

THE AUSTRALIAN GOLD RUSHES

Gold Fever

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POWERHOUSE MUSEUM



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Glossary words

When a word is printed in **bold**, click on it to find its meaning.

The Australian gold rushes

In 2001, Australia celebrated the 150th anniversary of the official discovery of gold near Bathurst in New South Wales. On 12 February 1851, Edward Hargraves found five grains of gold in mud washed from Lewis Ponds Creek.

Gold was such a valuable and desired material that for a while, the whole country was caught up in 'gold fever'. Men left their jobs, homes and families to rush to the goldfields in New South Wales and Victoria. The fever spread to Queensland, and then finally to all the colonies of Australia. Within 10 years, the population had more than doubled, as eager gold diggers from Europe, America and Asia sailed to Australia in the hope of making their fortune. Australia was never the same again.

New towns and cities grew quickly with the increase in population. More farming land was taken up to feed the diggers and their families. New industries developed to provide them with building materials, furniture, clothes and food, and equipment for the mines. But gold did not bring prosperity for all. As settlement spread, more and more Aboriginal people were forced off their traditional lands.

Gold Fever is one in a series of six books that celebrates 150 years of gold in Australia, from the excitement of its official discovery in 1851, to the large scale mines of today. Each book looks at how the discovery of those tiny grains of gold changed Australia forever.

For centuries, gold has been one of the most highly valued materials on earth. Men and women have been prepared to do almost anything to get it. This passion for gold is known as 'gold fever'.

The discovery of gold in Australia turned ordinary peoples' lives upside down. **Prospectors** could not get to the goldfields fast enough to seek their fortune. They worked from early in the morning until late in the day, hoping to find great riches. As a Bathurst newspaper reported three months after Hargraves' discovery:

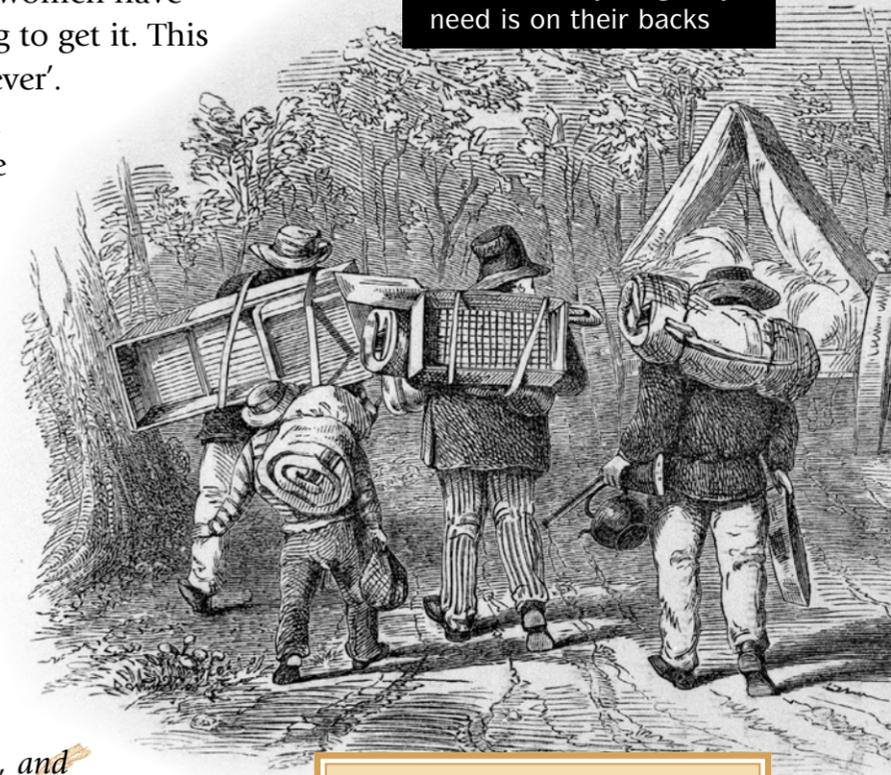
Bathurst is mad again. The delirium of golden fever has returned with increased intensity. Men meet together, stare stupidly at each other, talk incoherent nonsense, and wonder what will happen next.

The fever did not die down. Some time later, a young Irish woman wrote from the Castlemaine diggings in Victoria:

Wild the life certainly is, but full of excitement and hope; how strange it is, I almost fear to tell you that I do not wish it to end!

Most diggers knew nothing about goldmining when they arrived at the goldfields. Watching others, they soon learnt the best places to dig, how to wash away the mud and what to do with the gold they found. When things did not go well on one goldfield, they were quick to rush off to another.

Diggers in search of their fortune. Everything they need is on their backs



In this book you can:

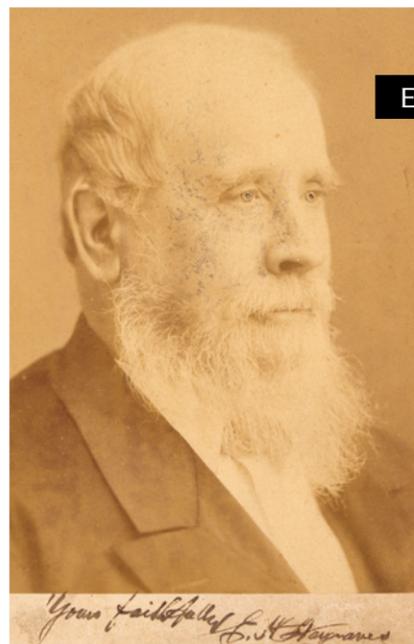
- **LEARN** about the first gold discoveries in Australia
- **SEE** how diggers found out about the gold and got to the diggings
- **FIND** out what tools and equipment were used to mine for gold
- **READ** about Australia's major gold discoveries
- **DISCOVER** why gold is such a precious material.

The first gold discoveries

In February 1851, an adventurer called Edward Hargraves found gold in Lewis Ponds Creek near Bathurst. Although best known as the first person to discover gold in Australia, in fact many others had done so before him.

Aboriginal people had seen gold in riverbeds and in rocks. However, as gold is a soft metal they had no practical use for it. Other **Europeans** had discovered gold in Australia. One was James McBrien, who wrote a government report about finding 'numerous' specks of gold in 1823. At the time, there was little understanding of how gold could be mined. No one realised that all you needed were simple tools, hard work and some luck to be successful.

Following Hargraves' discovery in 1851, people rushed to the Australian goldfields from all over the world. Fortunes were made and great stories told about how diggers could become rich simply by digging around in the dirt.



Edward Hargraves

Hargraves signed this photograph of himself and sent it to a friend 30 years after he discovered gold. By then he had spent all the money the government had given him and was very poor.



One of the first gold sovereigns made at the Sydney Mint

Golden stories

Edward Hargraves

Edward Hargraves was 34 years old when he discovered gold at Bathurst. By then he had tried all sorts of jobs as a sailor, a farmer, a hotel owner and a shipping agent. He was not successful in any of these jobs. Hargraves went to California to try to make some money and again failed. He realised that the goldfields of California looked very much like some areas of New South Wales. He came back to Australia to prove gold could be found here.

As soon as Hargraves found gold he went to Sydney. He announced his discovery and claimed a £10 000 reward for being the first person to find gold.

Hargraves never became a gold miner. He made money from writing and lecturing about the Australian goldfields.

Bathurst

As soon as Hargraves' discovery became known, the rush to the goldfields near Bathurst began. Within days, 2000 diggers were at work.

Clunes and Ballarat

Over the following months, new gold discoveries were made in Victoria, first at Clunes and then at Ballarat. By the end of 1851, half the adult male population of Victoria was searching for gold.

Mount Alexander

In July 1851, a shepherd at Mount Alexander near Ballarat broke open a lump of quartz rock and found gold. He told three friends and they resigned from their jobs. They worked quietly at finding more gold for over a month until they were discovered and the news spread.

Bendigo

Later in 1851, the very rich diggings at Bendigo Creek in Victoria were discovered by the wife of a farm worker. Taking food out to some shepherds, she saw gold in the gravel of a creek. She said nothing to them and went home. With a friend, the wife of a barrel maker, she returned and set up camp. The two successfully worked the creek bed until their finds were discovered and another rush began.

This 1855 map is from a book Edward Hargraves published in London. He described his discoveries of gold near Bathurst, told diggers where to find gold and showed all the goldfields on the east coast of Australia.

Golden stories

Rocks lined with gold

All sorts of people found gold. In July 1851, an Aboriginal shepherd found rocks lined with gold. When the gold was taken out it was valued at £4160. His boss gave him two flocks of sheep, a team of **bullocks** and a **dray** as a reward, but kept the money for himself.

What is it worth now?

The Aboriginal shepherd's gold, valued at £4160, would buy \$515 000 worth of goods today.



Edward Hargraves' map

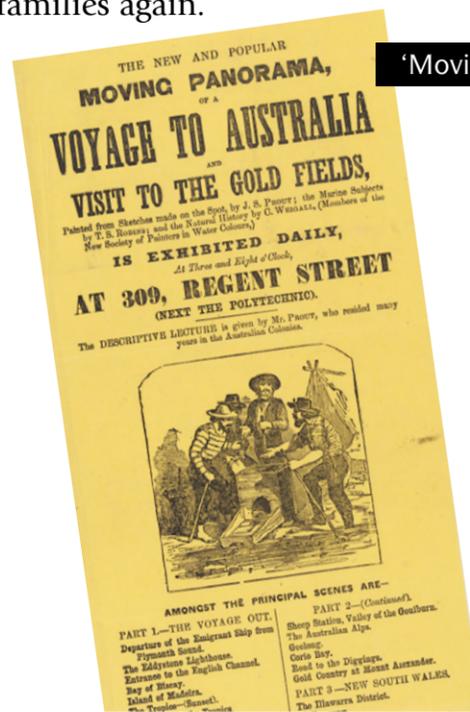
The race to Australia

News of the gold discoveries in Australia took a long time to reach the rest of the world. It took three months before the first ships arrived in Europe with details of Hargraves' finds. Although people knew very little about Australia, they were keen to be off to the diggings to make their fortune.

'The new El Dorado'

Stories of fortunes being made soon filled newspapers and magazines. Australia was named 'the new El Dorado'. People returning from the diggings could make a great deal of money talking and writing about their experiences. In 1853, the painter John Skinner Prout, who had just returned from Australia, gave an illustrated lecture twice a day in London.

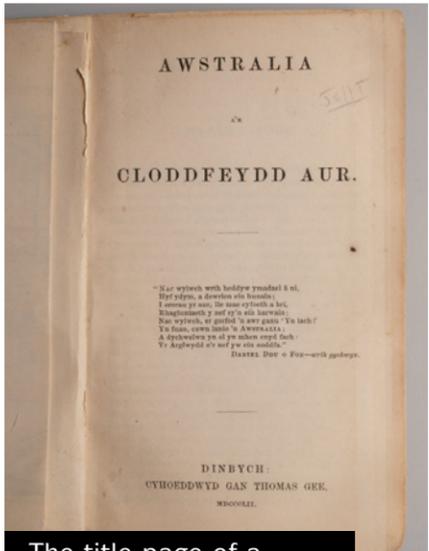
Most of the people who joined the race to the Australian goldfields from overseas were men. Some families came together to Australia, but many more stayed behind. The distance and expense of the trip meant that many diggers never saw their homes and families again.



'Moving Panorama'

This advertisement described the wonderful things visitors to London's 'Moving Panorama' could see. Scenes of the voyage out to Australia, and of the country and the goldfields were painted on an enormous length of canvas. The canvas was slowly unrolled while the different scenes were explained to the audience.

Did you know?
El Dorado was an ancient city in South America that was thought to have huge wealth. Many European explorers searched for the city but never found it.



The title page of a Welsh guidebook on the Australian goldfields

Books about the Australian goldfields were very popular. People were keen to find out what to take, how to get there and how to find gold. These books were published in many languages.

The fastest trip

Diggers were prepared to pay high prices to get to Australia as fast as possible. Ship owners competed with each other to see who could make the trip in the shortest time. In 1852, the *Marco Polo* sailed from Liverpool to Australia in the record time of 78 days.

The long days on board ship could be uncomfortable, boring and even dangerous for passengers and crew. In 1855, Nathaniel Levi, a hopeful digger on the ship *Matilda Wattenbach* wrote about a storm at sea:

Tis now ten o'clock and the wind is a frightful gale. I go out and with difficulty keep on the poop by holding to a chain. Mountains of water the waves assume, surrounding us on each side ... it is like as though every moment we should be engulfed at the bottom.

(poop – a raised deck at the back of a ship)
(engulfed – to be swallowed up by the huge seas)



Rushing to Australia

Goldfields' emigrants on the deck of a steamship bound for Melbourne. The picture is taken from a children's game about the rush to the diggings.



The farewell

With so many men leaving their families behind, pictures of families saying goodbye became very popular. A poem was attached. The author was sad to be leaving but hopeful that Australia would be a land, '...where gold lies hid and rubies gleam'.

Arrival in Australia

Many people were disappointed when they first arrived to find that the streets of Sydney and Melbourne were not paved with gold. Instead, most were muddy tracks winding between houses, tents, shops and hotels.

Tent city

So many people arrived in Melbourne in the 1850s that a huge tent city sprang up along the banks of the Yarra River. As many as 30 000 people lived there. The river soon became polluted. With no fresh water and no proper sewerage, the tent city was an unhealthy place to live.

Off to the diggings

Hopeful diggers did not want to waste time in town. They were keen to be off to make their fortune, but first they had to buy their kit. Most took just as much as they could carry, as **cartage** was very expensive. An 1852 guidebook recommended:

- strong boots
- sturdy clothes
- waterproof trousers and coat
- a roll of canvas to make a tent
- tin plates and mugs
- a cast iron pot for cooking.

Diggers were always listening for news of fresh discoveries. If the news sounded promising, they would quickly pack up and go. This magazine illustration shows diggers frantically tying boxes, water barrels, tools and equipment to their drays, keen to be the first at the new goldfield.

Packing up



Golden stories

Mrs Campbell's difficult trip

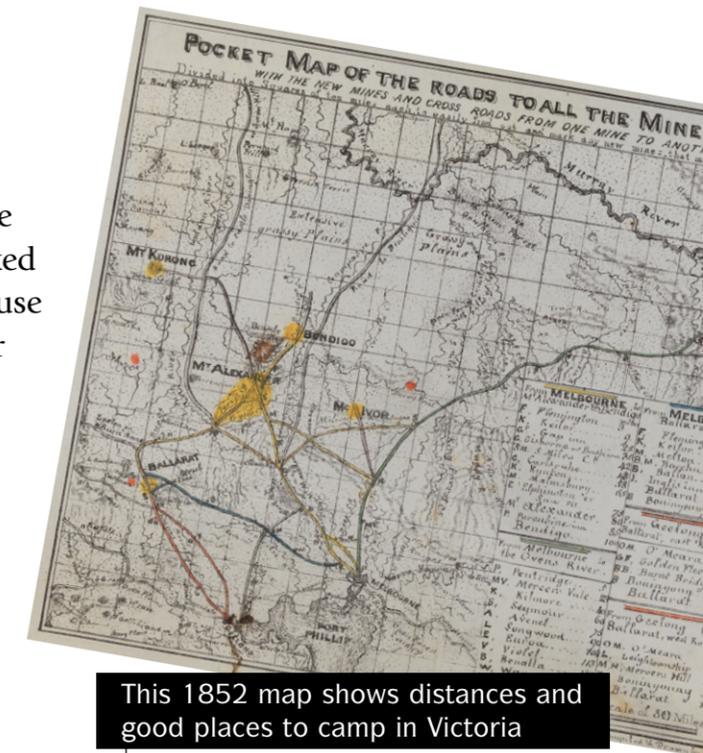
Mrs Campbell took 11 days to get from Melbourne to the Ovens goldfields where her husband was a government official. Her cart was often bogged down in mud. Crossing a river, it tipped over and she and her baby daughter were thrown into the water and almost drowned. Finally, the cart broke down completely and she had to walk the last 15 miles (27 kilometres).

A long walk

Most people could not afford the cost of a carriage or horse to take them to the goldfields. They walked instead. It could take many days to get there because roads were rough tracks and few rivers had proper bridges. In good weather, diggers could walk 16 to 20 miles (30 to 36 kilometres) a day. In bad weather, the mud and potholes made travelling much slower.

Some people never made it. If diggers lost the track, especially in Western Australia, they could run out of food and water and die before anyone realised they were missing.

When the gold rushes began, there were no proper roads to many of the new fields. People followed rough tracks through the bush.



This 1852 map shows distances and good places to camp in Victoria

Golden stories

John Aspinall travels to Coolgardie

It took a very long time to get to the goldfields of Western Australia from Perth. The New Zealander, John Aspinall, went by **steamer** from Melbourne to Perth and then by train to the end of the line. There he organised a wagon and horses to take him to Coolgardie. It took days to get there and he wrote about his battle with the heat and the flies:

Dust and sands keep blowing into all the 'tucker' and you are continually grinding it between your teeth. Another feature of the country is the presence of flies ... they fly into your mouth, promenade all over your face, buzz into your ears, and keep rushing into your eyes until you nearly go mad.

(**tucker** – an expression meaning food)
(**promenade** – to walk)

Arrival at the diggings

After many days on the road, it was exciting when diggers at last reached the places they had heard so much about. The first hint that they were getting close was the noise. All day, six days a week, there was the sounds of digging, carting, crushing and washing dirt and rock. Sunday was the only day diggers did not frantically search for gold.

A licence to dig

When new diggers arrived, the first thing they had to do was buy a miner's licence. This allowed them to dig for gold in an area no bigger than a small room. The licence cost them 30 shillings each month. Because the mining area was so small, most diggers joined together to form partnerships.



Mining camp

A mining camp at Bathurst, painted by E. Tulloch in 1855. Trees have been chopped down, the ground dug up and diggers are hard at work seeking their fortune.

Golden stories

Caroline Chisholm

In the 1840s and 1850s, Caroline Chisholm worked hard to improve the lives of young men and women arriving in Australia as emigrants. Once the gold rushes began, she was concerned that the difficult journey prevented wives and children from joining their husbands and fathers. With some government support, and using her own money, Mrs Chisholm built cheap accommodation on the road to the Castlemaine diggings in Victoria. These 'shelter sheds' were a comfortable day's walk apart and could accommodate up to 30 single men, 10 single women and married couples with children.



Gold licence

The miner's licence was really a **tax** on a digger's right to dig for gold. Many thought it unfair, as miners had to pay whether or not they were successful.

Finding gold

There are two main types of gold. Alluvial gold is the gold found as small flakes, nuggets or dust. Buried gold is found beneath the earth's surface.

Alluvial gold

This gold was once buried below the earth's surface. Over thousands of years, rivers and creeks slowly wore away rocks containing this gold until the gold washed away and settled at the bottom of them. Diggers found gold flakes and small nuggets when they washed dirt and sand from old creek and river beds.

Buried gold

Once they had taken all the alluvial gold, miners started to dig in search of gold found in deep seams. They followed **leads** down into the earth. At first, teams of three or four would dig shafts 30 metres or more deep. Later, companies were set up to extract gold from reefs deep underground using heavy equipment and machinery.

Underground mines used timber to strengthen the sides and prevent tunnel roofs collapsing. On the left of the photograph you can see huge piles of timber needed for this mine.

Sir William Don Mine in Ballarat



Did you know?

Gold is the only yellow metal found on earth. Some societies have valued gold for its colour and the fact that it does not change. Others have prized its weight because it is the heaviest metal. It is also the easiest to work. Gold can be hammered out to form fine gold leaf. It can be cast into different shapes or drawn out to make very fine wire.



Gold leaf can be used to decorate anything from picture frames to furniture, walls and ceilings

Panning for gold

The simplest way to find alluvial gold was to pan for it. To do this a digger needed:

- a pick to break up the soil and rock
- a shovel
- a panning dish to wash the soil and rock.

At first diggers used any round dish they could find to pan for gold. The best types were the wide tin dishes used in dairies to separate milk and cream. Soon tinsmiths began making special pans with a wide base and shallow rim.

Some diggers found all their gold with pans. Other diggers used pans to see if the soil and rock they were digging up had any gold. Then they would use more efficient equipment to wash the **paydirt**.



These men are using pans to search for gold



Head of a miner's pick

To find gold using a pan

- STEP 1
Dig up soil and rock from a creek or river bed.
- STEP 2
Put small quantities into a panning dish.
- STEP 3
Add water from the creek or river.
- STEP 4
Swirl the dish around, washing the mud away.
- STEP 5
Repeat this process until (hopefully) only grains of gold remain.

Cradling for gold

Another simple tool used to find gold was a cradle. This was a wooden box that looked like a baby's cradle. Like the panning dish, diggers washed the dirt and gravel with water until only the gold remained. Gold is so valuable that finding only a few flakes was enough to make up for all the hard work!



Rocking the cradle

In this illustration from a children's game, one man rocks the cradle while his partner shovels on mud.



The cradle used by the Tom brothers

Edward Hargraves was the first to introduce Californian mining methods. He showed the Tom brothers how to build this cradle, which was the first to be used in Australia. Cradles were sold in shops on the diggings and in the towns.

To find gold using a cradle

- STEP 1
Dig up some soil and rock.
- STEP 2
Tip the paydirt into buckets and pour water on top.
- STEP 3
Stir well with a spade to break up any lumps. This is called puddling.
- STEP 4
Pour this muddy mixture into the top of the cradle.
- STEP 5
Rock the cradle while someone else keeps pouring on water.
- STEP 6
When all the mud and stones are washed away, any gold will be caught in the bottom of the cradle.

Other ways of finding gold

As the rush for gold continued, diggers developed many ingenious ways of taking gold from rock. Where water was plentiful, they built long troughs called sluices. Water was poured down the sluice, which washed away the mud and left the gold behind.

Hydraulic sluicing

Another method used when plenty of water was available was hydraulic sluicing. This was a quick way to find gold. A huge hose forced water against the rock and dirt, breaking it up and washing it into the sluice below.

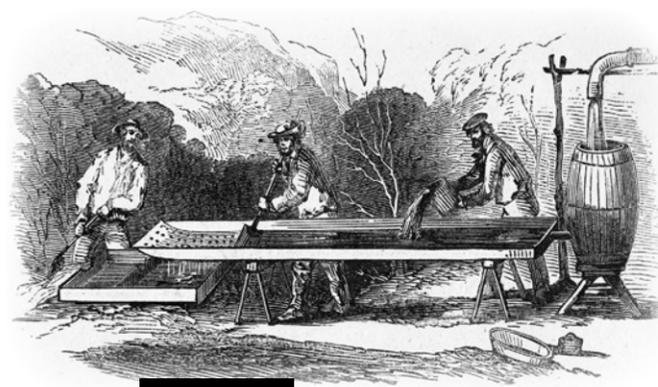
In the early years of the gold rushes on the east coast of Australia, there was plenty of water. In Western Australia, gold was found in very dry areas where there was no water for panning or using a cradle.

John Aspinall, who prospected all around the Western Australian goldfields wrote in his diary about the shortage of water:

This is the country where you can learn the true value of water and how to be economical in its use. People in well watered countries can scarcely believe, I dare say, that it is possible to wash a plate in a teaspoon of water or cold tea and make it clean too!

Dry blowing

Diggers developed ways of clearing away the dirt and gravel without water. One way was dry blowing. They attached a bellows to the cradle. Pumping it forced air over the paydirt and blew away everything except the heavier gold that remained trapped in the cradle.



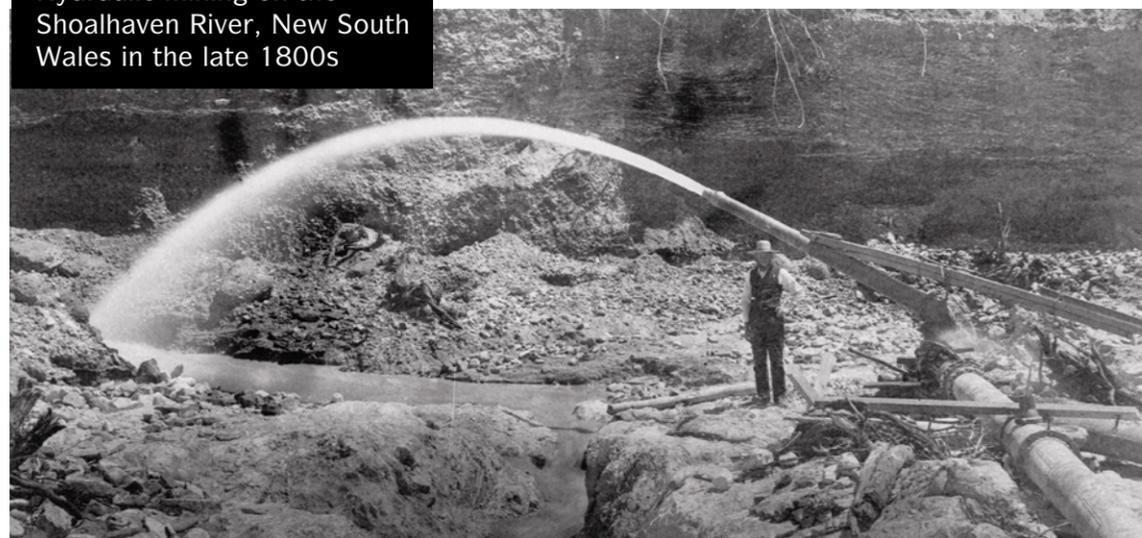
Sluicing

A popular type of sluice was the 'long tom'. This one was used at the Bendigo diggings.



A dry blower

Hydraulic mining on the Shoalhaven River, New South Wales in the late 1800s



Shafts

The thousands of diggers working on the goldfields quickly found all the alluvial gold. They then started searching for gold below ground. Digging a vertical hole called a shaft, they cut tunnels off to the side looking for gold.

It could take weeks and even months to dig these shafts. The painter and miner, Eugène von Guérard, worked day and night with his mates to dig two shafts 25 feet (six metres) deep. All they found was rock and as von Guérard wrote '...our only gain being a practice in digging!'

Digging shafts required a lot more work and skill than simply panning for gold. Trees had to be chopped down to provide timber to line the sides of the shaft. A **windlass** was built above the shaft to make it easier to lift out the stone and rubble. A roof was built over the top to keep out the rain. Even so, shafts often filled with water and many hours were spent pumping them out.

Golden stories

The dangers of shaft mining

Digging shafts was dangerous work. At Peg Leg Gully on the Victorian goldfields, four brothers were digging one when it began to collapse. The youngest brother went down the shaft to try and hold it up with timber and branches. He became stuck in the mud and his brothers were unable to get him out. Finally a rope was tied around him and everyone held it and pulled hard. Even then, he remained stuck fast. The shaft slowly filled with mud and rock, smothering the unlucky digger.



Gulgong miners

These miners were photographed at Gulgong, New South Wales in 1872. A flag flies above their shaft announcing that they have 'bottomed' and found rich gold deposits. Buckets of rock were hauled to the top by the horse on the right. The dray on the left took the rock away to be crushed and washed.

Company mining

At some diggings like Ballarat, Bendigo and Kalgoorlie, the real wealth lay underground. At one stage, Bendigo had the deepest goldmine in the world.

It was too expensive for small teams of diggers to search for gold deep underground. Instead, miners joined together to form large companies and sold shares to raise money. This paid for equipment to dig out the rock, and engines to carry it to the surface and crush the ore. Some companies made fortunes and continued paying their shareholders for many years. Others never found the deposits of gold they hoped for.

Many diggers ended up working for a wage in these company mines. This meant the end of their hopes of being independent. However by the 1860s, there was little choice. It was increasingly difficult for those working by themselves or in small teams to find gold.



Share certificate

Shares were sold in this company to raise £100 000. The money was used to pay wages and buy equipment.



Underground mining

Underground mining required more sophisticated equipment. Drills were powered by compressed air piped underground into a flexible tube attached to the drill.



Workers at Ballarat Britannia Mine photographed in the late 1800s. Young boys worked in the mine too

Three waves of gold rushes

There have been three waves of gold rushes in Australia in the 150 years since Hargraves first announced his finds.

The first gold rush 1851–1870s

The first gold rush started in New South Wales and quickly spread to Victoria. From there it fanned out to Queensland, South Australia, Tasmania and the Northern Territory.

The second gold rush 1885–1890s

The next gold rush began with the discovery of gold at Halls Creek in Western Australia in 1885. It continued through the 1890s with spectacular finds in the south east of the state. In the late 1890s, large amounts of gold were also found in Queensland at Mount Morgan.

The third gold rush 1972 to the present

The third gold rush began in 1972 with gold finds at Telfer in Western Australia. This gold rush continues today with new sites still being found.

Today men and women continue mining for gold in large company mines such as Western Australia's Mt Charlotte mine, Kalgoorlie.



Kalgoorlie miners

Did you know?

Gold has been used as a form of money for 2500 years. The use of pieces of metal of equal value to pay for goods began with the Lydians, who were Greek inhabitants of western Turkey. Their coins were made of a combination of gold and silver. The use of gold coins then spread to Europe and India. The first coins made from Australian gold were **minted** in Sydney in 1855.

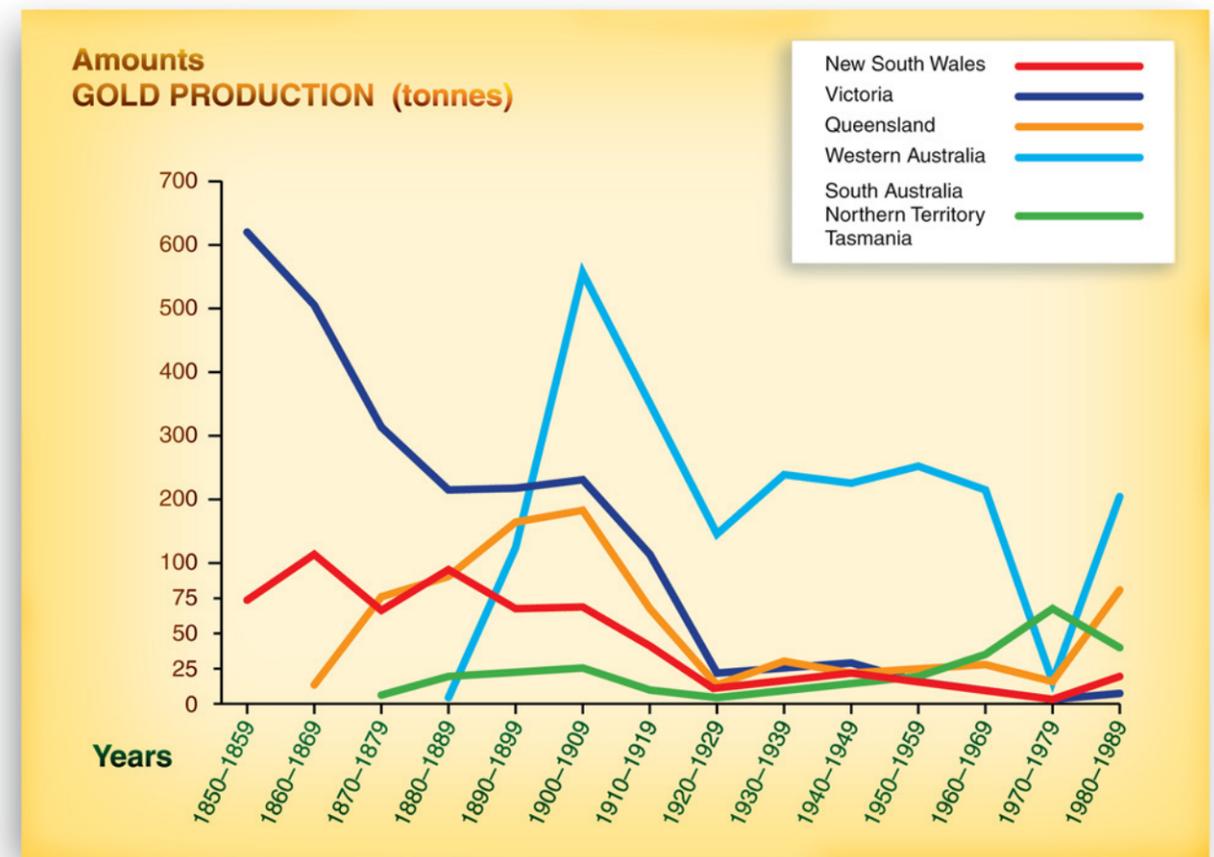
Major gold discoveries

This map of Australia shows where Australia's major gold discoveries were made between 1851 and 1900. The state and territory boundaries on this map are how they are today.



Gold production graph

This graph shows the amounts of gold found in Australia's states and territories between 1851-1989. Some states have never been major producers of gold, while others have changed substantially over time.



1851

12 February
Edward Hargraves and John Lister find five specks of gold near Bathurst, New South Wales.

14 June
New South Wales' richest goldfield is found on the Truron River.

28 June
Gold is found at Clunes in Victoria by James Edmonds.

22 July
The *Geelong Advertiser* publishes news of Edmonds' find and the Victorian gold rushes begin.

August
James Regan discovers the richest alluvial goldfield in the world at Golden Point, Ballarat, Victoria.

October
What will become Victoria's richest field is discovered at Bendigo.

1852

February
James Grant finds Tasmania's first payable gold near Fingal.

October
The first payable gold is found near Armidale, New South Wales. The first finds of gold in South Australia are made at Echunga.

Gold discoveries across Australia

Although gold has been found in each Australian state and in the Northern Territory, this does not mean that all have been equally productive.

During the first gold rush, Victoria produced two-thirds of all gold found in Australia at the time. In the first 30 years of the gold rushes, only tiny amounts of gold were found in Queensland, South Australia and Tasmania.

By the time of the second gold rush, Queensland and Western Australia were approaching Victoria's levels of gold production. New South Wales had fallen far behind.

Today, almost all of the gold produced comes from Western Australia.



Gold coins

Kangaroo coins were produced as an unofficial **currency** in Port Phillip (now Victoria) in the early years of the first gold rush.



Gold coins

Many different countries have produced gold coins. The large coin in the centre dates from the reign of King William III of Britain and was made between 1694 and 1762.

Did you know?

4000 BC

This is when gold was thought to have been first used in parts of Europe.

3000 BC

Egyptians discovered how to beat gold into gold leaf to use in decoration, and to mix it with other metals.

600 BC

King Croesus of Lydia (now Turkey) produced the first gold coins.



This is an example of one of the first coins made from gold in Lydia.

New South Wales

In 1851, within weeks of Edward Hargraves' announcement, thousands of diggers were panning along Lewis Ponds Creek and the Truron River near Bathurst. The town of Sofala, named after a gold mining town in Mozambique, soon had hotels and stores to serve the diggers. At one stage, Sofala had a population of 12 000.

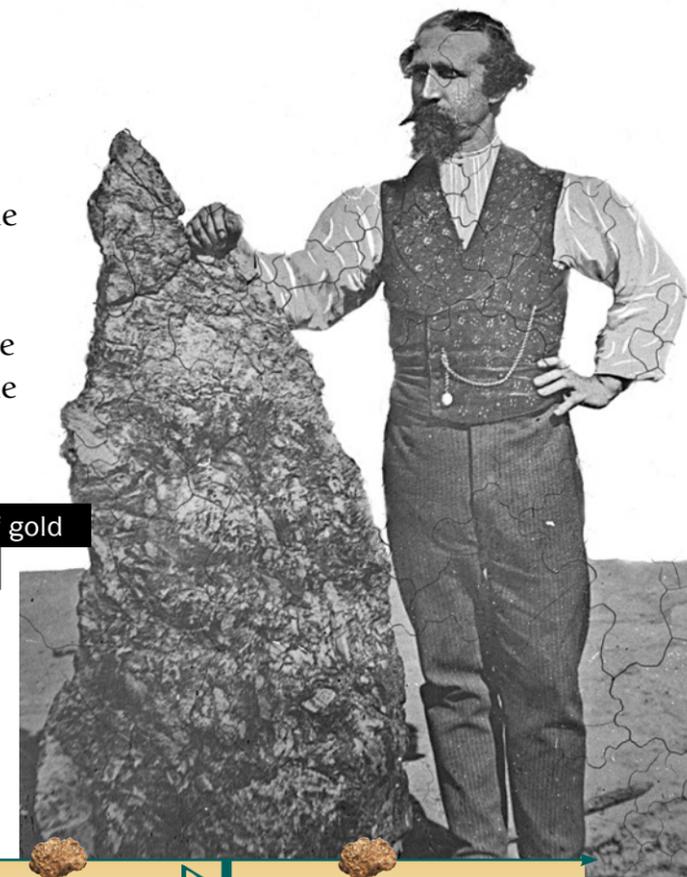
Alluvial gold was quickly worked out. The real success of goldfields' towns such as Hill End and Tambaroora came from deep reef mining. Although men had to sink shafts as far as 900 feet (275 metres) they were often richly rewarded. It was at Hill End that Bernard Holtermann and Ludwig Beyers found their remarkable **chute** of gold.

New South Wales may not have produced as much gold as Victoria or Western Australia, but it did pioneer goldmining techniques. New South Wales was also the first to use steam power. The first **stamper battery** in Australia was erected at the Old Company Mine, just north of Tambaroora.

New South Wales had the coldest goldfield at Kiandra in the Snowy Mountains. It also had some of the hottest, at Mount Boppy and Mount Browne in the west of the state.

At Hill End in 1872, a huge chute of gold was dug out of the ground from the Star of Hope Mine. Weighing 630 pounds (286 kilograms) it contained 3000 ounces of gold. Bernard Holtermann was one of the owners of the mine and had this photograph taken standing next to it.

Chute of gold



Golden stories

Ned Peters

Ned Peters filled his diary with poems about his life as a digger. He wrote about the hard work and his unhappiness about not finding gold. A pennyweight was a tiny amount of gold.

*We've tom'd and sluic'd and work'd away
From early morn till setting sun.
Just each a pennyweight as pay
For all the labour we had done.*

1858

June

The 'Welcome' Nugget is discovered at Bakery Hill, Ballarat, Victoria.

July

Gold is discovered at Canoona and the Fitzroy River in northern Queensland. 15 000 diggers rush to the site.

September

News of gold discoveries at Port Curtis in Queensland leads to a rush.

1860

August

Gold is discovered at Lambing Flat (now Young) in New South Wales.

1861

30 000 diggers rush to prospect at Forbes in New South Wales.

1862

December

Edward Stringer finds alluvial gold in the Gippsland Mountains, Victoria. The Long Tunnel mine becomes the richest in Victoria.

1866

June
Gold is discovered at Crocodile Creek in Queensland.

1867

8 January

The Queensland Government offers a reward of £3000 to anyone finding gold to support 3000 people.

Victoria

In the 1800s, Victoria dominated gold production in Australia and, for a time, the world. The first major discoveries were of alluvial gold near Bendigo and Clunes in 1851. Over the next 10 years, new fields were being discovered constantly. As many as 40 000 men would rush to a new field then leave again when they heard of something better.

Ballarat

Peter Hiscock was the first to find gold at Ballarat on 8 August 1851, but the field was soon abandoned. A second rush took place in 1852 and this time the diggers stayed. By the following year, there were 20 000 digging, puddling and cradling for gold. Once alluvial gold had been exhausted, diggers turned to underground mines. By 1864 there were 64 000 diggers working 300 mines.

Bendigo

Bendigo was even more productive. Unlike Ballarat, its wealth lay deep underground in rich quartz mines. At one time Bendigo was described as having 'a mine in every backyard'. For many years, the Victoria Quartz Mine was the deepest goldmine in the world.

Other goldmining areas

In western Victoria, Mount Alexander (later Castlemaine), Clunes, Chewton, Maldon, and Maryborough were all important goldmining centres. In the north, Beechworth had a population of 22 500 by 1857 and, over the next 14 years, produced 85 000 kilograms of gold.



A model of the 'Welcome' Nugget

This is one of the largest nuggets ever found in Australia. It was discovered at Bakery Hill in Ballarat in 1858 and weighed 78 381 grams.

What is it worth now?

The 'Welcome' Nugget was sold for almost £9000. At today's gold prices, it would be worth \$895 668.



Ballarat, Victoria

Ballarat's main street, photographed in about 1900.

Queensland

In 1858, there was a short-lived rush to Port Curtis in Queensland. Eager prospectors including about 8000 diggers came from Victoria hoping to make their fortune. But the first finds of gold were exaggerated and it was impossible to make a living. Many diggers could not afford to leave and the Victorian Government had to donate £15 000 to help them come home.

Gympie

In 1867, James Nash discovered gold at a place that was later called Gympie. Within months, 25 000 people were prospecting in the area. Deep mining began in 1880 and continued until about 1925. In the 1870s, gold was discovered further north, first at Ravenswood and, in 1872, at Charters Towers.

Palmer River

Diggers showed that little would deter them from seeking their fortune when they flocked to the Palmer River goldfield. The goldfield was extremely remote and uncomfortable. It was hot and humid with poisonous snakes and ferocious insects. By 1877, there were 17 000 miners on the Palmer River site, including 7000 Chinese.

Mount Morgan

The greatest wealth from Queensland gold came from Mount Morgan, near Rockhampton. Gold was found in the 1860s, but not mined. In the 1890s, Mount Morgan was the richest goldmine in the world.



A postcard from Mount Morgan



A typical sample of gold-bearing quartz from Gympie

1867

October
John Nash discovers gold at Gympie, Queensland.

1868

October
First gold found in the Barossa in South Australia. Gold is discovered at Townsville and Ravenswood, Queensland.

1869

The 'Welcome Stranger', the largest nugget ever found in Australia, is found in Victoria.

1870

14 April
First payable gold found at Gulgong in New South Wales.

1871

Payable gold discovered at Pine Creek in the Northern Territory.

1872

November
William Hann discovers gold in the Palmer River in far north Queensland. Cooktown becomes the port for these fields.

1876

February
Australia's most northerly goldfield is discovered at Coen on the Cape York Peninsula.

1878

Tasmania's most important alluvial field is found at Lisle by the Bessell brothers.

Northern Territory

Pine Creek

Men building the Overland Telegraph line connecting Alice Springs to Darwin found the Northern Territory's first gold in 1871 at a place called Pine Creek. A small rush began and, once again, diggers demonstrated they would put up with almost anything to find gold. At the time, Chinese men were working on the Overland Telegraph and they joined the rush. By 1900, there were 20 Chinese for every European miner.

Other small rushes

Gold was also found in 1887 at Arltunga, but the rush was short. The government geologist who visited three years later found only 25 men working there. In 1900, even more remote deposits were found at Tanami, 600 kilometres north west of Alice Springs. Although government assistance was provided to encourage prospecting, only 200 diggers were at work there by 1910.

Tennant Creek

The most successful goldfields in the Territory were at Tennant Creek. Traces of gold were found there in 1895. It was not until 1932 that substantial numbers of miners arrived. Within three years, several hundred prospectors were at work. Gold is still mined at Tennant Creek today.



Miners working at the Teetulpa goldfield



The Victory Company ran gold mining operations in Queensland, South Australia, Western Australia and Victoria. This one was photographed in the 1890s

South Australia

In December 1851, the South Australian Government offered a reward of £1000 for the first find of payable gold in the colony. In less than a year it was claimed by a Mr Chapman, for his discoveries at Echunga. Ten thousand people rushed to the site, but the gold was soon mined out.

Teetulpa

In the 1860s there was another small rush to Spikes Gully in the Barossa Valley. However, it was not until 1886 that the real excitement began. Thomas Brady and Thomas Smith found gold at Teetulpa, 360 kilometres north east of Adelaide. Nearly 5000 people went there to seek their fortune. Despite the lack of water, they found about £300 000 worth of gold.

Tasmania

The first payable gold in Tasmania was found in 1852 on the east coast near Fingal. About 500 diggers prospected there and Tasmania's first quartz crusher was set up in 1859. More productive goldfields were discovered in the 1870s, but these attracted few people.

Deep shafts

Few fortunes in Tasmania were made from panning alluvial gold. Most mining was by deep shafts. The most famous mine was at Beaconsfield on the Tamar estuary. The Tasmania Gold Mine had produced £772 671 worth of gold by 1905. The mine closed in 1914.

In the 1870s and 1880s, smaller mines were developed at Lefroy, Mathinna and Mount Lyell.

1880

September
10 000 diggers go to Temora in New South Wales after winter rains expose alluvial gold deposits.

1881

13 July
Tom and Edwin Morgan discover gold while prospecting outside Rockhampton. This site becomes Queensland's richest goldmine.

First important finds of gold in Western Australia in the Kimberleys.

1885

August
Charles Hall and Jack Slattery discover gold in the Kimberleys, Western Australia at what is now Halls Creek.

1887

January
Rich alluvial gold is discovered at Forest Range in South Australia.

December
Charles Glass finds gold at Yilgarn in Western Australia. First discoveries in the Pilbara region and at Arltunga in the Northern Territory.

1888

Gold is discovered at Southern Cross in Western Australia.

1890

13 July
J.F. Connelly discovers gold in the Murchison district, north of Geraldton in Western Australia.

Western Australia

Even though Western Australia was the last state to join the gold rush, it has proved to be the most profitable. In 1886, Charles Hall and a party of prospectors found gold on the Margaret and Ord Rivers in the Kimberley region. Within 12 months, up to 2000 men were working the field, despite the remote location.

Coolgardie

Other rushes followed to the Yilgarn Hills, Golden Valley and Southern Cross. A nugget was found at Mujakine in 1887 and the next year gold was found in the Pilbara region. Further discoveries were made and in 1892, Arthur Bayley and William Flat found gold near the Coolgardie water hole. Within six years, Coolgardie was known throughout the world. It became a town with a population of 15 000 people and 23 hotels, seven newspapers and two stock exchanges.

Kalgoorlie

In 1893, Paddy Hannan, Tom Flanagan and Dan Shea found gold 40 kilometres east of Coolgardie at what is now called Kalgoorlie. While Coolgardie goldmines were in decline by 1902, Kalgoorlie had produced over a million ounces of gold by 1903. Since then, the site has seen mines succeed and fail with the effects of the changing price of gold and improvements in technology. Despite this, Kalgoorlie has retained its title of the most productive goldfield in Australia.

Golden stories

The Normandy Nugget

In 1995, a prospector found the 'Normandy Nugget' near Kalgoorlie in Western Australia. Weighing 25.5 kilograms, it is the 23rd largest nugget ever found in the world. Since most nuggets are melted down for their gold content, it is also the second largest gold nugget in existence. The nugget belongs to Normandy Mining Limited. Normandy Mining is Australia's leading gold producer and the seventh largest in the world.



The 'Normandy Nugget'

Goldmining today

Today, two thirds of Australia's goldmines are in Western Australia. Most are open cut mines, which means that mining takes place above ground. Underground mining is used only where the gold deposits are too deep for open cut mining to be profitable.

Once the ore is dug out, it is crushed and the gold taken out. It is then **smelted** and refined to produce gold **bullion**.

Today, Australia is a leading gold producer in the world:

- It has 10 per cent of the world's gold deposits
- It is the third largest producer after South Africa and the United States
- It has 15 000 people employed in the industry
- Gold is Australia's largest manufactured export worth \$7 billion dollars a year.



A worker pours molten gold to make gold bars at a modern Australian gold processing plant

The open cut gold mine at Kalgoorlie, WA is called the Super Pit and is the biggest open pit gold mine in Australia



1892

17 September
Arthur Bayley and William Ford register their claim to goldfields in Coolgardie, Western Australia.

1893

14 June
Patrick Hannan, Tom Flanagan and Dan Shea discover gold at Kalgoorlie.

1896

September
Gold is discovered near Cobar in New South Wales at the Mount Boppy mine.

1900

A. Davidson finds gold at Tanami in the Northern Territory.

Uses of gold

Gold is most commonly seen when it is used to make jewellery. However, the special qualities of gold make it suitable for many other uses. It can be easily melted, bent and beaten, and it is also strong. It is an excellent **conductor** of heat and electricity. It is also very stable and does not **corrode** or tarnish.

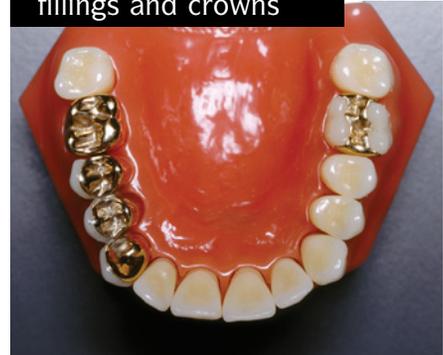
Medical uses

The special qualities of gold make it useful in modern medicine. People who suffer from the painful disease of rheumatoid arthritis find that gold injections help. Gold is used to line the inside of medical lasers. A new type of thermometer has been developed using gold. It is particularly fast and accurate. Gold needles are filled with a **radioactive gas** and inserted into the body to successfully treat cancers. Gold is used in dentistry to make fillings and crowns for our teeth.

Other uses

Many computer chips are made using gold because it is such a good conductor of **electrons**. For the same reason gold is found in the mouthpieces of telephones, in computerised wheelchairs, televisions, video recorders and satellites. The windscreens on Boeing 757 aeroplanes contain gold. It helps the glass to heat quickly and removes condensation. Plastic material sprayed with gold covered the base of the Apollo 15 lunar module, providing protection from the heat of the sun.

Gold is used to make fillings and crowns



Did you know?

Pharaohs, kings, queens and emperors have all worn gold crowns and jewellery to show how rich and powerful they are. Henry VIII ate off gold plates and drank out of gold goblets. Ivan the Terrible of Russia was said to have a cloak made of beaten gold.



Apollo 15 astronaut saluting the American flag on the Moon's surface

Glossary

<i>bellows</i>	an instrument or machine for producing a strong current of air
<i>bullion</i>	a quantity of gold moulded into ingots or bars
<i>bullocks</i>	male oxen harnessed together and used to pull heavy loads
<i>cartage</i>	the cost of carrying goods from one place to another
<i>chute</i>	a long narrow rock formation where gold was found mixed through the ore
<i>colonies</i>	the six British settlements of New South Wales, Victoria, Tasmania, Queensland, South Australia (including the Northern Territory) and Western Australia
<i>conductor</i>	a substance that allows things like heat or electricity to pass through it
<i>corrode</i>	to wear away
<i>currency</i>	the money used to buy and sell goods and services
<i>dray</i>	a low cart with no sides that has been built to carry heavy loads
<i>electrons</i>	minute particles that make up atoms
<i>emigrants</i>	people who leave one country to settle in another
<i>Europeans</i>	settlers from Europe. This term is often used to distinguish between Aboriginal and non-Aboriginal (or European) Australians
<i>leads</i>	gold-bearing deposits of rock
<i>minted</i>	to make money. The place where money is produced is also called a mint
<i>ore</i>	rock containing useful metals such as gold
<i>paydirt</i>	soil, gravel and rock with sufficient gold to make digging it out worthwhile
<i>£ (pounds)</i>	currency introduced to Australia from Britain and used until 1966 when pounds, shillings and pence were replaced with dollars and cents
<i>prospectors</i>	people who search for precious minerals like gold
<i>radioactive gas</i>	emits rays that destroy harmful cancer cells in the body
<i>reefs</i>	veins of rock
<i>seams</i>	deposits of gold
<i>smelted</i>	melting the ore to separate the gold from other materials
<i>stamper battery</i>	a powerful machine that crushes rock
<i>steamer</i>	a ship powered by steam. The steam is produced from burning coal
<i>tax</i>	money demanded by the government to pay for services such as education and hospitals
<i>windlass</i>	used in mining to haul rock to the surface

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