument mounted on all ships. Scottish scientist Sir William Thomson updated the compass with a needle placed on fine silk threads through a light skeleton card, alleviating the friction on the instrument’s pivot.

In addition, liquid compasses, because of their steadiness, became commonly used on sea vessels during this era. Shortly after the start of the 20th century, the gyroscopic compass—a spinning gyroscope that keeps a compass directed toward the Earth’s true north—was invented.

“The compass allowed mariners to chart the oceans and establish sea routes traversing the entire globe,” writes Aczel. “We use the same sea routes today, and they connect the world’s economies to one another.”

Even today, in the age of the Global Positioning System, ships and planes continue to be equipped with compasses in case of technical difficulties. ●



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