

3.1

SILVER SUPERNOVA

0:02–1:41 Cryptic images mark the world's most famous currency. But the dollar has other mysteries...Hidden links that connect countries on four continents, their dollars, and a symbol that signifies wealth around the world. It's a secret born billions of years ago and revealed...by Big History.

GOLD GETS ALL
THE GLORY

We think of history as a timeline, a series of events stretching a few thousand years into the past. It's time to think bigger. Instead of a line, imagine a web of infinite connections, interacting over billions of years, linked together to create everything we've ever known — our Universe, our planet, and us. History as we know it is about to get big.

Gold gets all the glory. It's the metal of the gods. And as traditional history tells us, it's a prize that millions have rushed to claim. But while we go for the gold, first isn't always best. Big History reveals the power of our second place metal.

Silver is shinier, harder, and stronger than gold. And silver has an unusual property: it kills germs.

When American families were crossing the wilderness, they often invested in one good silver coin, which they would plop into their milk jug. And that actually prevented the milk from spoiling on their journey through the wilderness.

Silver can do so much. But gold has always been more valuable...because it's so much harder to find. There's over ten times more silver on Earth than gold. Why is there more silver than gold? Big History looks to the stars.

This star, several times more massive than our Sun, is an element factory. Inside the star, gravity and heat crush and restructure atoms, forming elements including metals like aluminum and iron... that will spread out into the cosmos. When the star collapses and explodes as a supernova...the supernova's energy transforms more atoms.

In this process, all of these other elements are cooked up, if you like, including silver.

1:41–3:01

SILVER CAN
DO SO MUCH

3:01–5:06

THE HOTSPOTS

But supernovas don't make gold. These do — the ruins of two supernovas, each ½ million times more dense than the Earth. They're called neutron stars, and when they collide, they release more energy than our sun releases in its lifetime, creating elements heavier than silver, including gold. But these collisions are rare. There are far more supernovas...which is why there's more silver than gold in the universe and on Earth. Intense heat helps create silver in the cosmos...and steers silver and other metals around the earth. Underground volcanoes spread them through the crust, along a highway of superheated lava.

5:06–7:07

THE SILVER BULLET

That melting process, amongst other things, tends to concentrate different minerals together. Veins of silver appear, and of course, then it plays a huge role in human societies.

So deposits of metals like silver appear in places where there's been high volcanic activity — from the Pacific Ring of Fire...to the Mediterranean. Big History connects the chemistry of the cosmos to geology and the precious metal that will unite the world.

We are now in ancient Greece on the eve of an epic invasion. Persia is on the march. It's the mightiest ancient empire with the largest army and navy the world has ever seen. The Greeks will be no match for an invasion force of over 1,200 ships without a secret weapon. Three years earlier, as the Persians prepare for war, the Greeks discover a buried treasure. History's second-ranked metal is about to make a power play. The world's first coins are

made of gold. But gold is so rare, the supply can't keep up with demand. Silver is the solution.

Gold is a strategic resource, but silver's more common than gold, so you can have it in circulation more.

Silver becomes the currency of choice in the Mediterranean. And that's good news for the Greeks.

They were mining for silver, which is a valuable currency, and they hit a particularly rich vein of it.

Greece sits on a hot spot of volcanic activity. The mines of Laurium near Athens contain more silver than anywhere else in the ancient world. The Greeks mint it into coins...to pay men...to build warships...to face the Persians and win. Victory means that Greek ideas survive.

So basically, you know, western democracy was saved by a silver mine.

These loads of silver allowed classical Greek civilization to pass many of the great ideas and philosophies on to the Roman world and eventually on to Europe. So silver effectively allowed Greek civilization to become embedded at the heart of western civilization, even today. And this is the sort of perspective that Big History can bring.

7:07–8:14

TITLE

8:14–9:12

SILVER SAVES DEMOCRACY

Silver is the unsung hero that saves democracy... the second place metal with first-class impact that decodes a powerful secret hidden in the most famous money in the world.

9:12–11:41

THE DOLLAR

Big History uses science to change the way we see the world. It reveals that silver's second place rank among metals...links to the birth of the elements in exploding stars...supernovas that create so much silver, we consider it less valuable than gold but more useful for everyday money.

A cosmic connection that's encoded in the U.S. Dollar. Traditional history speculates about these mysterious symbols — the strange pyramid with the all-seeing eye — but Big History links to geology to reveal the origins of the dollar. A Central European valley in what is now the Czech Republic. Here, prehistoric volcanoes have left behind some of the richest silver stashes on earth. In the 16th century, silver coins minted here stimulate trade. They spread all over Europe. The coins are called "thalers" because they come from a silver-rich valley, and the German word for valley is "thal." Soon the word is used for any silver coin. And in English, "thaler" becomes "dollar." The dollar becomes the official currency of the U.S. In 1785, but at the time, there is no U.S. Mint. America can't make its own coins, so the first American dollars are actually Spanish pesos.

These coins are almost 100% pure silver, and so they become like standard units of value.

11:41–13:20

THE PESO

The peso is a temporary fix that leaves a permanent mark. This image of columns draped by royal banners is believed to be the origin of the dollar sign, a symbol used by countries around the world. So how does a simple Spanish coin get so much power? Big History connects the spread of money to another silver hot spot...the Andes Mountains, along the ring of fire.

In the 16th century, Spanish conquistadors arrive in the new world with one thing on their mind: gold. But as we've seen, the stars have given us far less gold and far more silver... Concentrated in places where volcanoes have moved metals, like the Andes Mountains.

The Spaniards stumbled across a mountain that is as close to a mountain of pure silver as geology allows.

This is Potosi, a 13,000-foot-high treasure chest, but the earth has this treasure on lock-down because the same heat that brought the silver here bonds its atoms with other, less valuable metals like lead.

The geology component of Big History shows us that this unique chemical bonding takes place between silver and lead, and it's quite difficult to separate, much more difficult than just mining and using gold, for example.

13:20–14:15

THE LOCKBOX

The key to unlocking the silver is another element that can draw its atoms away from the lead. Big History zooms in.

14:15–15:20

A MOUNTAIN'S WORTH OF SILVER

Mercury atoms and silver atoms are attracted to each other, and they will kind of glom on to each other. Mercury is also a liquid, so it's good at getting in nooks and crevices inside minerals and kind of scouring for every last silver atom. And you can separate out and get the silver out through another process.

But releasing a mountain's worth of silver will take twice as much mercury. And Big History reveals the key. Because the same volcanoes that create Potosi also build a mountain of mercury less than 800 miles away.

And from, as they said, "the marriage of these two mountains," came this absolute river of silver.

15:20–17:24

RIVER OF SILVER

The Spanish come to the new world for gold but find almost 90 times more silver. In just 150 years, they export 16,000 tons, worth \$7 billion today. A river of silver that connects the world like never before, linking the silver-rich west with the silver-hungry east and feeding a growing demand in one of the most powerful empires on earth: China.

The silver was coming across in huge treasure galleons across the Pacific to Manila, in the Philippines. From there, it was being brought to the great port cities of southern China, where the Chinese were demanding silver as payment for highly valuable Chinese exports.

China has long been isolated from the west, but the river of silver...begins to shift the balance of power in the world.

In that moment is the beginning of globalization. Most people my age kind of think of globalization as something that's been around for the last 15 or 20 years, but in fact, we've been living in a fairly globalized world for 400 years or more. And Big History perspective helps you understand that.

But as so much silver falls into the hands of one empire, this treasure...becomes a ticking time bomb.

17:24–19:20

OPIUM WAR

Big History is a new way to see the world, revealing how volcanic activity builds mountains of silver that turn the second place metal... Into the first metal to unite the world. But what happens when the silver runs out? Big History connects back...to 1839. The mountain of silver called Potosi, once the world's treasure chest, has shrunk 1,000 feet after almost 300 years of nonstop mining. The river of silver is drying up... And a shortage turns into a crisis. Traditional history calls it the Opium War. But Big History reveals it's silver that sparks the fight. The British Empire spans the globe, its far-flung colonies linked through trade. China trades with Britain, but while it sells items like tea, it buys almost nothing. China only wants one thing from the west...payment in silver. So when the global shortage causes Britain's silver to run low, the British must find something else to trade for tea.

19:20–20:03

OPIUM ADDICTION

The English government came up with this unique idea of replacing silver with opium and began to force Chinese exporters to take large chests of opium instead of silver.

4 Million Chinese are already addicted to British opium. China's government doesn't want more people getting hooked.

Eventually the Chinese reacted, tried to destroy the opium chests. The British respond with force. Their superior weapons overwhelm the Chinese, and China, weakened, can no longer resist.

For much of the past 5,000 years, China has been undoubtedly the wealthiest, most powerful state on this planet. The balance of power has now utterly shifted, and this is staggering news to the Chinese at the time, who were really not prepared for this.

The British and other western powers flood into Asia. They claim colonies and riches. The Big History perspective reveals how a brutal war over silver...and the century of upheaval that follows has an important legacy. It tears down the divide between east and west...and leads to a globalized future. While the historic quest for gold first draws us across oceans, Big History reveals how silver... our second place metal, gets a chance to shine... As atoms changed in supernovas...change our world. But the story of silver is just the beginning. There's a much bigger puzzle hidden in Big History. Each episode unlocks a clue. Everyday things like salt, gold, and horses hold the key. Watch them all, and you'll see this grand mystery revealed. The Big History of time, of space. The Big History of us.

20:03–21:48

BALANCE OF
POWER SHIFTING