

Mining
a division of IQPC



www.miningiq.com



Mining IQ Presents:

THE WEIRD AND WONDERFUL WORLD OF MINING

DEAR MINING IQ MEMBER,

As a member or follower of Mining IQ we are delighted to present this publication to you.

Since we launched Mining IQ in early 2011, our membership and support network has grown and continues to grow, and with that growth have come many new ideas and innovations – the Weird and Wonderful World of Mining being our most significant (and fun) to date.

After a few of our dedicated members began emailing us with some fun facts about the mining industry – it occurred to us that others might also enjoy receiving and reading them...and the idea for the Weird and Wonderful World of Mining was born!

And so it began, first with a few facts and then with many. Our fact finding mission escalated into a full scale eBook and this is what we present proudly to you today. We do not claim ownership over the facts and statistics shared in these pages – nor can we promise they are 100% accurate. We relied on the ‘word’ of our members and the reliability of the internet as sources for what follows. If facts are no longer relevant, or you are unsure as to their validity – check the source reference and let us know of any required amendments! We hope you have as much fun reading this as we did creating it. We’ve certainly learned a lot along the way, we’ve giggled a little, we’ve gaped in awe and most of all gained a new-found respect for the wonderful world of mining.



From us to you – Mining IQ presents the
Weird and Wonderful World of Mining!

Jacqueline Bran, Editor, Mining IQ
www.miningiq.com

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MINING IN THE COMMUNITY

It's no secret that the mining industry impacts communities on a global scale: on an environmental scale, a personal scale and through its employment requirements. This chapter celebrates some of the positive outcomes mining has had on global and local communities over the years. From marriage to employment to disaster – we've got it covered.

WEIRD AND WONDERFUL FACTS ABOUT MINING:

GLOBAL MINING IMPACT ON EMISSIONS:

A recent study commissioned by ICMM estimated that the global mining and metals industry makes up around 2% of global emissions. Approximately half of the industry's emissions are from fuel use in mining and processing operations, for transportation of ore and electricity generation at remote sites and from fugitive emissions. The other half are from electricity use, primarily in refining and smelting operations.

Source: <http://www.icmm.com/role-of-minerals-and-metals-in-a-low-carbon-economy>



HISTORICAL MINING CENSUS:

By the time of the 1911 census, there were over 3,000 mines employing over 1.1 million miners in England, Scotland and Wales. Wales had the largest coal mining percentage, with 1 in 10 people identifying an occupation in the coal mining industry.

Source: http://genealogy.about.com/od/british_isles/tp/UK-Coal-Mining-Ancestors.htm

MINERALS AND MINING AS EMPLOYERS:

The minerals industry is the largest private sector employer of Indigenous Australians.

With more than 60% of minerals operations in Australia having neighbouring Indigenous communities, the industry has developed, through the Minerals Council Of Australia (MCA), a specific framework for engagement with Indigenous stakeholders. Across 200 mining operations there are 432 Indigenous Land Agreements.

Source: <http://www.thisisourstory.com.au/our-contribution.aspx>

"Trapped a half-mile underground for 69 days."

EUROPE'S WORST MINING ACCIDENT:

The Courrières mine disaster, Europe's worst mining accident, involved the death of 1,099 miners in Northern France on 10 March 1906. This disaster was surpassed only by the Benxihu Colliery accident in China on April 26, 1942, which killed 1,549 miners.

Source: <http://www.rarenewspapers.com/view/220082>

WORLD'S WORST MINING DISASTER: APRIL 26, 1942 HONKEIKO COLLIERY, CHINA

In what is probably the worst mining disaster of all time, 1,549 miners died in a mine operated in Japanese occupied Manchuria.

Source: http://www.epicdisasters.com/index.php/site/comments/the_ten_worst_worldwide_mining_disasters/

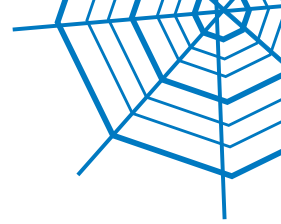
Photo: The last miner to be rescued, Luis Urzua, centre, raises an arm as Chilean President Sebastian Pinera, right, looks on after his rescue from the collapsed mine. Photo by: Alex Ibañez, Chilean Presidential Press Office.



LONGEST TIME SURVIVED UNDERGROUND AFTER A MINING INCIDENT:

33 miners trapped a half-mile underground for 69 days, when part of their mine collapsed, and for 17 days they were feared dead, were saved in a 24 hour, \$20m rescue operation and were welcomed as national heroes - setting the new world record for the Longest time survived underground after a mining accident.

Source: http://www.worldrecordacademy.com/society/longest_time_survived_underground_Chile_miners_sets_world_record_101928.html



SPOOKY MINING FACTS



Dorcas was an elderly lady who lived in a cottage near Polbreen Mine in St. Agnes, Cornwall. One night, unexpectedly she committed suicide by throwing herself down a deep mine shaft. Her body was recovered and buried but her spirit is believed by locals to live on in the mine. Dorcas usually causes mischief by distracting the men from their work. However, this can be to their benefit as one man was once called away by an unrecognised voice and no sooner had he left his work station than a huge rock fell and landed on the very place where he had been standing.

Source: <http://www.spectrumheadset.com/archives/5>

These two abandoned mining towns in Chile were recently featured on an episode of the Syfy Channel's show, Destination Truth. In 1872, the town was founded as a saltpeter mine, and business boomed. However, after several heavy blows (including the Great Depression), the business declined and then collapsed in 1958, and the town of Humberstone and its surrounding towns were abandoned by 1960. Treatment of workers in both towns bordered on slavery, and now the towns are left standing derelict. It is rumored that the dead of the La Noria cemetery rise at night and walk around the town, and ghostly images frequently show up in photographs in Humberstone. These towns are so terrifying, the residents of nearby Iquique refuse to enter them.

Source: <http://listverse.com/2010/07/07/10-most-terrifying-places-on-earth/>



The seemingly infinite tunnels that run below the streets of Paris should not be confused with the Catacombs of Paris, the famous underground ossuary, although the mines are also mistakenly referred to as the catacombs. Exploring the mines is illegal, and penalties include heavy fines. The mines were used to dig out minerals from Paris' varied sediment (the location where Paris is was submerged for millions of years), and the tunnels are what got left behind. The mines are now unkempt, unpatrolled and unsafe. As far as legends go, ancient cults and creatures patrol the depths. Spirits dwell in the infinite shadows, and if one wanders deep enough, and survives, they may even enter Hades itself.

Source: <http://listverse.com/2010/07/07/10-most-terrifying-places-on-earth/>

BOOO!

For centuries Cornwall's most precious resource was tin, and several of Cornwall's haunted locations are situated in the abandoned tin mines that litter the landscape, their skeletal buildings looming eerily against the scudding clouds and from which the ghosts of long-dead miners seem loathe to depart. A major superstition amongst those long ago miners was an implicit belief in the existence of the Knockers. These were mysterious, supernatural creatures who could wreak havoc on the dangerous working environment in which the miners worked.

Source: http://www.haunted-britain.com/haunted_cornwall.htm



**“IT’S THE FIRST WEDDING
EVER HELD AT A BARRICK
PROJECT OR MINE SITE.”**

FIRST EVER WEDDING AT A BARRICK MINE SITE:

On March 10, two Barrick employees from Argentina exchanged vows in the presence of 3,000 miners, relatives and friends in the main hall of Los Amarillos camp at Pascua-Lama, a location 4,000 meters above sea level in the Andes Mountains. It was the first wedding ever held at a Barrick project or mine site.

Source: http://www.facebook.com/note.php?note_id=10150666740383044

MINING IN THE USA EMPLOYS RECORD NUMBERS:

Nearly 270,000 people work directly in mining throughout the United States. Employment in industries that support mining accounts for nearly 3 million additional jobs.

Source: www.coloradomining.org/mc_miningfacts.php

MINING EMPLOYMENT IN CANADA:

The mining industry employed 363,000 in 2007. This includes 51,000 workers in mineral extraction, 79,000 in primary metal manufacturing, 55,000 in non-metallic mineral product manufacturing, and 179,000 in fabricated metal product manufacturing. The mining industry accounts for approximately 1 in every 46 Canadian jobs. In the goods producing sector, mining accounts for one in every ten jobs.

Source www.acareerinmining.ca/en/industry/factsfigures.asp

CHILDREN AND MINING:

A newborn infant will need a lifetime supply of:

- 800 pounds of lead
- 750 pounds of zinc
- 1,500 pounds of copper
- 3,593 pounds of aluminum
- 32,700 pounds of iron
- 26,550 pounds of clays
- 28,213 pounds of salt
- and 1,238,101 pounds of stone, sand, gravel and cement

Source: www.dnr.state.mn.us/education/teachers/activities/soudan_mine/miningfacts.html

COAL MINING EMPLOYMENT IN THE USA:

For each coal mining job, an additional 3.5 jobs are created elsewhere in the economy.

Source: http://www.nma.org/statistics/fast_facts.asp



MINING SUPPORTS LOCAL COMMUNITIES:

More than 115 communities across Canada depend on the minerals industry.

Source: <http://www.acareerinmining.ca/en/industry/factsfigures.asp>

MINING IN THE COMMUNITY



“Some children started work at 2 in the morning and stayed below ground for 18 hours.”

GOLD RUSH CREATES A STATE AND LAUNCHES A CITY:

Because of the California gold rush there were enough people there by 1850 for California to be admitted into the Union as a state.

The Pikes Peak gold rush in 1859 opened up Colorado and launched the city of Denver.

Source: <http://www.learncalifornia.org/doc.asp?id=299>

EARLIEST MINING REGULATIONS:

Some of the world's earliest mining regulations can be dated back as far as the 17th century at Spain's Almaden mercury mine.

Source: http://www.minalliance.ca/pdfs/Minalliance_100_innovations_en.pdf



CHILD LABOUR IN VICTORIAN BRITAIN:

In Victorian times children made up a percentage of the workforce for mines. Some children pushed trucks of coal along mine tunnels. They were called 'putters'. Others were known as trappers and these children opened and shut wooden doors to let air through the tunnels. A trapper boy sat in the dark, with just a small candle, and no-one to talk to.

Some children started work at 2 in the morning and stayed below ground for 18 hours. Children working on the surface, sorting coal, at least saw daylight and breathed fresh air.

Source: http://www.bbc.co.uk/schools/primaryhistory/victorian_britain/children_in_coal_mines/



LARGEST/ MOST/HEAVIEST

In this section of our weird and wonderful encyclopaedia of facts, Mining IQ invites you to enjoy a collection of statements, facts and statistics about the largest, most and heaviest examples in the mining industry globally. From the absurdly large ‘welcome stranger’ nugget to the world’s largest digging machine... prepare to be amazed!

LARGEST/MOST/HEAVIEST

WEIRD AND WONDERFUL FACTS ABOUT MINING:

MINING WORLD SAFETY RECORD HOLDER: SISHEN MINE

This mine is one of the world's seven largest open pit mines and is the site of several mining world records such as the safety record: LTIFR per 200 000 hours in 2009: 0,08 with zero fatalities in the last 16 months.

Source: <http://www.safe-mine.com/index.php/news.html>

LARGEST GOLD MINE IN THE WORLD: THE GRASBERG MINE

This mine is located in Papua, Indonesia. It produced 58,474.392 kilograms of gold in 2006.

Source: www.bukisa.com/articles/218700_worlds-largest-open-pit-mines



LARGEST COAL HAULER: WYOMING MANUFACTURER

By any measure, it's a big, big truck. The truck can haul 447 tons of coal. That's enough coal to fill more than 4 1/2 railroad cars. That's enough coal to fill an average-sized house from floor to ceiling. That's enough coal to fuel a power plant for an entire day. And now, Guinness World Records recognizes the three-story truck's ability to haul that much coal.

While the huge haul truck is a standard but still large design, its custom-built body — the tippable back portion of the truck that carries the coal — is what got Guinness' attention. The London-based authority on global records recently awarded the body's manufacturer, Mills-based Westech, a certificate for its custom-built unit designed for a Wyoming mine.

Source: http://trib.com/news/state-and-regional/article_36f64fee-f0c8-5084-83b8-1eb1f5702a41.html#ixzz1vrXGpn9D

LARGEST/MOST/HEAVIEST



HEAVIEST NATURALLY OCCURRING ELEMENT

Uranium is the heaviest of all the naturally occurring elements. Its most common isotope, uranium 238, has a nucleus containing 92 protons and 146 neutrons. It was discovered by Martin Klaproth (Germany) in 1789, who named it after the planet Uranus, which had been discovered just eight years previously.

It has a density of 18.95 g/cm³ (0.04 oz/in³). In the Earth's crust, it is roughly as abundant as tin and 40 times more abundant than silver. It has a half life of 4.47 billion years.

Source: www.guinnessworldrecords.com/world-records/3000/heaviest-naturally-occurring-element

MOST UNEARTHED: **KENNECOTT'S BINGHAM CANYON MINE IN UTAH**

This mine has unearthed about 18.7 million tonnes of copper - the most of any mine in history according to the company. The Escondida copper mine in Chile, jointly owned by BHP Billiton and Rio Tinto, contains the world's largest supply of copper (4.1 billion tonnes of ore reserves containing 31.5 million tonnes copper, and mineral resources of 4.6 billion tonnes). The next largest copper mine is Freeport McMoRan's Grasberg copper-gold mine in Indonesia, which contains the world's largest recoverable copper reserve and the largest gold reserve.

Source: www.aboutpoland.net/2011/08/09/the_wieliczka_salt_mine/

"Uranium is the heaviest of all the naturally occurring elements."



THE BIGGEST OPEN CAST, HAND DUG MINE IN THE WORLD: **THE BIG HOLE OF KIMBERLY - SOUTH AFRICA**

The Big Hole of Kimberly was dug by hand, using picks and shovels. There is debate about whether the Big Hole is the biggest hand dug open cast mine in the world. Its surface area of 17 hectares (42 acres) and depth of around 200 metres (650 ft) required the excavation of around 25 million tons of earth and rock. This was achieved in 52 years between 1866 and 1914 by a workforce of up to 50,000 miners. What is beyond dispute is that The Big Hole yielded 2,720 kilograms (6000 lb) of diamonds; significantly more than the Jagersfontein mine, the other contender for the title of biggest.



LARGEST GOLD NUGGET EVER FOUND: **THE WELCOME STRANGER NUGGET** **- 2,316 TROY OUNCES**

The "Welcome Stranger" was the largest gold nugget ever found, weighing 2315.5 troy ounces when it was discovered in Moliagul, Australia in 1869. Since there were no scales capable of weighing the nugget, it was broken into 3 pieces. It was found by John Deason and Richard Oates at Moliagul, Victoria, Australia on February 5th, 1869. The nugget itself no longer exists as it has been smelted. It produced 2268 ozt, 10 dwt 14 grains of gold.



LARGEST SPECIMEN OF GOLD EVER FOUND: THE HOLTERMANN NUGGET - 5,000 TROY OUNCES

The Holtermann Nugget is the largest specimen of gold ever found. It was discovered in 1872 in Australia. Weighing around 286 kg (629.2 lbs.), and nearly 5 feet long, it contained approximately 5,000 ounces of gold.

LARGEST GOLD NUGGET CURRENTLY IN EXISTENCE: THE HAND OF FAITH NUGGET - 876 TROY OUNCES

The Hand of Faith, is known to be the largest gold nugget currently in existence, as well as the largest gold nugget ever found with a metal detector. It was discovered in 1980 by Kevin Hillier near Wedderburn, Australia. It is about 6 inches long and weighs 876 Troy ounces (more than 61 pounds). It is now on display at the Golden Nugget Casino in Las Vegas, Nevada.



10 MOST PRECIOUS GEMS IN THE WORLD:



1 THE HOPE DIAMOND

A French traveller, Jean Baptiste Tavernier was sold an extraordinary 'blue-violet' stone by a slave. He never knew that it was the largest deep blue diamond in the world. The Hope Diamond dates back to the 17th century India and is said to be cursed. It now rests in Smithsonian Institute Washington DC.



2 STAR OF INDIA

Weighing a massive 563.35 carats, the Star of India is the largest and most famous star sapphire in the world. The greyish blue gem was mined almost 300 years ago in Sri Lanka. The Star of India was stolen from the American Museum of Natural History but was recovered from a highly unlikely place — a locker in a bus station!



3 STAR OF AFRICA

Also known as the Cullinan I, the Star of Africa is a stunning pear-shaped diamond that weighs about 530.20 carats. The Star of Africa is the second largest cut diamond in the world. It can be viewed with the other Crown Jewels in the Tower of London.

4 THE TIFFANY YELLOW DIAMOND

Discovered in 1878 in the Kimberly mines of South Africa, this stone weighed around 287.42 carats and is considered to be one of the largest yellow diamonds in the world. Yellow diamonds are extremely rare.



10 MOST PRECIOUS GEMS IN THE WORLD:

5

QUEEN MARIE OF ROMANIA'S SAPPHIRE

The enormous blue sapphire is of Sri Lankan origin. This giant rectangular cushion-shaped sapphire, in a breathtaking deep blue cornflower colour, is also one of the largest and most historic sapphires of the world.



6

STAR OF ASIA

The Star of Asia is a round blue-violet coloured six-ray star sapphire. The stone is believed to have been discovered in Myanmar. It can now be seen in the Smithsonian Museum's collection of famous gemstones.



THE KOH-I-NOOR OR 'MOUNTAIN OF LIGHT'

This is a 105 carat diamond that was unearthed in the southern Indian state of Andhra Pradesh and is one of the most famous diamonds of all time. It's now part of the British Crown of Jewels. It was famously said that whoever owned the Koh-I-Noor ruled the world.

10 MOST PRECIOUS GEMS IN THE WORLD:



8

THE ORLOV

One of the largest diamonds in the world, the Orlov can trace its origins to a Hindu temple of the southern Indian state of Tamil Nadu in the 18th century. It is a wonderfully rare diamond among historic diamonds as it has retained its original rose-style cut, and radiates a slight bluish-green tint.



10

THE SPIRIT OF DE GRISOGONO

The Spirit of de Grisogono is the world's largest cut black diamond. That's not all. It's also the fifth largest diamond in the world. This diamond was mined many years ago in west Central Africa before it was transported to Switzerland.

9

THE MUGHAL EMERALD

The Mughal Emerald is a magnificent dark green emerald in the shape of a tablet that dates back to the period of the last of the great Mughal Emperors of India, Aurangzeb. The historic emerald is characterised by two flat rectangular flat faces, weighs 217.80 carats and is about 10 cm high.



10 OF THE BIGGEST OPEN CUT MINES IN THE WORLD:



1 KALGOORLIE SUPER PIT, AUSTRALIA

Kalgoorlie Super Pit is a gigantic pockmark in Western Australia is the continent's largest open cut gold mine at 3.5 km long, 1.5 km wide and 360 m deep. It's huge. And it's growing. At least, that is, until 2017 when it is expected to cease being productive.

2 THE BIG HOLE, SOUTH AFRICA

Another open pit whose name leaves little to the imagination, the Big Hole in Kimberly, South Africa, is said to be the largest hole excavated by hand. The Big Hole is 463 meters wide and was dug to a depth of 240 m. It's now a show mine complete with a restored old town.



3 DIAVIK DIAMOND MINE, CANADA

Diavik Diamond Mine is located in Canada. This is an open cast mine like no other. Gouged into a 20 square km island, there are particularly jaw-dropping views of this cold spot when the surrounding waters freeze over.



10 OF THE BIGGEST OPEN CUT MINES IN THE WORLD:



4 THE DIAVIK MINE, CANADA

Connected by a treacherous ice road, this remote mine takes some getting to and even has its own airport big enough to accommodate Boeing 747s. This yawning hole throws up 8 million carats of diamonds a year.

5 EKATI DIAMOND MINE, CANADA

The Ekati Diamond Mine is North America's first commercial diamond mine. It's actually only a stone's throw from the Diavik Mine just 20 km closer to the Arctic Circle.



6 GRASBERG MINE, INDONESIA

Opened in 1973, Indonesia's Grasberg Mine is the world's biggest gold mine and third largest copper mine.



7 CHUQUICAMATA, CHILE

Chuquicamata in Chile is a colossus of a mine that has churned up a record total of 29 million tons of copper. Despite almost 100 years of intensive exploitation, it remains among the largest known copper resources.



10 OF THE BIGGEST OPEN CUT MINES IN THE WORLD:



8 ESCONDIDA, CHILE

The Escondida Mine has yielded 1.48 million tons, worth US\$ 10.12 billion of copper in 2007. Escondida has become a key part of the Chilean economy and employs some 2,951 people directly.

9 UDACHNAYA DIAMOND MINE, RUSSIA

The Udachnaya Mine in Russia is a gigantic open-pit diamond mine that plunges more than 600 meters into the earth's crust.



10 MIRNY DIAMOND MINE, RUSSIA

The largest open diamond mine in the world, this Russian monster has a surface diameter of 1.2 km and is 525 m deep. The size of the hole is such that a wind current inside causes a downdraft that has resulted in helicopters being sucked in and crashing.



WORLD'S LARGEST DIGGING MACHINE: LARGEST EARTH MOVER IN THE WORLD BUILT BY THE GERMAN COMPANY, KRUPP

Earth Mover Specifications:

- The mover stands 311 feet tall and 705 feet long.
- It weighs over 45,500 tons
- Cost \$100 million to build
- Took 5 years to design and manufacture
- 5 years to assemble.
- Requires 5 people to operate it.
- The Bucket Wheel is over 70 feet in diameter with 20 buckets, each of which can hold over 530 cubic feet of material.
- A 6-foot man can stand up inside one of the buckets.
- It moves on 12 crawlers (each is 12 feet wide, 80 high and 46 feet long).
- There are 8 crawlers in front and 4 in back. It has a maximum speed of 1 mile in 3 hours (1/3 mile/hour).
- It can remove over 76,455 cubic meters each day. (100,000 large dump trucks at 40yds. each).

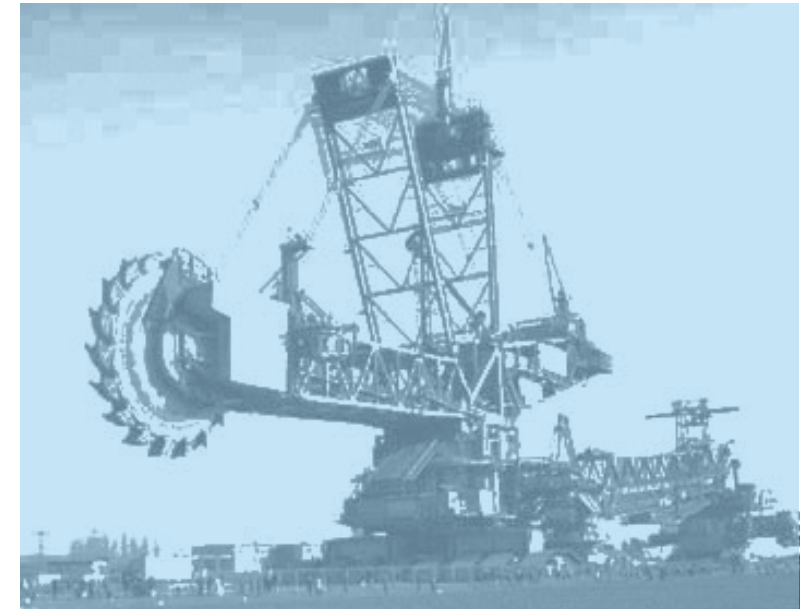
It is quite an amazing excavation machine.

This is currently the largest earth mover in the world.

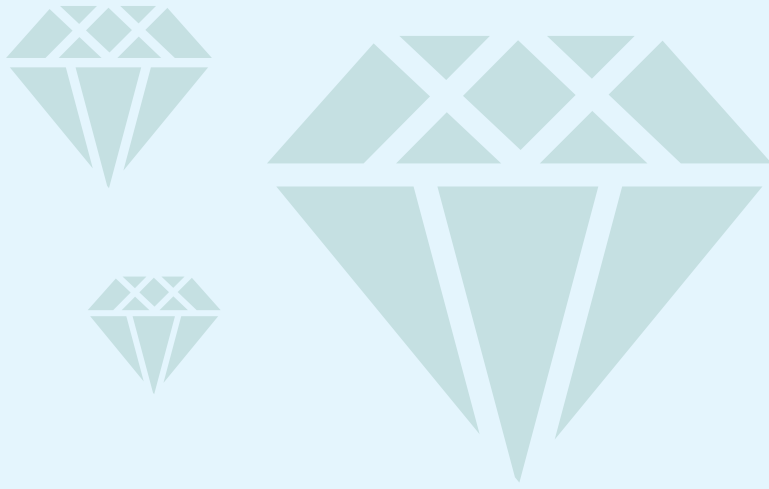
In fact, this is the largest land moving object in the world.

Source: <http://edwindwianto.wordpress.com/2009/12/20/the-largest-machine-in-the-world-the-v-cat-d8r-awesome/>

"A 6-foot man can stand up inside one of the buckets."



LARGEST/MOST/HEAVIEST



THE LARGEST ROUGH GEM-QUALITY DIAMOND EVER FOUND: THE CULLINAN DIAMOND

At 3,106.75 carats (621.35 g) this is the the largest polished gem that is from a stone is named **Cullinan I** or the **Great Star of Africa**, and at 530.4 carats (106.1 g) was the largest polished diamond in the world until the 1985 discovery of the Golden Jubilee Diamond, 545.67 carats (109.13 g), also from the Premier Mine. Cullinan I is now mounted in the head of the Sceptre with the Cross.

The second largest gem from the Cullinan stone, **Cullinan II** or the **Lesser Star of Africa**, at 317.4 carats (63.5 g), is the fourth largest polished diamond in the world. Both gems are in the Crown Jewels of the United Kingdom.

Source: www.telegraph.co.uk/news/uknews/the_queens_diamond_jubilee/9269032/Worlds-largest-diamond-on-display-for-Queens-jubilee-exhibition.html

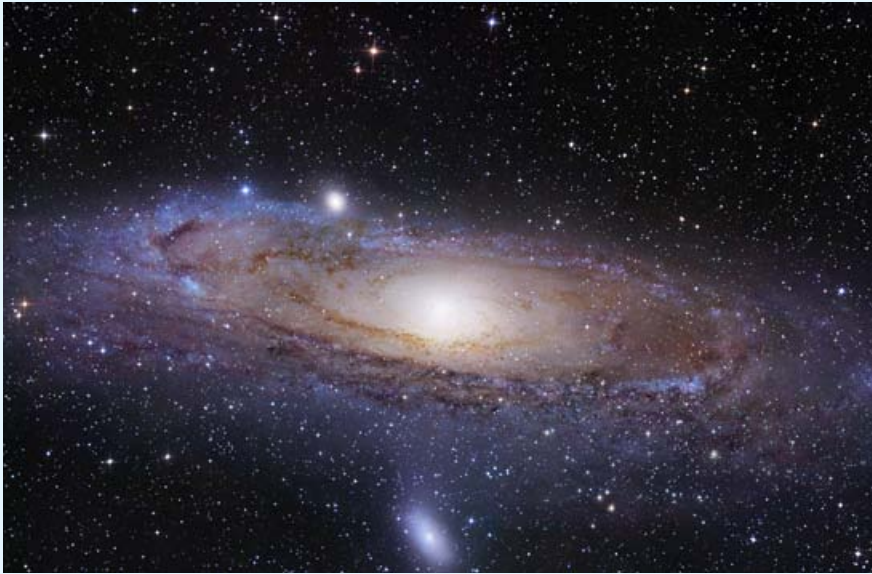


WORLD RECORD PINK DIAMOND DONATED BY RIO TINTO TO MUSEUM:

Rio Tinto is donating its massive pink diamond, found earlier this year at the Argyle mine, to a Melbourne museum. While it was estimated to be worth around \$12 million, the cutting process has highlighted a number of internal flaws throughout the diamond, which have dramatically dropped its value. The stone is believed to have had a single major internal fault line that put the stone at risk if cutting continued, so Rio decided instead to donate the partially finished stone to Museum Victoria.

Source: http://www.miningaustralia.com.au/news/rio-tinto-donate-world-record-pink-diamond-to-muse?utm_source=SilverpopMailing&utm_medium=email&utm_campaign=Mining%20Australia%20Newsletter%20-%20send%20-%3E%2021/05/2012%2011:35:53%20AM&utm_content=

LARGEST/MOST/HEAVIEST



LARGEST DIAMOND IN THE UNIVERSE:

The first direct evidence that white dwarf interiors crystallize into huge diamonds was announced in February 2004. Observations of pulsations of BPM 37093 allowed astronomers from the Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts, USA, to deduce that the carbon white dwarf had crystallized into a diamond some 4,000 km (2,500 miles) across. BPM 37093 is around 50 light years from Earth in the constellation of Centaurus.

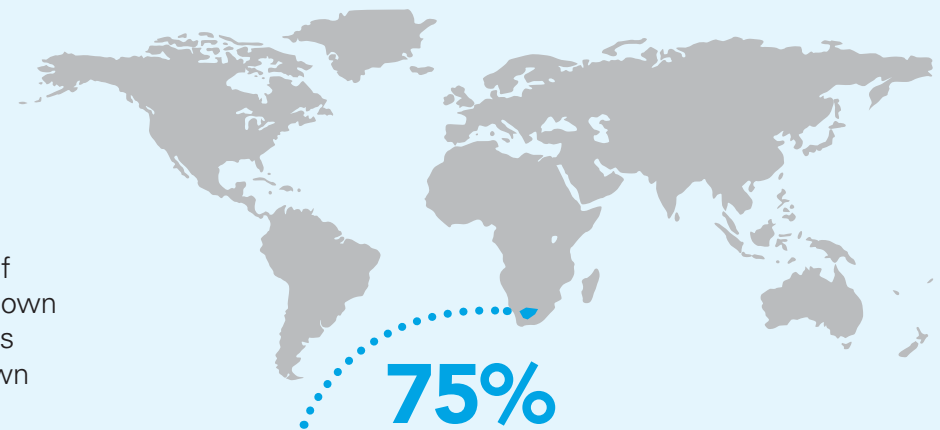
Many astronomers have believed for decades that white dwarfs could solidify into huge diamonds, but this is the first direct evidence. White dwarfs are the cooling cores of dead stars. They are made of carbon and only shine from residual heat as they gradually cool.

Source: www.guinnessworldrecords.com/world-records/11000/largest-diamond-in-the-universe

LARGEST CONCENTRATION OF MANGANESE KNOWN TO HAVE FORMED ON EARTH:

The first major accumulation of manganese, represented by the Kalahari Manganese Field in the Northern Cape Province, South Africa, is also the single-most and largest concentration of manganese known to have formed on Earth, as it contains approximately 75 percent of all known land-based resources of manganese metal. The Kalahari deposit, measuring 15 km x 35 km, is by far the largest and also the most important economically, containing 99 percent of all known reserves in the field.

Source: Cairncross, B., Beukes, N.J., and Gutzmer, J., 1997, The manganese adventure: The South African manganese fields: Johannesburg, Associated Ore and Metal Corporation, 236 p.





LARGEST ARTISANAL MINE IN THE WORLD: **SERRA PELADA**

Serra Pelada was the largest artisanal mine in the world with over 100,000 artisanal miners working in 1983.

LARGEST LITHIUM MINE: **SALAR DE UYUNI**

Demand for efficient batteries, and massive lithium deposits, are set to create the world's largest lithium mine in Bolivia. Government and industry are partnering in lithium exploration at Salar de Uyuni salt plain, where reserves of 5.4-m tons are estimated. Contract sales help fund a \$800-million plant for lithium carbonate here, said Freddy Beltran, Mining Director at the Ministry of Mines. Commercial output of the white granular metal compounds containing carbon, and oxygen, will start in 2014.

LARGEST IRON MINE: **KIRUNA**

An ore body 4km long, 80m thick and up to 2km deep, LKAB's Kiruna is the world's largest and most modern underground iron ore mine. Since mining began here a hundred years ago, LKAB has produced 1000Mt of ore, yet only a third of the ore body has been extracted.

Since mid-1999, Kiruna's haulage level at 775m has been replaced by the next level down at 1045m, to support production until 2018. The operation employs 1800 people, of whom 400 work underground. In 2006, Kiruna produced some two thirds of LKAB's output of 23.3Mt, of which 16.9Mt were pellets. The company's sales of iron ore products totalled 23.3Mt, of which 15.9Mt were pellets.

LARGEST/MOST/HEAVIEST

PER YEAR 600 000 TONNE **PER YEAR**

LARGEST CHROME MINE: KAZCHROME

Kazchrome is the World's single largest chrome ore miner, operating a 600 000 tonne per year pellet plant in the town of Khromtau, in the northwestern Kazakh region of Aktobe.

Source: http://www.kazakhembus.com/archived_article/kazchrome-to-launch-chrome-pellet-plant-in-2009



LARGEST TIN MINE: NAMIBIA'S UIS TIN MINE

The world's largest tin-bearing pegmatite deposit is at Namibia's Uis tin mine.

The tiny mining town of Uis cannot be missed due to huge white hills in the background. Its name means Bitter Water, and tin was discovered here in 1911 by Dr Paul of the German Colonial company.

Source: <http://www.namibweb.com/uis.htm>

LARGEST TANTALUM MINES

Wodgina plant produces primary tantalum concentrate, which is then sent to the Greenbushes mining operation for secondary processing

The Wodgina and Greenbushes deposits are the world's two largest developed mineral resources of tantalum. Both operations are currently on care and maintenance, but could be brought back into production when demand requires.

Source: www.minerschoice.co.za/the%20worlds%20largest%20coal%20mine.html

"Kazchrome is the world's single largest chrome ore miner."

LARGEST/MOST/HEAVIEST

LARGEST BORON MINE:

Boron mining in California goes back to pick and shovel days of 1872, made famous by the teams of 20 mules each that hauled borates from the mine

Now mining is assisted by global positioning satellites, refining is done in multimillion gallon vats, and fleets of trucks and barges move refined minerals around the world. Borates are shipped from bulk terminals at Wilmington, California and Rotterdam. Almost half the world's refined borates are mined at Borax Boron in California's Mojave Desert.

Reserves guarantee production for at least the next 40 years. Geotechnical studies since 1997 increased ore reserves, resulting in a major redesign of the mine.

Source: <http://clui.org/ludb/site/us-borax-boron-mine>



LARGEST TITANIUM MINE: RICHARDS BAY MINERALS

RBM is one of the largest stand-alone mining operations in South Africa, and the largest single producer of titanium products in the world. RBM now accounts for about 25% of world output of titanium feed stocks, being titania slag and rutile, 33% of world zircon output, and 25% of high purity pig iron. RBM is also SA's major source of high quality pig iron. Only 10% of RBM's pig iron is sold locally and the balance is exported worldwide. For 20 years RBM has mined dunes along the northern KwaZulu-Natal coast, extracting heavy mineral concentrates from the sands and rehabilitating the dunes. Four mining plants here are split between two lease areas; 17km x 2km Tisand, and 20km x 2km Zulti north.

Source: www.minerschoice.co.za/the%20worlds%20largest%20coal%20mine.html

RBM WORLD OUTPUT



- % of world output of titanium feed stocks
- % of world output of world zircon
- % of world output of high purity pig iron



The business of mining contributes somewhere in the region of USD \$24.5 Billion globally and engages over 100 million people who work in the mining industry. It's a big business on a global scale. In this chapter we explore nuances in the mining business and share insights into what's happening around the globe. From mining's contribution to taxes in Canada to China's pace of gold consumption, this makes for compelling reading.

THE BUSINESS OF MINING

WEIRD AND WONDERFUL FACTS ABOUT MINING:

MINING IS BIG BUSINESS:

The World Bank estimates that today, some 15 to 20 million artisanal and small scale miners are operating in 30 countries, with about 80 to 100 million people depending on such mining for their livelihood. In addition it estimates that the business of mining contributes somewhere in the region of USD 24.5 billion globally to our global economy.

Source: *International Council on Mining and Metals*: <http://www.icmm.com/library/inbrief-minings-contribution-to-sustainable-development>

THIRD LARGEST COPPER PRODUCER: AUSTRALIA

Australia has about 6% of the World's economic copper resources and is ranked third after Chile (25%) and the USA (16%). In production Australia is ranked fifth after Chile, USA, Indonesia and Canada.

Source: www.australianminesatlas.gov.au/education/fact_sheets/copper.html

MINING TAX ROLLED OUT GLOBALLY:

Mining taxes are now being rolled out or considered on a global scale with over 9 regions implementing it or considering it as policy. These include:

The mining industry has started to feel the heat from a new challenge across the globe. This time it is not from the economy, markets or technology but from the new tax regimes. Many countries with large mining industries are planning to bring in drastic changes to their existing mining tax and royalty mechanisms, and are eager to get more out of the mining companies.

Source: <http://www.miningaustralia.com.au/slider/taxing-times—a-look-at-global-mining-tax-regimes>

BRAZIL

AUSTRALIA

PERU

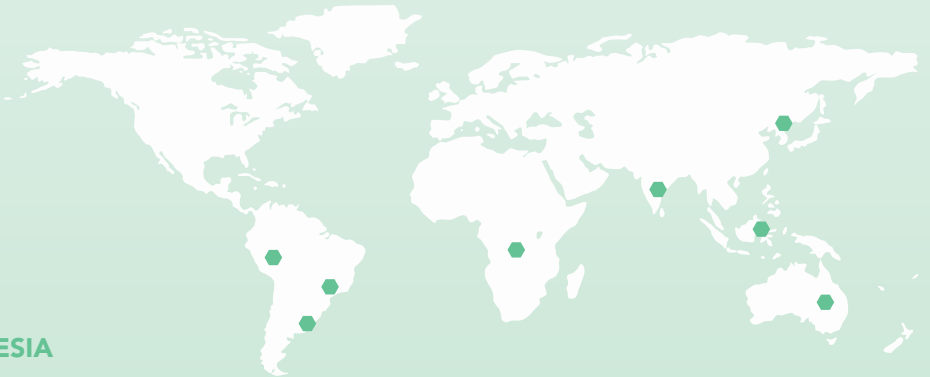
CHILE

AFRICA

CHINA

INDONESIA

INDIA



THE BUSINESS OF MINING

THIRD LARGEST PRODUCER OF DIAMONDS: CANADA

Canada is the world's third-largest producer of diamonds, accounting for 10% of the world's supply by weight and 14% of the global market by value.



WORLD'S SECOND-LARGEST PRODUCER OF COPPER AND GOLD: THE UNITED STATES

The USA is the world's second-largest producer of copper and gold.



WORLD'S LARGEST RESERVE OF COAL: THE UNITED STATES

The USA has the world's largest reserve of coal.



THE BUSINESS OF MINING

MOST ABUNDANT SINGLE MINERAL: QUARTZ

Quartz is the most abundant single mineral on earth. It makes up about 12% of the earth's crust, occurring in a wide variety of igneous, metamorphic and sedimentary rocks

Source: www.mineralminers.com/html/jasminfo.htm

MOST DUCTILE: GOLD

Gold is the most ductile (easily molded or shaped) of all metals, allowing it to be drawn out into tiny wires or threads without breaking. As a result, a single ounce of gold can be drawn into a wire five miles long. Gold's malleability is also unparalleled. It can be shaped or extended into extraordinarily thin sheets. For example, one ounce of gold can be hammered into a 100 square foot sheet.

Source: <http://www.vermontel.net/~lcbmandg/aboutgold.htm>



RICHEST DIAMOND MINE: DIAMOND MINING IN BOTSWANA

The Jwaneng mine in Botswana is world's richest diamond mine by value of recovered diamonds. The mine's name means meaning "a place of small stones" and it produces 9.3 million tons of kimberlite ore per year at a ratio of 1.25 carats of diamond per ton.

The Argyle diamond mine in Australia covers a huge area of 45 ha and majority of diamonds is recovered by main pipe and lesser part from alluvial deposits in Smoke and Limestone Creeks. Argyle diamond mine is especially famous for its intense pink diamonds and this mine recovers its diamonds from lamproite rock, and not from kimberlite rock (which is in many other countries usual source of diamonds).

Argyle diamonds are unique diamonds by world standards as they are harder than any other diamonds. Their atomic structure is different than of other diamonds where atoms are bonded together into very complex arrangements and about 70 % of these diamonds fluoresce blue under ultra-violet light which gives them amazing blue flashes.

Source: <http://interestingdiamondfacts.blogspot.com/2010/10/diamond-mining-facts.html>

WESTERN AUSTRALIAN RESOURCES INDUSTRY DELIVERS A RECORD \$107 BILLION IN SALES IN 2011:

The value of Western Australia's mineral and petroleum industry reached a record high of \$107 billion in 2011 representing an increase of 16 per cent over the previous year. This is the second time resource sales have exceeded \$100 billion and is significant considering the 12 per cent appreciation of the Australian dollar against the US dollar during 2011.

Source: www.dmp.wa.gov.au/1525.aspx

THE BUSINESS OF MINING



RAIL FREIGHT REVENUE ATTRIBUTED TO MINING:

Mining product shipments represent approximately 55% of Canada's rail freight revenues and 60 to 75% of Canadian port tonnage.

Source: <http://www.geocraft.com/WVFossils/Energy.html>
www.miningiq.com

MINING CONTRIBUTION TO TAXES:

The Canadian mining industry contributes more than \$8 billion a year in taxes to federal and provincial/territorial governments.

FIRST DIAMOND MINE IN CANADA OPENS:

Canada was completely irrelevant in the diamond world until the 1990s when several top class diamond-bearing deposits were found in the Northwest Territories. Canada opened its first diamond mine Ekati in 1998 which in only first six months of its work produced one million carats. Now it produces between three and five million carats a year.

Source: <http://interestingdiamondfacts.blogspot.com/2010/10/diamond-mining-facts.html>

THE BUSINESS OF MINING

DISCOVERY OF DIAMONDS IN SOUTH AFRICA:

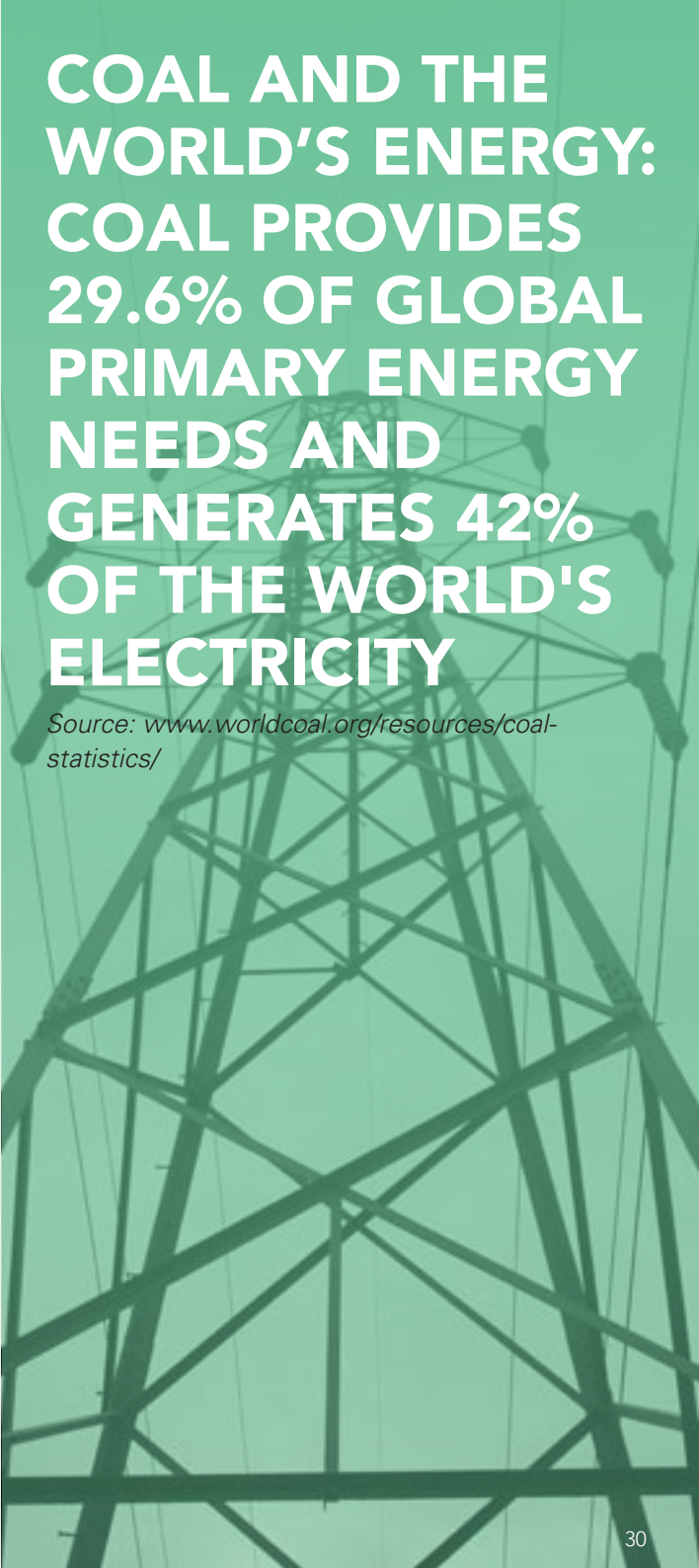
In South Africa diamonds were first discovered in 1867 near Kimberley, and this rich diamond source secured South Africa's number one spot as the World's leading diamond producer in the mid-twentieth century.

Source: <http://interestingdiamondfacts.blogspot.com/2010/10/diamond-mining-facts.html>

CLASSIFICATION OF MINING COMPANIES:

- **Major** companies are considered to have an adjusted annual mining-related revenue of more than US\$500 million, with the financial capability to develop a major mine on its own.
- **Intermediate** companies have at least \$50 million in annual revenue but less than \$500 million.
- **Junior** companies rely on equity financing as their principal means of funding exploration. Juniors are mainly pure exploration companies, but may also produce minimally, and do not have a revenue of US\$50 million.

Source: <http://interestingdiamondfacts.blogspot.com/2010/10/diamond-mining-facts.html>



COAL AND THE WORLD'S ENERGY: COAL PROVIDES 29.6% OF GLOBAL PRIMARY ENERGY NEEDS AND GENERATES 42% OF THE WORLD'S ELECTRICITY

Source: www.worldcoal.org/resources/coal-statistics/

THE BUSINESS OF MINING

CHINA'S INCREASING PACE OF GOLD CONSUMPTION:

By 2014, China will overtake India as the largest user of Gold (as opposed to investment-led demand), with change in standard of living. Chinese people are increasingly buying Gold jewellery and that the Chinese exports of Gold could gradually come down, even as their production keeps going up.

The consumer demand for Gold in India for the first quarter of this year was nearly 193 tons, pointing towards a stronger market for Gold jewellery and coins. Comparatively, the Chinese consumer demand for gold stands at 105 tons.

Source: <http://trak.in/tags/business/2010/06/08/gold-reserves-state/>



“By 2014, China will overtake India as the largest user of Gold.”

MINING SOFTWARE DOMINATED BY AUSTRALIA:

At least 60 per cent of the world's mines operate with Australian-made and designed software.

Source: www.thisisourstory.com.au/our-contribution.aspx

MINING AND AUSTRALIA'S ECONOMY:

The minerals resources industry accounts for more than 6% of Australia's economy and has invested more than \$125 billion in Australia in the last 10 years.

Source: www.thisisourstory.com.au/our-contribution.aspx

RECORD MINING SETTLEMENT:

A US coal mine operator paid \$204 million in an historic settlement after a mine blast killed 29 people in 2010. The explosion at West Virginia's Upper Big Branch mine in April last year was the worst US coal mining disaster in decades. The mine had been cited more than 500 times by safety inspectors in the year prior to the explosion. The \$204 million settlement is the largest to result from any criminal investigation into a US mine disaster.

Source: www.abc.net.au/news/2011-12-07/miners-given-200-million-payout/3716424

THE BUSINESS OF MINING

ALL TIME HIGH AND LOWS OF GOLD:

All-time high gold price:

\$1,913.50; August 23, 2011

All-time high gold price adjusted for inflation: \$2466; January 1980 in 2011 dollars

All-time low gold price: \$251.70; August 1999

Source: <http://www.mudminers.com/Gold/FunFacts/tabid/2886/Default.aspx>

WORLD'S BIGGEST MINING MERGER:

Glencore International Plc., the world's largest publicly traded commodities supplier, agreed to buy Xstrata Plc for about \$26 billion pounds (\$38 billion) in shares in the biggest mining takeover.

Source: www.smh.com.au/business/world-business/glencore-xstrata-seal-worlds-biggest-mining-merger-20120207-1r58c.html

MOST EXPENSIVE DIAMOND IN THE WORLD:

A 'D' colour Internally Flawless pear-shaped diamond weighing 100.10 carats was sold for SF 19,858,500 (\$16,561,171; £10,548,444) at Sotheby's, Geneva, Switzerland on 17 May 1995. It was purchased by Sheikh Ahmed Fitaihi (Saudi Arabia), who obtained it for his chain of jewellery shops in Saudi Arabia.

Source: www.guinnessworldrecords.com/world-records/5000/most-expensive-diamond



THE BUSINESS OF MINING

AVERAGE MINING WAGE:

The average miner earns \$43,653 (USD) per year in salary, not including overtime, bonuses and benefits, making mining the highest-paying industrial sector.

Source: www.dnr.state.mn.us/education/teachers/activities/soudan_mine/miningfacts.html



GLOBAL COPPER PRODUCTION RANKINGS:

Australia has about 6% of the world's economic copper resources and is ranked third after Chile (25%) and the USA (16%). In production Australia is ranked fifth after Chile, USA, Indonesia and Canada.

Source: www.australianminesatlas.gov.au/education/fact_sheets/copper.html

Mining IQ Member Fact!

The Durban Roodepoort Deep Mine (now defunct) is situated very close to the original site where gold reef was discovered on the "Rand" (see where South Africa's currency derived its name) by George Harrison on the farm Langlaagte in 1866.

Contributed by: Barry de Blocq, General Manager Corporate Services, DRD Gold

Mining IQ Member Fact!

The oldest listed company on the Johannesburg Stock Exchange: DRDGOLD Limited

DRDGOLD's registration number is 1895/000926/06, which indicates that they were the first registered in 1895, some 117 years ago! The name of the company at that time was Durban Roodepoort Deep, Limited.

Barry de Blocq, General Manager Corporate Services, DRD Gold

Mining IQ Member Fact!

PICA Carbon gold recovery grade of activated carbon has an impressive surface area for Gold Recovery as one teaspoon is equal to that of a football field.

Stephen Noblett, Senior Account Manager/ Product Manager, Redox



WEIRD, WONDERFUL AND RANDOM

Our favourite chapter – you don't know what you don't know. We didn't! From the Mining 'mile under' club to the tomb of the Unknown Soldier – these facts will guarantee you a win at your next pub quiz.

Mining IQ was astounded by the reach of mining in our lives and the impact it has had beyond the business of mining. Mining affects how we view the world in many worlds – from our language, our catchphrases, our monuments and how we accessorise our lives. See how in this fun chapter.

WEIRD AND WONDERFUL FACTS ABOUT MINING:

TOMB OF THE UNKNOWN SOLDIER:

The marble used in the construction of the Tomb of the Unknown Soldier came from the Colorado Yule Quarry.

Source: www.coloradomining.org/mc_miningfacts.php

COPPERS AND MINING:

Some believe that the reason policemen in the USA are nicknamed "cops" or "coppers" is to do with their uniforms which used to have copper buttons.

Source: http://files.dnr.state.mn.us/education_safety/education/teachers/activities/soudan_mine/miningfacts.pdf

WORLD'S GREATEST MINING LABOURERS:

Based on historical research, there are two contenders for this title. The most celebrated is Alexei Stakhanov, a Ukrainian miner who claimed in August 1935 to have hewn 102 tons of coal during a six-hour night shift, staking a claim for the Soviet Union.

For the USA the contender is Henry Noll, a Pennsylvanian steel worker who every day for weeks at a time in the winter of 1899, lifted and loaded 45 tons of pig iron on to railway trucks.

Source: <http://www.guinnessworldrecords.com/world-records/11000/greatest-labourer-of-all-time>



MAN SEPARATES SILVER FROM LEAD

Slag dumps in Asia Minor and on islands in the Aegean Sea indicate that man learned to separate silver from lead as early as 3000 B.C.

Source: <http://periodic.lanl.gov/47.shtml>



MONEY AND GOLD:

Gold was first legalised as money as early as 1091 BC in China as an alternative to silk. Gold is still the only universally accepted medium of exchange.

Source: <http://www.vermontel.net/~lcbmandg/aboutgold.htm>

COAL REPLACES WOOD AND CHANGES HISTORY:

Coal was used widely in England in the 1600's because of wood shortages. Brewers had decided to try to dry their malts with coal generated heat but the fumes were absorbed by the brew, ruining the taste. The brewers found, however, that the undesirable gases could be eliminated if the coal was first heated in an air tight oven. Thus the discovery of the coke making process that has since been an essential part in the making of iron and steel.

Source: http://files.dnr.state.mn.us/education_safety/education/teachers/activities/soudan_mine/miningfacts.pdf

THE GREATEST GOLD RUSH IN U.S. HISTORY:

The greatest gold rush in U.S. History began when gold was discovered at Sutter's mill in California by a man named James Marshall on January 24th, 1848.

Source: <http://www.legendsofamerica.com/ca-goldrush.html>

ALL THAT GLITTERS IS NOT GOLD (OR MAYBE IT IS):



GOLD ONE OF EARTH'S MOST PRECIOUS METALS:

Less than 2% of the earth's gold is found in nugget form, making it one of the earth's most precious metals.

GOLD NEVER OCCURS IN PURE FORM IN NATURE

It is mixed with silver, copper, and other metals. Refined gold is 99.9% pure (24K).

MEANING OF THE WORD GOLD:

The word 'Gold' is derived from the Old English word 'gelo' meaning yellow.

GOLD'S MANY USES:

The chemical symbol for gold is Au, from the Latin word "Aurum," meaning "shining dawn." Gold is the most malleable and ductile of all metals, and can be hammered into a sheet thin enough so that light will pass through it. It is a great natural conductor of heat and electricity, as it is unaffected by air and most chemicals, and serves as a good barrier to radiation. It is used in jewelry, sculpture, currency, dentistry, computers, space helmets, satellites, and more.

Source: www.alaskagoldnugget.com/facts-about-gold.html

WEIRD, WONDERFUL AND RANDOM

MINING VERSUS DRINKING:

0.02% of the Australian land mass is used by mines. More land is occupied by pubs.

Source: www.convictcreations.com/culture/facts.htm



ASTRONOMICAL DIAMOND OF GALACTIC PROPORTIONS:

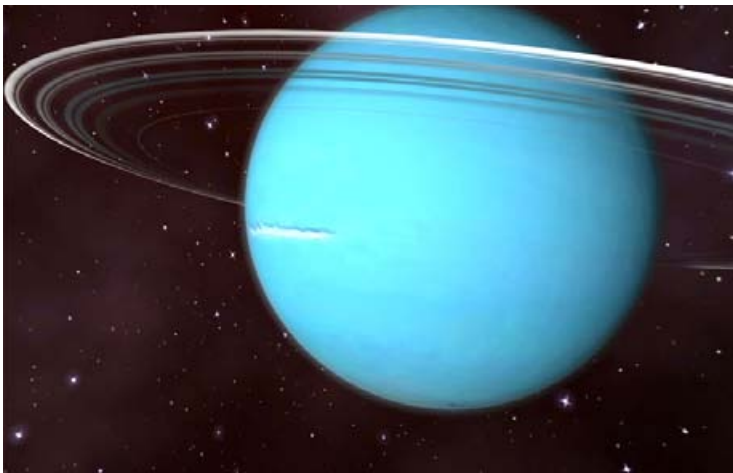
Twinkling in the sky is a diamond star of 10 billion-trillion-trillion carats, astronomers have discovered. The cosmic diamond is a chunk of crystallized carbon, 4,000 km across, some 50 light-years from the Earth in the constellation Centaurs. It's the compressed heart of an old star that was once bright like our Sun but has since faded and shrunk. Astronomers have decided to call the star "Lucy" after the Beatles song, Lucy in the Sky with Diamonds. – BBC News.

Source: www.pippinbass.com/Interesting-Diamond-Facts.asp

INTERESTING FACTS ABOUT URANIUM:

Legends were told about their inexplicable influence upon a man, and sometimes they received the relevant names: «Harmful stone», «Wolf stone». However, despite this, some uranium compounds were used as dyeing agents and moreover even in medicine in the form of radon baths (radon is a gaseous product of radium decay — a grandson of uranium. Radium in its turn was applied at a very early stage in medicine and scientific research). Some compounds of radioactive elements were used for military applications as early as in the First World War. They were mainly used in instrument engineering to manufacture fluorescent paints for gauge dials. The main consumer of fluorescent paints was the Navy.

Source: www.armz.ru/eng/uranium_mining/interesting_facts_about_uranium/



URANUS AND URANIUM:

Uranium as an element was named after Uranus, the seventh farthest from the Sun giant planet, which had been discovered in 1781 by William Herschel not long before the discovery of uranium. Uranium translates from the Ancient Greek as the «Sky». In mythology Uranus is the god of the sky.

Source: http://www.armz.ru/print/?site_lang=eng&pageid=289&

WEIRD, WONDERFUL AND RANDOM

PLATINUM IS THE RAREST AND HEAVIEST OF THE PRECIOUS METALS:

All of the platinum ever mined would fit in the average size living room.

ANNUALLY, ONLY ABOUT 133 TONS OF PLATINUM IS MINED, COMPARED TO ABOUT 1,782 TONS OF GOLD:

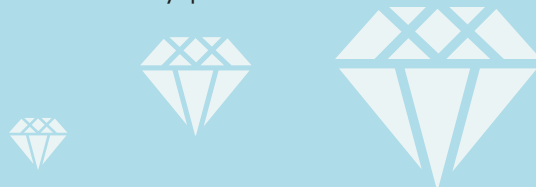
In contrast with gold and silver, there are no large above-ground platinum bullion stockpiles to protect against significant supply disruptions.

TEN TONS OF ORE AND A FIVE MONTH PROCESS IS NEEDED TO GENERATE ONE OUNCE OF PLATINUM BULLION:

More than 90% of all platinum supplies come from South Africa and Russia. Virtually all of the platinum mined in South Africa is committed to industrial contracts.

DIAMONDS SECURED BY PLATINUM:

The world's famous diamonds, including the Hope, Jonker I and Koh-I-Noor, are secured by platinum.



PLATINUM IN THE WAR:

When World War II began, the U.S. government declared platinum a strategic metal and its use in non-military applications, including jewellery, was disallowed.

WEIRD, WONDERFUL AND RANDOM

FIRST METALS TO BE DISCOVERED BY MAN: GOLD AND COPPER

Around 5000BC these were discovered, and together with silver these three elements are found in a metallic state in the earth's crust. Gold and copper are the only two non-white coloured metals.

PURE GOLD IS NOT PURE GOLD:

Twenty-Four-Karat Gold is not pure gold since there is a small amount of copper in it. Absolutely pure gold is so soft that it can be moulded with the hands.

THE HUMBLE CAROB BEAN:

The purity of gold is measured in Carats or Karats. A Carat was originally a unit of weight based on the carob bean, used by ancient merchants in the Middle East.

HIDDEN TREASURE:

One of the famous Dead Sea Scrolls, found in a cave in Israel, is made of copper. This unique scroll does not contain religious writings, but rather the clues to an undiscovered treasure of gold and silver.

COPPER STANDS THE TEST OF TIME:

Archaeologists have unearthed copper drainpipes from as far back as 3,500 BC, that are still in good condition.



WEIRD, WONDERFUL AND RANDOM

GOLD AND JEWELRY:

It is estimated that more than 80% of all newly mined gold is used in the **jewelry industry**.



WHERE DOES OUR GOLD COME FROM?

Though the vast majority of the world's gold is mined by large companies, it is estimated that there are more than **50,000 smaller**, more independent operations worldwide.

INDIANS FIND FIRST GOLD MINE:

The Kolar Gold Fields of Karnataka in India are believed to have been the home of the first mined gold. Karnataka is estimated to have produced somewhere in the range of **1000 tons** of gold to date.

VAMPIRE, DRACULA AND GOLD:

Gold was also the main motive in the **Roman invasion of Transylvania** (now Romania).



WEIRD, WONDERFUL AND RANDOM

COPPER REPRESENTS ETERNAL LIFE:

The Egyptians used the ankh symbol to denote copper in their system of hieroglyphs. It also represented eternal life.

COPPER HAS WORLD BEATING LONGEVITY:

It is estimated that about 80% of the copper we have ever produced is still in use. It will continue to be recycled over and over again without any effect on its properties.

COOK WITH COPPER:

Copper cookware is the most highly-regarded by the world's chefs. It has the best heat transfer of any material used in cooking, and as heating is uniform there are no hot spots.



COPPER KEEPS YOUR HOUSE CLEAN:

Copper is a natural antibacterial, and so inhibits the spread of bacteria in water and air distribution systems made from it. In the same way, brass doorknobs, handrails and fingerplates in public buildings can help to minimise risk of bacterial transfer.

FAMOUS ICONIC COPPER SYMBOL:

New York's Statue of Liberty is sheathed in more than 80 tonnes of copper mined in Norway and fabricated by French craftsmen.



THE LIVING WE HAVE COME TO EXPECT:

To maintain our standard of living, each person in the United States requires over 48,000 pounds of minerals each year – this is constituted by:

- 12,428 LB. OF STONE
 - 9,632 LB. OF SAND AND GRAVEL
 - 940 LB. OF CEMENT
 - 276 LB. OF CLAYS
 - 400 LB. OF SALT
 - 302 LB. PHOSPHATE ROCK
 - 639 LB. OF NONMETALS
 - 425 LB. OF IRON ORE
 - 77 LB. OF BAUXITE (ALUMINUM)
 - 17 LB. OF COPPER
 - 11 LB. OF LEAD
 - 10 LB. OF ZINC
 - 6 LB. OF MANGANESE
 - .0285 T OZ. GOLD
 - 29 LB. OF OTHER METALS
- PLUS:*
- 7,667 LB. PETROLEUM
 - 7,589 LB. COAL
 - 6,866 NATURAL GAS
 - 1/3 LB. URANIUM

SOURCE: [HTTP://MINERALS.USGS.GOV/WEST/MOREFUN.HTM](http://minerals.usgs.gov/west/morefun.htm)



WEIRD, WONDERFUL AND RANDOM

A FASCINATING STORY ABOUT THE BOKASSA DIAMOND:

In 1977, a Central African dictator named Jean-Bédel Bokassa declared himself an emperor and asked Albert Jolis, the president of a diamond mining operation, for a diamond ring. Bokassa made sure Jolis knew that nothing smaller than a golf ball-sized rock would do.

Jolis didn't have the money to buy such a large stone but if he didn't deliver one, his company would lose the mining concession in Central Africa. So he devised a clever ruse: he found a large piece of black diamond bort (a poorly crystallized diamond usually fit only to be crushed into abrasive powder) that curiously resembled Africa in shape. He ordered the diamond polished and mounted on a large ring. A one-quarter carat white diamond was then set roughly where the country is located on the continent.

Jolis presented the "unique" diamond to Bokassa, and the clueless emperor loved it! He thought that the \$500 ring was worth over \$500,000! Just two years later, when Bokassa was overthrown in a coup, Jolis heard that he went into exile with his prize diamond ring, and noted wryly: *"It's a priceless diamond as long as he doesn't try to sell it."*

Source: www.neatorama.com/2008/12/01/10-facts-about-diamonds-you-should-know/

Mining IQ Member Fact!

On average at least one worker on each mine site in Australia has joined the "Mile under Club" by dancing the "Horizontal Tango" while underground.

Andrew Hunter, Emergency Response Coordinator - Unity Mining Limited



Jean-Bédel Bokassa

Mining IQ Member Fact!

On Easter Island there are more than 1000 statues of 13m made by volcanic tuff.

Laura Andrei, Saint-Gobain

Mining IQ Member Fact!

Back when Mount Newman Mining (now BHP Billiton Iron Ore) constructed their rail line from Port Hedland to Newman back in the 60's, a record was set for Gallon of beer consumed per mile of rail track laid.

Chris Gillingham, Superintendent Maintenance Planning & 1SAP, BHP Billiton

WEIRD, WONDERFUL AND RANDOM

Mining IQ Member Fact!

My father in law - a coal mining engineer told me that 3% methane/coal gas mixed with air was the most explosive they came across in the UK coal mines.

Stephen Noblett, Senior Account Manager/ Product Manager, REDOX

Mining IQ Member Fact!

There are numerous veins of coal beneath Centralia. In the late sixties, they decided to burn their trash in an old strip mine. While burning their trash, some of the coal veins were ignited and have been burning ever since and will continue to burn for the next 250 years. The town is abandoned except for a couple of people that have held out. The town was abandoned due to the fumes and sink holes that formed in the ground.

Josh Lay, GIS Analyst (Contractor), Office of the Chief Technology Officer, District of Columbia Government

Mining IQ Member Fact!

During and before the Civil War there were Gold mines in Stafford and Spotsylvania counties VA. I used to be an archaeologist and we found several fortified gold mines through the two counties.

Josh Lay, GIS Analyst (Contractor), Office of the Chief Technology Officer, District of Columbia Government

Mining IQ Member Fact!

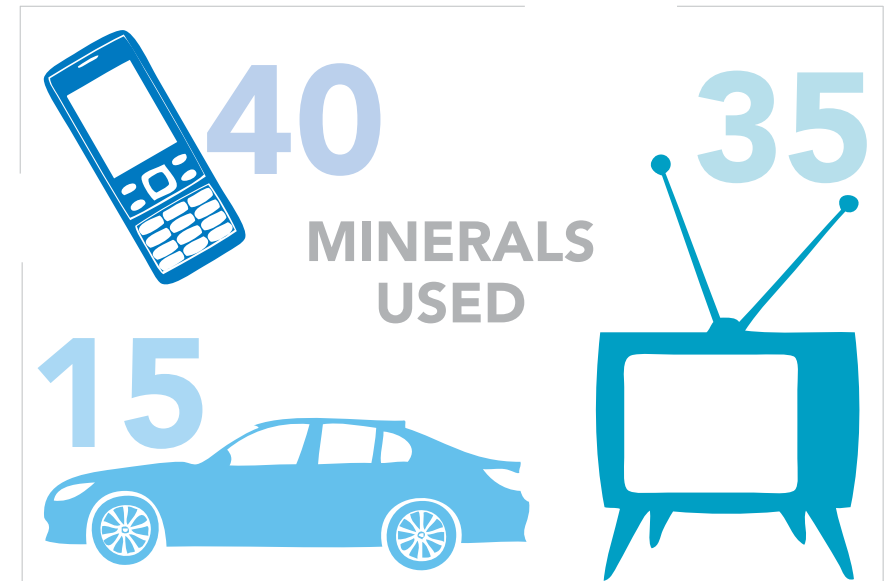
Modikwa Platinum Mine was the mine that achieved 8 million fatal free shifts. Mario Liquori of Klerksdorp had a single shift developing record which stands at 873.2m for one month.

Stefano Liquori, North Shaft

HOW TO MAKE A TV?

A television requires 35 different minerals; 40 minerals are used to make telephones and 15 minerals are needed to make a car.

Source: <http://www.joy.com/Joy/Mineral-Information/Minerals-At-Work.htm>



USA MINES ALL OVER:

Of the 50 states in the union, ALL of them mine something.

Source: http://files.dnr.state.mn.us/education_safety/education/teachers/activities/soudan_mine/miningfacts.pdf



Did you know the deepest mine in the world is 12 400 ft. deep? We certainly didn't. This chapter explores the ridiculous to the sublime in terms of impressive mining achievements for the longest and deepest mining activities.

**LONGEST / DEEPEST /
MOST PRODUCTIVE**

WEIRD AND WONDERFUL FACTS ABOUT MINING:

LONGEST TIME SURVIVED UNDERGROUND AFTER A MINING ACCIDENT: CHILE MINERS SETS WORLD RECORD:

COPIAPO, Chile—33 miners trapped a half-mile underground for 69 days, when part of their mine collapsed, and for 17 days they were feared dead, were saved in a 24 hour, \$20m rescue operation and were welcomed as national heroes - setting the new world record for the longest time survived underground after a mining accident.

Source: http://www.worldrecordsacademy.org/society/longest_time_survived_underground_Chile_miners_sets_world_record_101928.html

THE DEEPEST MINE IN THE WORLD: MPONENG MINE, SOUTH AFRICA

Over the years the Savuka mine, which is 3,777m (12 400 ft.) deep, became widely known as the deepest mine in the world. But on the 3rd of February 2009, the Mponeng mine dug to 3,778 meters below the surface taking over the crown as the world's deepest mine.

The fact that the Mponeng's production cost is \$ 9,000 / kg while the price of gold is \$ 30,000 / kg shows why it's worth the complexity of mining this deep under the surface where the temperature is 55°C. The mine runs various plants with a total of 76 MW of refrigeration to keep the working temperature bearable.

Mining engineers foresee that it will eventually be possible to mine at 6000m.

Source: <http://ecolocalizer.com/2009/04/27/six-areas-where-south-african-mining-leads-the-world/>



98 KM LONG

LONGEST BELT CONVEYOR SYSTEM:

The longest belt conveyor system in the world is in Western Sahara. It is 98 km long, from the phosphate mines of Bu Craa to the coast south of El-Aaiun.

Source: <http://googlesightseeing.com/2006/08/the-longest-conveyor-belt-in-the-world/>

WORLD'S MOST PRODUCTIVE UNDERGROUND COAL MINE IN TERMS OF OUTPUT PER MAN-YEAR: 20 MILE COAL MINE IN COLORADO

The twenty mile long wall coal mine is located 30km south west of Steamboat Springs in north-western Colorado, USA. The mine was developed by Cyprus Amax, which sold it to the German company, RAG Coal International, in 1999. In 2004, RAG in turn sold Twenty mile to Peabody Energy as part of its divestment programme for its US and Australian assets.

Source: <http://coalmine.proboards.com/index.cgi?board=LW&action=display&thread=750#ixzz1vrN3U6fw>

LONGEST MINING TRAIN (IRON ORE):

Australian BHP's Iron ore train is officially the longest train to ever run in the world. The record was set on June 21, 2001.

Source: www.funtrivia.com/askft/Question102841.html



DRILL AND BLAST RECORD:

The Norwegians set a world record for drill and blast excavation of 165m in 6 days.

AF Scandanavia achieved the greatest weekly advance in a single face at the Sauda Hydroelectric Development Project, northwest of Stavanger in Western Norway.

Using an Atlas Copco Rocket Boomer L3 C30, AF Scandanavia achieved the record with 33 No rounds in a 38m² section averaging less than 4 hours between each blast. Two shift teams worked around the clock boring through hard granite with only 199 No 3m rockbolts required for support and no shotcrete.

Source: http://www.ats.org.au/index.php?option=com_content&task=view&id=141&Itemid=8

WORLD RECORD FOR DEVELOPMENT MINING IN MALI, WEST AFRICA:

In July 2012, three crews operating a Sandvik jumbo set a world record for development mining in Mali, west Africa. The crews fully bolted and meshed, to Australian standards, in 5.0m x 5.0m headings to construct a 603.1m advance in a single month.

Source: www.theajmonline.com.au/mining_news/news/2011/november/november-10-2011/top-stories/aums-claims-development-mining-world-record

WORLD RECORD FOR DAILY PRODUCTION FROM A LOW-EQUIPPED LONGWALL:

On February 16th 2012, the Polish Coal Company Lubelski Wegiel Bogdanka S.A. smashed the world record for daily production from a low-equipped longwall, with an output of 24,000 tonnes of coal from a single face.

Source: www.mining.com/2012/02/25/polish-bogdanka-mine-sets-production-world-record-with-cat-plow-longwall/

LONGEST / DEEPEST / MOST PRODUCTIVE

FASTEST COAL SHOVELING BY A TEAM: **NEW ZEALAND**

The record for filling a 508 kg (0.5 ton) hopper with coal using a banjo shovel by a team of two is 14.8 seconds, by Brian Coghlan and Piet Groot (both New Zealand) at the opening of the Brunner Bridge, South Island, New Zealand, on 27 March 2004.

Source: www.guinnessworldrecords.com/world-records/1/fastest-coal-shovelling-by-a-team



UNDERGROUND LONGWALL MINING:

The world's most productive longwalls are still located in the USA, Australia and the Shenhua coalfield of China.

Shenhua was developed from a Greenfield site in 1992 and now has more than seven major underground mines producing over 200 million tonnes per year and all equipped with the latest high productive longwall equipment. These mines now set the standard for longwall performance around the world with outputs of between 5 and 10 million tonnes per longwall face per year.

In the USA there are now 49 operating longwalls producing over 175 million tonnes per year with the best achieving over 7 million tonnes per year. It is interesting to note that the average production is over 3.8 million tonnes per longwall face per year, making the USA the most consistent longwall operator worldwide.

Australia has 29 operating faces with a total longwall production of 47.5 million tonnes with a best output of over 7 million tonnes from a single longwall face. New faces are now under design and planning for increased extraction heights of over 7 metres using longwall sub level caving systems.

Source: www.min-pan.krakow.pl/Wydawnictwa/GSM2443/flook-leeming.pdf

ANNUAL BROWN COAL PRODUCTION:

Australia's brown coal production is about 68 million tonnes, all from Victoria and with over 98% from the La Trobe Valley. Australia produces about 7% of the world's brown coal and is ranked fifth largest after Germany (21%), Russia (10%), Turkey (9%) and USA (8%).

Source: <http://www.worldcoal.org/resources/coal-statistics/>

Mining IQ
Member
Fact!

ONE OF THE SMALLEST MINES IN THE WORLD IS RESPONSIBLE FOR THE EQUIVALENT OF 7% OF THE ENTIRE ELECTRICITY SUPPLY IN THE USA

The 150 tpd McArthur River Mine in northern Saskatchewan Canada is responsible for the equivalent of 7% of the entire electricity supply in the USA. Mining grades are roughly 15% U3O8 and the mine produces roughly 19 million pounds a year. Roughly 17% of power in the US is generated from nuclear reactors. These reactors consume roughly 50 million pounds of uranium a year.

$19/50 \times 17\% \sim 7\%$

(In practice the mine exports to a handful of nations but the majority goes to the US. When this trivia was pointed out to officials in the US, the mine was visited by numerous congressmen, ambassadors etc.) **Doug Beattie, PEng.**



WORLD'S HIGHEST LONGWALL SHEARER:

The world's highest and most powerful longwall shearer, Joy's 7LS7, has an installed power of over 2300 kW, with each ranging arm rated at 860 kW, and is over 110 tonnes in weight. It is designed to cut up to 6.5 metres (Fig. 1). This will be the highest extraction height of any standard longwall face worldwide. Two machines are now operating in Shenhua and two others are under delivery to the Ning Mei group in China. Cutting rates of over 4,500 tonnes per hour are achievable.

Source: www.joy.com/news-releases/_10-07_7ls7newsrelease.pdf

POUNDS OF EXPLOSIVES AND DETONATORS USED PER YEAR IN CANADA AND THE USA:

In the US and Canada alone, blasters use more than 6 billion pounds of explosives and 75 million detonators per year. Coal mining accounts for two-thirds of consumed explosives of which more than 80% of it is ANFO.

Source: <http://www.explosives.org/index.php/component/content/article?id=69>



From famous bombs, to famous people to famous landmark events – you’ll find it all in this chapter. Dedicated to fame and infamy in the world of mining this chapter provides the perfect weird and wonderful knowledge to complement your next dinner party.

FAMOUS

WEIRD AND WONDERFUL FACTS ABOUT MINING:



FAMOUS PEOPLE IN MINING: CHARLES BRONSON

Charles Bronson worked in a coal mine before becoming famous

Source: www.answerbag.com/q_view/400562

GREECE'S MOST FAMOUS MINING ENGINEER: ΒΡΑΧΟΣ (VRAHOS)

This Greek mining engineer was the co-discoverer of the largest gold mine of Macedon in the 6th Century BC. Very little is known about the other discoverer other than that he was found face down at the bottom of the mine shaft one morning and the cause of his death, whether by murder or by accident, was never determined. In fact, we also know very little about Mr. Vrahos as his name (Rocky) might suggest. But his gold mine discovery tipped the scales for Athens and gave the Athenians the spark they needed to take on the Persians and then the Spartans. That little adventure was ended by Philip of Macedon who, untimely and coincidentally, was found poisoned at the bottom of a mine shaft.

Source: <http://www.miningandmetallurgy.com/famous-mining-engineers>

FAMOUS PEOPLE IN MINING: GINA RINEHART



Rinehart is media shy and is extremely careful about her security. She always moves in bullet proof cars, has bullet proof windows both at office and her residence and has former SAS men as her bodyguards.

Rinehart was involved in a protracted legal battle with her stepmother, Rose Porteous, over the circumstances that led to the death of Hancock, and the distribution of his estate. The action, commenced by Rinehart in 1992, was eventually settled in 2003 following a coronial inquiry that determined Hancock died of natural causes.

In June 2011, Citigroup estimated that she was on course to overtake Carlos Slim, the Mexican magnate worth £46 billion (US\$74 billion) and Bill Gates, who is worth £35 billion (US\$56 billion), mainly because she owns her companies outright.

Source: <http://www.22facts.com/gina-rinehart/>

FAMOUS PEOPLE IN MINING: THE OPPENHEIMER'S

Since 1929, when Sir Ernest (knighted for war services in 1921) took over as chairman, the Oppenheims have led De Beers almost without interruption, massaging the price of diamonds by hoarding them and occasionally selling part of the firm's stockpile. The family has wielded political influence, too, mostly bankrolling liberal causes. Both Ernest and his son Harry served in South Africa's parliament: Ernest for 14 years in the run-up to the second world war, and Harry for nine years as a member of the anti-apartheid opposition. In November 2011, Nicky Oppenheimer, the chairman of De Beers, said that it was with a heavy heart that his family had decided to sell its remaining 40% stake in the world's biggest diamond miner to Anglo American, a mining behemoth. The deal marks the end of an era for South Africa's foremost mining dynasty.

Source - <http://www.economist.com/node/21538143>

FAMOUS



FAMOUS PEOPLE IN MINING: KERRY PACKER

On top of his television empire, he owned both diamond and coal mines.

Source: <http://www.mademan.com/mm/5-successful-australian-entrepreneurs.html>

Mining IQ Member Fact!

Rio Tinto exclusively provided the metal to produce the 4,700 gold, silver and bronze medals at the London 2012 Olympic and Paralympic Games.

Ben Fantin, Specialist field communications – Coal Chain and Operations Support, Coal Australia



FAMOUS PEOPLE IN MINING: HERBERT HOOVER

Having graduated from Stanford University in California, Hoover was a 26-year-old mining engineer in Tientsin, China, when the city was attacked by 5,000 Chinese troops and 25,000 members of the martial arts group known as the Boxers. (The Boxer Rebellion was a violent 1900 uprising against foreign business interests in China.)

Hoover took charge of setting up barricades to protect Tientsin until its rescue after 28 days of bombardment.

Thirty years later, Herbert Hoover became the 31st President of the United States; he and his wife continued to speak Chinese when they wanted privacy in the White House.

Source: <http://www.squidoo.com/Herbert-Hoover-president-usa>

RIO DE JANEIRO'S JESUS STATUE: JESUS FROM RIO DE JANEIRO (38M) IS MADE BY STONE FROM THE BEST QUARRY IN THE WORLD, LIMHAMN (SWEDEN)

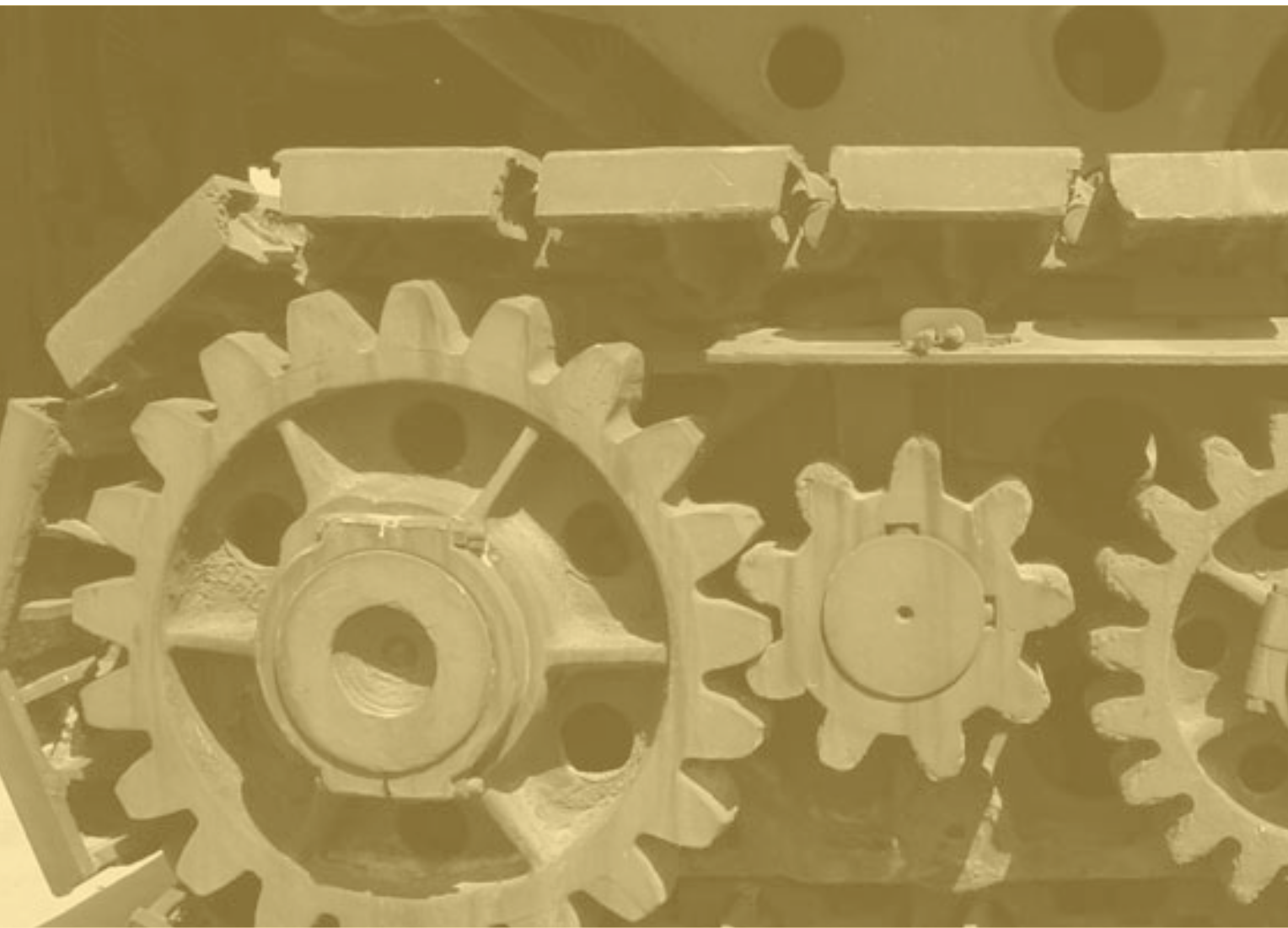
Source: http://www.asaa.com.au/publications/magazines/DS12_SevenWondersLuton.pdf

Mining IQ Member Fact!

THE FAT BOY BOMB THAT DEMOLISHED NAGASAKI

The Beryllium, (neutron rich chain reaction initiator), for the fat boy bomb that demolished Nagasaki, was mined at Big Beryl near Mount Isa, North Queensland.

Rod Thomson, Project Engineering Manager, Minerals & Metals



Which is the oldest known mine site on record...?

When was gold first discovered in NSW Australia...?

Who were the first miners...?

Improve your historical knowledge of the mining landscape and find out where it all began and where. In this section Mining IQ explores the past to bring clarity to the present.

HISTORICAL / THE FIRST

WEIRD AND WONDERFUL FACTS ABOUT MINING:

FIRST USE OF BLACK POWDER FOR ROCK BLASTING:

1627 was the year recorded for the first use of black powder for rock blasting (Hungary).

Source: <http://www.explosives.org/index.php/component/content/article?id=69>

INVENTION OF DYNAMITE CHANGES MINING LANDSCAPE FOREVER:

IN 1847 ALFRED NOBEL INVENTED DYNAMITE, WHICH
FOUND AN EARLY APPLICATION IN THE MINING INDUSTRY.

Source: http://www.minalliance.ca/pdfs/Minalliance_100_innovations_en.pdf



THE OLDEST KNOWN MINE ON ARCHAEOLOGICAL RECORD: THE "LION CAVE"

Radiocarbon dating shows this cave to be about 43,000 years old. At this site paleolithic humans mined hematite to make the red pigment ochre.

Source: <http://www.ancient-wisdom.co.uk/mining.htm>

FIRST MINING STEAM ENGINE:

In 1712: Thomas Newcomen builds the first steam engine to pump water out of mines. Newcomen's engine used a piston.

Source: http://en.wikipedia.org/wiki/Timeline_of_historic_inventions#18th_century

THE WORLD'S OLDEST COPPER MINE:

The world's oldest producing copper mine has passed 50,000 tonnes of the red metal. The mine at Skouriotissa, owned by Cypriot company Hellenic Copper Mines, has been worked since the Bronze Age.

Source: www.mining.com/2012/04/05/worlds-oldest-copper-mine-hits-production-milestone/

ONE OF THE LARGEST GOLD MINES IN THE US: HOMESTAKE MINE, IN LEAD, SOUTH DAKOTA

Operations began on April 9, 1876 and this is the oldest continually operating gold mine in the world.

Source: http://www.dnr.state.mn.us/education/teachers/activities/soudan_mine/miningfacts.html

WORLD'S FIRST COAL CUTTER:

The world's first coal cutter was developed by Richard Sutcliffe, who worked as a miner and manager at Modubeagh and Clogh between 1857 and 1885. He also invented a conveyor belt that was developed in Castlecomer. Mr Sutcliffe brought his conveyor belt to Wakefield, England where he established a factory to manufacture it. A Sutcliffe belt is still produced in that factory today.

Source: <http://www.askaboutireland.ie/reading-room/environment-geography/physical-landscape/castlecomer-plateau/coalmining-in-castlecomer/mining-equipment-and-inve/>

FIRST DISCOVERY OF GOLD IN NSW, AUSTRALIA:

Gold was first discovered in New South Wales in 1823 by a public official named James McBrien while he was on a survey mission in hills near the Fish River east of Bathurst.

Source: <http://www.australianminesatlas.gov.au/history/index.html>

**Mining IQ
Member
Fact!**

COMMONWEALTH OIL REFINERIES INCORPORATED ESTABLISHED IN 1920

In the 1920's Coal was still the principal source of worldwide energy. However, the use of oil in engines was increasing. It was at this time that the Australian government was under pressure to provide for Australia's future development with a supply of oil. When in London early in 1918 for an Imperial War Cabinet Meeting, and again in 1919 when attending the Peace Conference in Paris, Prime Minister W.M. Hughes met with the company to discuss 'a comprehensive scheme for a production, refining and marketing company.

Commonwealth Oil Refineries (COR) was incorporated on 25 August 1920, in accordance with the Oil Agreement Act 1920, passed by the Commonwealth Parliament to ratify the Oil Agreement previously negotiated by the Commonwealth of Australia and the Anglo-Persian Oil Company. The aim was to create and develop a comprehensive oil refining industry in Australia and a means of dealing with any Australian oil that might be discovered.

Peta Collins, Marketing Specialist - B2B, BP Australia Pty Ltd



LIGHTING UP THE MINERS:

The first type of mine light, the open saucer-type grease lamp, was popular in the 1700's and was often decorated with ornamental figures such as roosters. These figures acted as good luck charms for the miner.

Source: http://www.minersmuseum.com/hof_equipment_2.htm

THE FIRST RECORD OF THE DISCOVERY OF GOLD REPORTED IN LOS ANGELES COUNTY:

This occurred in 1834. From 1834 to 1838 the San Francisquito, Placerita Caceta and Santa Feliciana placers were worked by priests from the San Fernando and San Bueno Ventura missions. The placers of San Gabriel canyon were worked by priests and native Californians until 1848 when gold was discovered at Sutter's mill by Marshall.

Source: <http://www.encyberpedia.com/gold.htm>

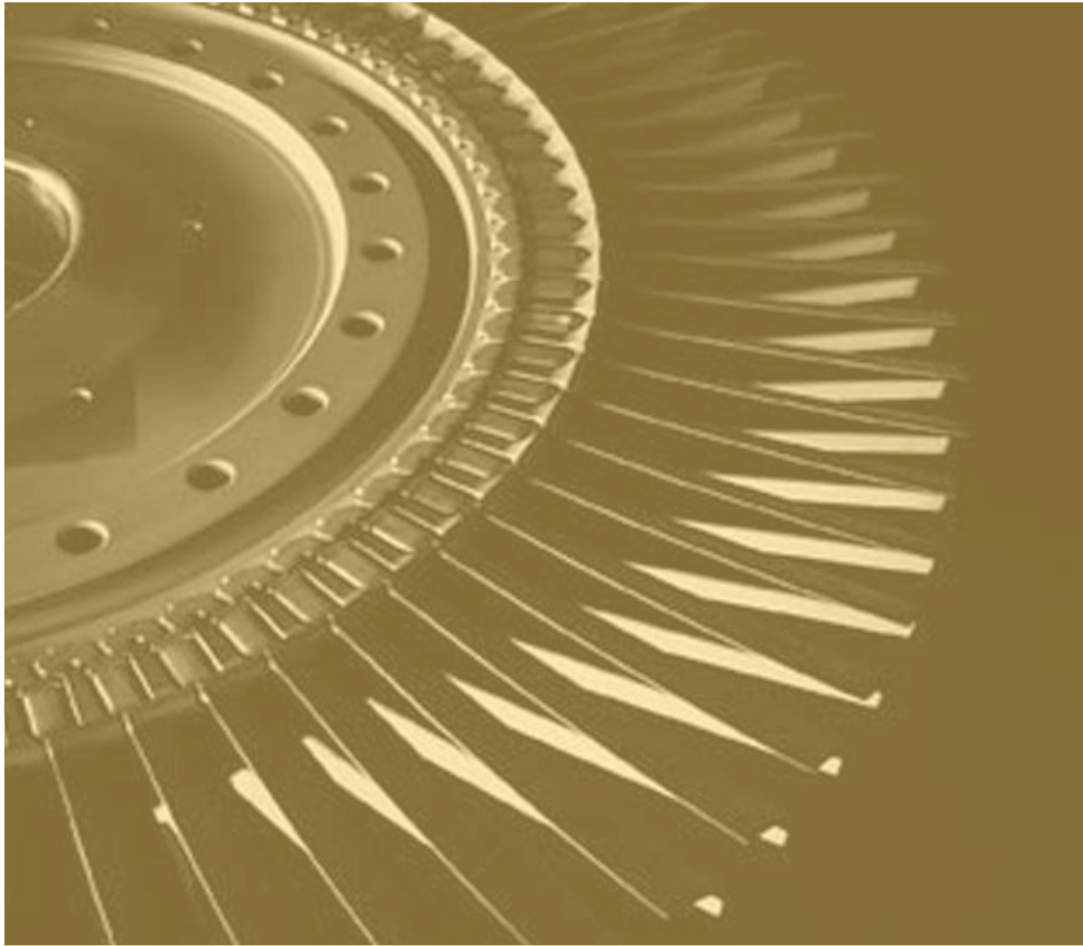
THE FIRST MINERS: FROM 4000 BC

By 4000 BC deep shafts are cut into the hillside at Rudna Glava, in the Balkans, to excavate copper ore. This robbing of the earth's treasures is carried out with due solemnity. Fine pots, bearing produce from the daylight world, are placed in the mines as a form of recompense to propitiate the spirits of the dark interior of the earth.

By about 3800 BC copper mines are also worked in the Sinai peninsula. Crucibles found at the site reveal that smelting is carried out as part of the mining process.

Source: www.historyworld.net/wrldhis/PlainTextHistories.asp?historyid=ab16#ixzz1vrXkjGR4

HISTORICAL / THE FIRST



FIRST ADVANCES IN MINING TECHNOLOGY:

Steam was first applied for industrial power around 1700 in Cornwall, England, for working mine pumps. The invention of steam railway locomotives and mine hoists followed a few years later.

Source: <http://www.thecanadianencyclopedia.com/articles/mining>

www.miningiq.com

EARLY MINING:

In 1643 a shipment of coal was reported to have been sent from Grand Lake, NB, to New England. In 1672 Nicolas DENYS prepared a report on the coal resources of the Maritimes for Louis XIV.

Source: <http://www.thecanadianencyclopedia.com/articles/mining>

Mining IQ Member Fact!

On February 9th 2012, Carbon Energy, a pioneer and innovator of Underground Coal Gasification (UCG) technology, became the first Australian company (and possibly greater) to utilise its high quality synthetic gas (syngas) to produce and export electricity to a commercial electricity grid from its Bloodwood Creek UCG facility, near Dalby in Queensland, Australia.

**Terry Moore | General Manager Operations,
Carbon Energy Limited**

Mining IQ Member Fact!

The first codified use of the "Apex Law" was in the Gregory Mining District near the Colorado towns of Central City, Blackhawk, Nevadaville and Russell Gulch.

Posted by Donald McCoy



CULTURAL SIGNIFICANCE OF COPPER:

Copper (Cu) has a cultural significance as it was the first metal used by man (probably as early as 7000 BC). Neolithic man mined native copper and used it as a substitute for stone; its malleability enabled easy shaping of tools by beating it. Copper was smelted as early as 3500 BC at Timna in Israel. Its property of alloying with other metals (particularly tin) was discovered about 500 years later and heralded the Bronze Age, which started in southern Europe between 3000 and 2500 BC.

Source: www.amnh.org/exhibitions/gold/eureka/funfacts.php

NICKEL DISCOVERED:

Pure nickel was first isolated in 1751 by Axel Cronstedt, a Swedish scientist.

Source: http://www.miraclesofthequran.com/mathematical_15.html



"Copper was smelted as early as 3500 BC at Timna in Israel."

ALASKAN MINING LEADS TO THE INVENTION OF THE ELECTRIC RAZOR:

Retired U.S. Army Lieutenant Colonel Jacob Schick came up with the idea for the electric razor whilst in Alaska staking a mining claim.

Schick's electric razor required a motor, and reliable ones at the time were not smaller than a breadbox. So Schick decided to build one himself. It took five years, but in 1923 he patented his own handheld motor. It was held in one hand while using the shaver in the other, but still.

Five years after that, Schick applied for a patent on the electric shaver.

Source: <http://gizmodo.com/5853671/how-alaskan-mining-let-to-the-invention-of-the-electric-razor>

THE (ORIGINAL) ALCHEMIST:

Nitric acid was one of the first acids known. Many alchemists of the Middle Ages used it in their experiments.

Source; <http://www.crystalinks.com/geber.html>

Mining IQ Member Fact!

December 4th is Saint Barbara's Day – patron saint of miners.

**Anna Reitman, Editor,
International Resource Journal**

COAL CHANGES THE WORLD:

The Industrial Revolution that began in Britain in the early 19th century was fuelled by coal. Then, in the 1950s and 1960s, it was eclipsed by petroleum as the world's most used fuel, but the oil shocks of the 1970s resulted in a worldwide resurgence of interest in coal as an energy source because of its relative abundance.

Source: www.australianminesatlas.gov.au/education/fact_sheets/coal.html





SALT VALUED AS HIGHLY AS GOLD:

In ancient times salt was traded ounce for ounce for gold. Salt was once made into 'coins' and 'cakes' in China and the Mediterranean for use as currency. Several cultures levied taxes on salt. Gold was first legalized as money as early as 1091 BC in China as an alternative to silk. Gold is still the only universally accepted medium of exchange.

Source: www.american-longevity.com/glacialmilk.htm

GOLD ILLEGAL IN 1933:

In 1933 President Roosevelt made it illegal to own gold.

Source: www.funtrivia.com/en/subtopics/Gold-Mining-in-the-US-121931.html



USA FIRST GOLD RUSH:

North Carolina (not California) was the site of the United States' first gold rush. In 1799, 12-year-old Conrad Reed discovered a large, glittering rock in Little Meadow Creek on his father's farm in Cabarrus County, N.C. The boy lugged the curiosity home to show his family, not realizing that he had discovered a 17-pound gold nugget. They kept the nugget until 1802 when they sold it to a jeweler for \$3.50

Source: www.funtrivia.com/en/subtopics/Gold-Mining-in-the-US-121931.html

MINING IN EGYPT OCCURRED IN THE EARLIEST DYNASTIES:

The gold mines of Nubia were among the largest and most extensive of any in Ancient Egypt, and are described by the Greek author Diodorus Siculus. He mentions that fire-setting was one method used to break down the hard rock holding the gold. One of the complexes is shown in one of earliest known maps. They crushed the ore and ground it to a fine powder before washing the powder for the gold dust.

Source: http://www.crystalinks.com/prehistoric_mining.html



ROMANS MINED THE WORLD:

It is the Romans who developed large scale mining methods, especially the use of large volumes of water brought to the minehead by numerous aqueducts. The water was used for a variety of purposes, including using it to remove overburden and rock debris, called hydraulic mining, as well as washing comminuted or crushed ores, and driving simple machinery.

Source: <http://www.miningandmetallurgy.com/gold/old-mining-equipments>

LARGEST BRONZE AGE COPPER MINE IN THE WORLD:

The Great Orme Copper Mine has been named as the largest Bronze Age copper mine in the world.

Dating back up to 4,000 years, the mines have been excavated for the last 15 years.

Source: http://news.bbc.co.uk/2/hi/uk_news/wales/south_east/3753447.stm

WORLD'S FIRST MINING ACADEMY:

In 1762, the world's first mining academy was established in Selmecebánya, Kingdom of Hungary.

Source: <http://www.mastersoftrivia.com/blog/2011/05/10-things-you-may-not-know-about-the-mining-industry/>

MINING TELECOMMUNICATIONS BREAKTHROUGH:

Underground communications with the surface was an urgent factor when considering the isolation and other problems with which the miners could be confronted. The telephone was invented in 1874, and three years later, in 1877, the first underground telephone network was installed in the Caledonia Mine, Glace Bay, Nova Scotia. The Caledonia mine phones were the first regular commercial or industrial telephones in Canada and the

oldest electrical coal mine telephones in the world.

They were designed to be held in one hand and the person would talk into the "mouthpiece" which was then held to the ear and used as a receiver, or "earpiece." Four slightly differing styles were produced during the latter half of 1877. Later, a separate transmitter and receiver replaced the inconvenient alternating of one piece between mouth and ear.

Source: http://www.minersmuseum.com/hof_equipment_2.htm



‘The Luck of the Irish’ is an old mining expression that came out of the gold and silver rush years in the late 19th century.

And this isn’t the only example of how mining has infiltrated our language, phraseology and thoughts over the years. Read this section of the *Weird and Wonderful World of Mining* to learn how you personally have been impacted by mining in ways you never knew!

MINING TERMINOLOGY

WEIRD AND WONDERFUL FACTS ABOUT MINING:



FAMOUS PHRASES:

1 'The Luck of the Irish' is an old mining expression that came out of the gold and silver rush years in the late 19th century.

Source: www.mentalfloss.com/blogs/archives/120524

2 Between a rock and a hard spot is also a famous phrase that originated in the mining industry to mean: a tough decision.

Source: <http://www.miningmuseum.org/minerslanguage.html>

Mining IQ Member Fact!

PLAYING CRIBBAGE:

The early miner used to play a card game called "Cribbage" on their breaks. As such, the word Cribbage was shortened to Crib, and the miners would then say that they were heading up for some Crib, which everyone knew as a card game and something to eat. The term "Crib" is still used in mining today and is used to describe a lunch break.

Regards, Kale Ross

Mining IQ Member Fact!

The giant Olympic Dam Uranium and Copper Mine

in South Australia was named after a small dam on a pastoral property created during the 1956 Olympics in Melbourne.

Karen Ferguson, Acting Principal Environmental Officer, Planning and Assessment Branch, Planning Division, Department of Planning, Transport and Infrastructure

MINING TERMINOLOGY

Mining IQ Member Fact!

Powder Monkey is a common term for a person who sets and fires explosives. The words Powder Monkey came from the galleon war ship where the gunpowder was stored away from general areas at the front of the boat. There was only a small hatch and so they used little blokes to crawl through the entry into the hold and retrieve the kegs of gunpowder.

Hope this helps. Cheers, Glenn Hames, Blastcon Pty Ltd

Mining IQ Member Fact!

The Cornish, I believe, brought us the legend of the 'Tommyknockers'. Experienced miners listen to the Tommyknockers, who will communicate impending danger. And one of the Tommyknockers jobs is to keep women out of the mine, which would be bad luck. Peruvian miners have the same legend, which is known as Chinchilico.

BRENT ANDERSON, Mine Manager Haile Gold Mine, Inc.

UNIQUE MINING LANGUAGE:

Fanagalo is a pidgin (simplified language) based primarily on Zulu, with English and a small Afrikaans input. It is used as a lingua franca, mainly in the gold, diamond, coal and copper mining industries in South Africa and to a lesser extent in the Democratic Republic of the Congo, Namibia, Zambia, and Zimbabwe.

Source: <http://en.wikipedia.org/wiki/Fanagalo>



MINING TERMINOLOGY

ALL THAT GLITTERS IS NOT GOLD:

This is a famous saying, meaning that not everything that which looks precious or true is absolutely true or precious. The expression, in various forms, originated in or before the 12th century and may date from Aesop. The popular form of the expression is a derivative of a line in William Shakespeare's play, The Merchant of Venice, which employs a 17th century synonym for "glitters", "glisters". The line comes from a secondary plot of the play, the puzzle of Portia's boxes (Act II - Scene VII - Prince of Morocco):



*All that glisters is not gold;
Often have you heard that told:
Many a man his life hath sold
But my outside to behold:
Gilded tombs do worms enfold.*

*Had you been as wise as bold,
Young in limbs, in judgement old
Your answer had not been inscroll'd
Fare you well, your suit is cold.*

Mining IQ thanks their partners for their ongoing support and its members for their contributed facts! We hope you enjoyed this publication as much as we enjoyed creating it! Additional facts may be contributed to: www.miningiq.com

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ABOUT MINING IQ:

Mining IQ is a mining guide and mining learning portal and an international online community focusing on providing mining professionals with mining industry knowledge, information and an online networking and communication platform. We are dedicated to creating a learning environment for sharing ideas, best practices and solutions within the mining industry.

Through Mining IQ, you will be able to access the latest mining news on the issues affecting the mining industry today, such as mine safety, mining and the environment, mining operations and production, and mining geology through mining interviews, mining articles, mining podcasts, mining videos, mining reports and mining questions and answers. We also offer face-to-face learning and networking opportunities at mining events such as mining workshops and mining conferences.

By signing up for free Mining IQ membership, you will gain access to our growing database of resources from leading mining professionals, newsletters to keep you updated on latest mining content and Mining IQ members' exclusive discounts on mining events that offer solutions to your everyday problems.

Join here: www.miningiq.com

WHAT DO OUR MEMBERS HAVE TO SAY?

"Yes it provides industry information that I do not have to go looking for, and you never know what will be valuable."

"I read it habitually"

"Good resource, I highly enjoy the perspectives from across the globe!"

"My experiences with Mining IQ have all been very positive. Thank you!"

"I find it very informative and like the fact that it is wide ranging"

"There is a great cross section of people that brings in a variety of experiences and knowledge, this adds to the flavour"

"The interface is great. It brings in all relevant data portals to one leading page. It saves having to trawl through numerous pages to find relevant information."



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THANK YOU TO OUR PARTNERS



Mining Industry Professionals group

The Mining Industry Professionals group is the LinkedIn networking group for professionals who work in the Mining Industry. LinkedIn is a business-oriented networking site. Founded in December 2002 and launched in May 2003, it is mainly used

for professional networking. As of August 2 2012, LinkedIn reports more than 175 million registered users, spanning more than 200 countries and territories worldwide.

Website: www.linkedin.com/groups?mostPopular=&gid=129918&trk=myg_ugrp_ovr



Skillings Mining Review is a premium 100-year old monthly publication focusing on the international mining industry. We provide in-depth coverage of critical mining stories to our global audience of mining owners, supply

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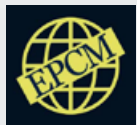
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The Clean Mining Alliance is an international non-profit trade association dedicated to raising the profile of cleaner mining initiatives and how they're

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Website: www.cleanmining.org



EPCM World is an online platform for professionals in the engineering and construction industry to connect with peers and business partners, discuss current industry news, and learn about new career opportunities. We are open to all people involved in Engineering, Construction, Project Management and Administration – including people with "boots on the ground" at site, the

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MiningMaven started life in December 2009 as an investor blog, focusing on a clutch of AIM listed exploration stocks where it saw the potential for significant value generation.

Since then, it has built up a global network of like-minded professional and private investors with a keen eye for opportunities in the Natural Resources sector.

Building on their continued success in the UK, in 2012 MiningMaven launched its presence onto the Australian market with a brand new website which includes a dedicated section for ASX listed companies. MiningMaven's global network of value investors continues to grow whilst they remain focused on identifying and showcasing carefully selected investment opportunities in the natural resource sector.

Email: info@miningmaven.com



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