Guns, Germs, and Steel - Transcript

Episode 1: Out of Eden

Drama reconstruction - Procession on mountainside/battle

Voiceover: Modern history has been shaped by conquest – the conquest of the world by Europeans. The Conquistadors led the way. A few hundred men came to the New World and decimated the native population. The secret of their success? Guns, Germs and Steel. Ever since, people of European origin have dominated the globe, with the same combination of military power, lethal microbes and advanced technology. But how did they develop these advantages in the first place? Why did the world ever become so unequal? These are questions that Professor Jared Diamond has spent more than 30 years trying to answer. One of the most original thinkers of our age, Diamond has traveled the world looking for clues. He set himself a daunting task – to peel back the layers of the past, and explore the very roots of power in the modern world.

Jared at Blacksmiths

Jared Diamond: Whatever I work on for the rest of my life, I can never work on questions as fascinating as the questions of guns, germs and steel, because they're the biggest questions of human history.

Voiceover: What separates the haves from the have nots? How have guns, germs and steel shaped the history of the world?

Titles: Episode 1: Out of Eden

Jared in boat on river, photographing birds

Voiceover: Jared Diamond's quest to uncover the roots of inequality began in the rainforests of Papua New Guinea.

Jared in rain forest with Papua New Guineans

Voiceover: Diamond is a professor at UCLA in Los Angeles. He's a biologist by training, a specialist in human physiology. But his real passion has always been the study of birds.

Jared Diamond: I love watching birds in this place. I began watching birds when I was seven years old in the United States. Then it was just a matter of identifying them. I came here when I was 26 years old, to New Guinea, and it was love at first sight.

Voiceover: Diamond has been making regular trips to New Guinea ever since..and is now a leading expert on the bird life of the island. But in the course of his fieldwork he's become just as curious about the people of New Guinea.

Jared Diamond: Over the years I've gotten to know and like thousands of New Guineans. I've

learned several of the languages, and much of what I know about birds I picked up from them.
Voiceover: There have been people living in New Guinea for at least 40,000 years – much longer than on the continents of North and South America. They're among the most culturally diverse and adaptable people in the world. So why are they so much poorer than modern Americans? The question was put to Diamond bluntly by a man called Yali, whom he met on a beach more than 30 years ago.

Yali Voiceover: Why you white man have so much cargo and we New Guineans have so little?

Jared Diamond: Yali's question really threw me. It seemed so simple and obvious, and I thought it must have a simple and obvious answer, but when he asked me, I had no idea what that answer was.

Yali Voiceover: Why you white men have so much cargo and we New Guineans have so little?

Archive: B&W footage plane landing in New Guinea, New Guineans, white man with New Guineans

Archive: B&W still – New Guineans with Western objects

Archive: B&W footage New Guineans carrying goods and white men/with plane/walking

Voiceover: New Guineans use the word cargo to describe the material goods first brought to their country by Westerners. Cargo was regarded by many as evidence of the white man's power. It was treated with an almost religious reverence. For their part, Western colonials typically believed that power was determined by race. They saw themselves as genetically superior to the native population. To them, it was only natural that they should have so much cargo and New Guineans so little.

Jared Diamond: To me, any explanation based on race is absurd. I know too many really smart New Guineans to believe there's anything genetically inferior about them. It's their ingenuity and their quickness to learn that have always impressed me. They can go empty-handed into some of the most difficult environments on earth, knock up a shelter in a few hours and survive. I wouldn't know where to start. In this environment I'd be helpless without them. So why didn't these ingenious people invent metal tools, or build great cities, or develop any of the other trappings of modern civilization?

High-speed shots New York City street scenes

Jared Diamond: The world that I'm from is so different. The modern U.S. is the richest, most powerful state on earth. It's crammed with more cargo than most New Guineans could ever imagine. But why? That's what Yali wanted to know. How did our worlds ever come so different?

Ancient Egyptian structures

Voiceover: Diamond realized that Yali's question was far bigger and more complex than it first appeared. It was really about the roots of inequality - a question as old as human history itself.

Greek and Roman ruins, Mayan sculpture

Jared Diamond: Why, since ancient times, have some societies progressed faster than others? What allowed the Egyptians to build great pyramids while most of the world was still scratching out a living? How did the Greeks ever develop such an advanced civilization? Or the Romans? Or the Maya?

Jared Diamond: All great civilizations have had some things in common – advanced technology, large populations, and well-organized workforce. If I could understand how those things came into existence, then I'd understand why some people marched faster than others during the course of history.

Globes in darkened room, pan across to Jared reading

Voiceover: Diamond set out to explore the division of the world into haves and have nots. It was a massive challenge that few scholars would have dared take on. He was a scientist, not a historian. How could he possibly solve the great puzzles of human history?

Graphic showing earth from space

Voiceover: To understand where inequality came from, Diamond needed to identify a time before inequality, when people across the world were living more or less the same way. He had to turn back the clock thousands of years, back before the first civilizations. Back into prehistory. 13,000 years ago, the ravages of the last Ice Age were over. The world was becoming warmer and wetter. One area where humans were thriving was the Middle East.13,000 years ago, the Middle East was far less arid than today, with more forests, trees and plants. People here lived like people everywhere at this time – as hunter/gatherers in small, mobile groups. They were frequently on the move, making shelters wherever they could find animals to hunt or plants to gather. They'd live in these shelters for weeks or months at a time, as long as they could keep feeding themselves. But as seasons changed and animals migrated, they'd move on, to the next valley or ridge, looking for new sources of food.

New Guineans and Jared hunting in rainforest

Voiceover: One of the few places on earth where it's still possible to find people hunting and gathering is the rainforest of Papua New Guinea.

Jared Diamond: Instead of just reading about this lifestyle in archaeological books, I've been lucky enough to witness it first hand, to see for myself how we all lived 13,000 years ago, and how we found food. To catch an animal requires skill, stealth, and encyclopedic knowledge about hundreds of animal species. You have to be pretty smart to be a hunter.

Early Middle Eastern people hunting deer

Voiceover: 13,000 years ago, people in the Middle East hunted in the same way, tracking down whatever game they could find. But the fundamental problem with hunting is that it's never been a productive way to find enough food. It takes time to track each animal. And with a bow and arrow, there's no certainty of how the hunt will end.

Jared learning to fire arrows with New Guineans

Voiceover: Because hunting is so unpredictable, traditional societies have usually relied more

on gathering. In this part of Papua New Guinea, the gathering is done by women. An important source of food here is wild sago. By stripping a sago tree they can get to the pulp at the centre, which can be turned into dough and then cooked. Although it's physically harder work, gathering is generally a more productive way of finding food than hunting. But it still doesn't provide enough calories to support a large population.

Jared Diamond: This jungle around us, you might think it's a cornucopia, but it isn't. Most of these trees in the jungle don't yield, don't give us anything edible. There were just a few sago trees, and the rest of these trees don't yield anything that we could eat.
And then sago itself has got limitations – one tree yields only maybe about 70 pounds of sago. It takes them three or four days to process that tree, so it's a lot of work really for not a great deal of food, plus the sago starch is low on protein, and also the sago can't be stored for a long time. And that's why hunter/gatherer populations are so sparse. If you want to feed a lot of people, you've got to find a different food supply, you've got to find a really productive environment, and it's not going to be a sago swamp.

Cereal crop being harvested

Voiceover: In the Middle East, there were very different plants to gather. Growing wild between the trees were two cereal grasses, barley and wheat. Far more plentiful and nutritious than sago. These simple grasses would have a profound impact, setting humanity on the course towards modern civilization. But it would take a catastrophic change in the climate before this would happen.

Graphic showing earth from space with ice spreading

Voiceover: 12,500 years ago, the world's climate became highly volatile. The long-term thaw that had brought about the end of the last ice age suddenly went into reverse. Global temperatures dropped, and ice age conditions returned.

Rocky mountainsides with people standing and walking

Voiceover: The world became colder and drier. The Middle East suffered an environmental collapse. Animal herds died off. So did many trees and plants. The drought lasted for more than 1,000 years. People were forced to travel farther and look much harder for any source of food. But despite the conditions, they would somehow survive, even prosper. Here in the Middle East, a new way of life would come into being, one that would change the face of the earth.

SUV driving through desert to dig site, Ian Kuijt driving

Voiceover: Ian Kuijt is a Canadian archaeologist who specializes in the Stone Age history of the Middle East. His work has focused on a site in the Jordan Valley, near the Dead Sea – a place known as Dhra'. Kuijt is a co-director of the dig, and works with an international team of archaeologists. They've uncovered the remains of ancient dwellings that were clearly more sophisticated than any hunter/gatherer shelters. They believe this was a small village, one of the earliest permanent villages anywhere in the world. People were starting to put down roots.

Dr Ian Kuijt, Notre Dame University: What we would have had is this village of, I don't know, 40, 50 people, living in the same place. We would have had a series of oval huts that would have been partially cut into the ground, and these would have been very much the, the first time people settled down and lived in communities in a really extensive way.

Voiceover: When they radiocarbon dated the site, they discovered that the village first emerged 11,500 years ago – at the same time as the end of the drought in the Middle East. But how was it possible to feed an entire village if times were so hard? After four years of digging at Dhra', the archaeologists believe they have an answer. It lies in this unique structure.

Ian Kuijt: What you can see here is the outline of a mud wall coming all the way round here, and then inside we have a series of upright stones that have been chipped in such a way where you can see a notch on them, and there would have been a series of beams over the top of that, with a floor across it, and basically you would have had a dry, humidity-controlled environment, where they could take grain, they could take any plants, they could dry them out, put them in here, protect them from insects, protect them from moisture, protect them from water percolating through. What that ends up being from our perspective is probably the world's first granary in some form – a place where they were able to store food at a particular location on a year-round basis.

Computer Generated Image showing likely construction of original building, people harvesting grain, mountain-sides, people sowing crops

Voiceover: The team at Dhra' believes the granary was an oval-shaped mud wall building at the centre of the village; a place where grain could be stored collectively. And the grains that were being stored were primarily wheat and barley. While other plants were no longer available, these cereal grasses were hardy enough to survive, and durable enough to be stored for years. But if this was a time of scarcity, how was there enough grain to fill a granary? The answer suggests a radical shift in human behavior. At some point during the drought in the Middle East, people started growing their own food. Unable to maintain a mobile way of life, they would have stayed close to any source of water they could find, and planted new fields of wheat and barley around them.

Ian Kuijt: Rather than just following food sources around different locations, for the first time what people start to do is that they bring these resources back to them. Not just as harvested food, but they're bringing them as seeds, and they're growing them next to their village, and that's the first time, really this is the first time we see this anywhere in the world.

Voiceover: The Stone Age people of the Middle East were becoming farmers – the first farmers in the world.

High-speed footage of plants growing

Voiceover: Without realizing it, these new farmers were changing the very nature of the crops around them. With every round of planting and harvesting, they'd favor ears of wheat and barley whose seeds were the biggest, tastiest or easiest to harvest. Traits that were useless to the plant in the wild thrived under human cultivation.

Ian Kuijt: They interrupted the cycle. They interrupted the normal environmental cycle and started to select these individual plants and basically rewarding those that were going to be most profitable to them, and so even though it was accidental, once that whole process started, people were starting to control nature.

Crop laboratory with scientists working and early Middle Eastern crop harvesting

Voiceover: The way crops are changed by human interference is known as domestication. Today it happens in research labs, with scientists selecting genes and breeding crops to be ever more useful to humans. It's a very precise, deliberate process. But not so different from what the first farmers were doing unconsciously, thousands of years ago in the Middle East.

Jared in boat on river, New Guineans hunting, Women with sago, Plane taking off, View from airplane

Jared Diamond: The transition to farming was clearly a decisive turning point in human history. People who remained hunter/gatherers couldn't produce anywhere near as much food as farmers, and also couldn't produce much food that could be stored. They were always going to be at a chronic disadvantage. Now I needed to know where else in the ancient world people had become farmers. If I could establish links between the spread of farming and the spread of civilization, I'd be well on my way to answering Yali's question.

Graphic showing earth from space with areas of crop cultivation

Voiceover: There are only a few parts of the ancient world that developed farming independently. Not long after the Middle East came China, where people grew another high yield cereal grass – rice. Pockets of farming also emerged in the Americas, based on corn, squash and beans. Later, in Africa, people farmed sorghum, millet and yams. And in most places where farming emerged, a relatively large, advanced civilization followed. But there was an exception to the rule. An area where farming didn't bring the same benefits – the highlands of New Guinea.

View of New Guinea from plane, New Guinean farmers working

Voiceover: For 50 years after Westerners colonized New Guinea, they thought the highland valleys in the interior were uninhabited. In fact, they were the most densely populated part of the island, with one of the oldest systems of farming in the world. Archaeologists now believe that people have been farming here for almost 10,000 years – almost as long as the people of the Middle East.

Jared with crowd of New Guineans, New Guinean farmers working

Jared Diamond: It's amazing to think that these people, Yali's people, were some of the earliest farmers in the world. But if they were farmers, why weren't they propelled down the same path towards civilization as the people of the Middle East or China or Central America? Why didn't they end up producing their own cargo?

Voiceover: New Guinea farmers themselves were surely no less talented than farmers anywhere else in the world. So what was the difference?

Jared Diamond: Highland agriculture was based on crops like these taro roots, which are very different from cereal crops. Taro is much more work. You've got to plant it one by one, unlike wheat where you throw your hand and spread the seed, and these New Guinea crops can't be stored for years the way wheat can – they rot quickly, they have to be eaten in a short time. They're also low in protein compared to wheat, so these farmers of the New Guinea highlands suffered from protein deficiency.

People tending banana crops, giant spiders

Jared Diamond: There's not much protein to be gotten from New Guinea's other crops, either. People here farm local varieties of bananas, but although bananas are rich in sugar and starch, like taro they're low in protein. In fact, people in the highlands have so little protein that sometimes they eat giant spiders to supplement their diet.

Jared studying in room

Jared Diamond: I'd reached a moment of realization. Farming was clearly crucial to the story of human inequality. But, just as important was the type of farming. People around the world who had access to the most productive crops became the most productive farmers.
Voiceover: Ultimately it came down to geographic luck.

Archive: B&W footage mechanized crop harvesting, B&W footage bread production, B&W footage trains and cars, B&W footage New Guineans

Early Middle Eastern crop harvesting

Voiceover: It's an audacious idea that the inequalities of the world were born from the crops we eat. According to Jared Diamond, Americans have had an advantage over New Guineans because for centuries they've grown crops that are more nutritious and productive. Crops like wheat, which provides about a fifth of all the calories they eat. The wealth of modern America could never have been sustained by taro and bananas. But Diamond's idea seems almost too simple. Could plants alone really have the power to shape the course of human history? Or was there something else at play? Another reason for the division of the world into haves and have nots?

Woman grinding corn, people harvesting crops, goats being herded

Voiceover: By 9,000 years ago, the first settlements in the Middle East were giving way to much larger villages. People were only able to live on this scale by becoming more productive farmers. They were surrounded by fields of domesticated wheat and barley,
but by now they also had another steady source of food.

Dr Louise Martin, Institute of Archaeology, University College London: What we see happening about 9,000 years ago is a remarkable transformation in the way that humans are interacting with animals. We begin to see a process of animal domestication, by which we mean humans were controlling where they were moving, they were controlling their feeding, and they were controlling their breeding. Instead of having to go out to hunt, you have a dependable meat supply on the hoof, year-round, around your site, rather than being subject to seasonal variations in wild game.

Goats being milked and combed

Voiceover: As well as meat, animals could be used for their milk, providing an ongoing source of protein. Their hair and skins could be used to make clothes for extra warmth. Over time, domestic animals became an integral part of the new agricultural way of life.

Goats being watched, people harvesting crops

Louise Martin: We know that the communities which first started to have domestic animals already had cereal crops, so they were cultivators, and the combination of these particular animals and plants becomes an extremely attractive package, in that they're complementary. After the harvest period, animals could be turned out on the stubble, and they can actually eat the remains of the cereal crop harvest. In their turn, animal dung can be used to provide sort of a fertilizer for the cereal crops as well, the crops, so the whole, the whole package, you know, is seen to be mutually beneficial, both for the animals and the plants and of course for the humans.

Goats being milked and combed, Goats, sheep, pigs and cattle in fields, Mules pulling ploughs, New Guinean farmers working, with pig

Voiceover: Goats and sheep were the first animals to be domesticated in the ancient world, and were eventually followed by the other big farm animals of today. All of them were used at first for their meat, but they all prove useful in other ways, especially with the invention of the plough. Before the industrial revolution, beasts of burden were the most powerful machines on the planet. A horse or an ox, harnessed to a plough, could transform the productivity of the land, allowing farmers to grow more food and feed more people. In New Guinea and many other parts of the world, people never used ploughs because they never had the animals to pull them.

Pigs, New Guinean men carrying poles and farmers working

Jared Diamond: The only big domestic animal in New Guinea was the pig, and it wasn't even native - it came in from Asia a few thousand years ago – while Europe and Asia had not only pigs but also cows, sheep, goats, horses, buffalo, camels and so on. Now pigs do give you meat, but pigs don't give you the other products that you get from those European and Asian animals.

Voiceover: Pigs don't give you milk, or wool, or leather or hides, and most important of all, pigs can't be used for muscle power – pigs don't pull ploughs or pull carts. The only muscle power in New Guinea was human muscle power.

Jared studying

Jared Diamond: Even today, there are no beasts of burden in New Guinea, and almost all of the farm work is still done by hand. But if farm animals were so useful, why didn't New Guineans domesticate any of their own? I decided to add up all the animals in the world that have ever been domesticated, and I was amazed by what I found.

Animals of all kinds

Archive: B&W footage people chasing elephants

Voiceover: There are nearly two million known species of wild animals, but the vast majority has never been farmed. Most insects and rodents are of no practical use to humans, and not worth the effort of farming. Some birds, fish and reptiles have been domesticated, but most are simply impractical to farm. So are most carnivores, not because they're dangerous
but because you'd have to grow other animals just to feed them. The best animals to farm are large, plant-eating mammals. And over the years, humans have probably tried to domesticate all of them, usually without success. Despite repeated efforts, Africans have never domesticated the elephant.

Elephants at work

Voiceover: In South Asia, some elephants are used as work animals. But they're not farmed for the purpose. Instead, each elephant is caught in the wild and then tamed and trained. It doesn't make economic sense to farm an animal that takes some 15 years to mature and reach an age where it can start reproducing.

Horses in corral, Goats, Sheep, Camels, Water buffalo, Cattle

Louise Martin: Animals which made suitable candidates for domestication can start giving birth in their first or second years. They will have one or maybe two offspring a year, so they're productivity is actually high. Behaviorally they need to be social animals, meaning that the males and the females and the young all live together as a group, and they also have an internal social hierarchy, which means that if humans can control the leader, then they will also gain control over the whole herd or whole flock.

Wild animals, Zebra

Voiceover: There is another crucial requirement for a domestic animal. It needs to get along with humans. Some animals don't have the temperament to live on a farm. A zebra could be an ideal domestic animal, potentially as useful as a horse. But evolving in the midst of Africa's great predators, zebras have become flighty, nervous creatures. They have a vicious streak that humans have been unable to tame. That may be why zebras have never been harnessed to a plough or ridden into battle.

Montage: Wild animals, Domesticated animals

Graphic showing earth from space with highlighted areas

Jared Diamond: I counted up 148 different species of wild, plant-eating terrestrial mammals that weighed over 100 pounds, but of those 148, the number that has ever been successfully farmed for any length of time is just 14.

Voiceover: Goats, sheep, pigs, cows, horses, donkeys, Badrian camels, Arabian camels, water buffalo, llamas, reindeer, yaks, nithans, and bally cattle. Just 14 large domestic animals in 10,000 years of domestication. And where did the ancestors of these animals come from? None was from New Guinea, or Australia. Or Sub-Saharan Africa, or the whole continent of North America. South America had the ancestor of just one large domestic animal; the llama. The other 13 were all from Asia, North Africa and Europe. And of these, the big four livestock animals; cows, pigs, sheep and goats, were native to the Middle East. The very same area that was home to some of the best crops in the world was also home to some of the best animals. Little wonder that this area became known as the Fertile Crescent.

Sky, tilt down to village ruins with man walking, Man sowing seed, Goats, Guar site with ruins

Voiceover: The people of the Fertile Crescent were geographically blessed, with access to some of the best crops and farm animals in the ancient world. It gave them a huge head start. What had begun with the sowing of wheat and the penning of goats was leading towards the first human civilization. The archaeological site of Guar in Southern Jordan is 9,000 years old. But it has all

the hallmarks of a town. A few hundred people lived here, in rows of houses that were a wonder of technology.

Dr Mohammad Najjar, Department of Antiquities, Jordan: Every time I come here, I'm amazed by what those people were doing. Some of the houses have a kind of air conditioning, a, this window here is for, to control the air coming from the street inside the house, and the houses, the walls and the floors of the houses from the inside at least, were covered with plaster.

People plastering walls

Mohammed Najjar: So people were moving to a concept of homes. It's, it's not a place just to sleep, it is a proper home, and people started to decorate the houses from the, from the inside, and people were starting to invest in their homes, because if we are talking about plaster, it is time-consuming, it's effort-consuming – it's very expensive to have plastered house.

People sowing seeds, making cement, weaving, making plaster

Voiceover: As villages grew bigger, there were more people to work on the land. More people could produce more food more efficiently – enough to support specialists within the community. Freed from the burden of farming, some people were able to develop new skills, and new technologies. Making plaster from limestone was a major technological breakthrough. The stones had to be heated for days at a time, at a temperature of 1,000 degrees. It may seem insignificant today, but understanding how to work with fire was the first step towards forging steel – a technology that would transform the world.

People making steel

Montage: steel-based products in use

Mountains of New Guinea, New Guinean farmers working

Voiceover: By contrast, places like New Guinea never developed advanced technology. Even today, some people in the highlands are working in ways that have barely changed for centuries.

Archive: B&W footage New Guineans working, Jared with axe, New Guinean farmers working

Jared Diamond: When I first came to New Guinea in the 1960s, people were still using stone tools like this axe in parts of the island, and before European arrival, people were using stone tools everywhere in New Guinea. So why didn't New Guinea develop metal tools by itself? And eventually I realized that to have metalworking specialists who can figure out how to smelt copper and iron, requires that the rest of the people in the society who were farmers, be able to generate enough food surpluses to feed them.

Voiceover: But New Guinea agriculture was not productive enough to generate those food surpluses, and the result was no specialists, no metalworkers, and no metal tools.

Archive: B&W footage New Guinean people building/creating/working/on water with plane

Voiceover: The way of life in New Guinea was perfectly viable. It had survived intact for thousands of years. But according to Diamond, people didn't advance technologically because they spent

too much time and energy feeding themselves. And then Westerners arrived, and used their technology to colonize the country.

Pan across Middle Eastern mountains

Voiceover: Yet for all its advantages, the Fertile Crescent is not the powerhouse of the modern world, nor is it the bread basket it once was. How did it lose its head start?

Abandoned village

Voiceover: Within 1,000 years of their emergence, most of the new villages of the Fertile Crescent were abandoned. Ironically, the region had a fundamental weakness. Despite having some of the most nutritious crops on the planet, its climate was too dry, and its ecology too fragile, to support continuous intensive farming.

Arid landscape, Jordanian village site

Mohammed Najjar: People were destroying the environment. The waters had been over-exploited, the trees had been cut, and this is what when, when, when you, when you face the, the end, I mean you are facing the wall. You will end with landscape like that, mean with, with few trees, with no grass, and with less water. So what we are looking at today is the outcome of over-exploiting the environment.

People and goats walking, Craggy mountains, Sunset

Voiceover: Unable to farm their land, entire communities were forced to move on. The advantages they'd accrued from centuries of domestication might have been lost. But again, geography was on their side.

Graphic showing earth from space, with highlighted areas and arrows

Jared Diamond: The Fertile Crescent is on the middle of a huge land mass, Eurasia. There were plenty of places for farming to spread, and crucially, many of those places were to the east and west of the Fertile Crescent, at roughly the same line of latitude.

Computer Generated Image - landscape with arrows

Jared Diamond: Why's that so important? Because any two points of the globe that share the same latitude automatically share the same length of day, and they often share a similar climate and vegetation. Crops or animals domesticated in the Fertile Crescent were able to prosper at other places along the east/west axis of Eurasia. Wheat and barley, sheep and goats, cows and pigs all spread from the Fertile Crescent, east towards India and west towards North Africa and Europe. Wherever they went they transformed human societies.

Ancient Egyptian art showing farming

Voiceover: Once the crops and animals of the Fertile Crescent reached Egypt, they caused an explosion of civilization.

Ancient Egyptian farming and construction

Pharaoh in temple, Builders, Pyramids

Voiceover: Suddenly there was enough food to feed the pharaohs and generals, the engineers and scribes, and the armies of people required to build the pyramids.

Roman buildings and sculptures, Fireworks and fire-eaters, Ceiling of Sistine Chapel

Voiceover: The same is true of European civilization. From ancient times until the Renaissance, the crops and animals of the Fertile Crescent fed the artists, inventors and soldiers of Europe. In the 16th century, the same crops and animals were taken by Europeans to the New World. At the time there was not a single cow or ear of wheat in all the Americas. Now there are 100 million cattle in the US alone. And Americans consume 20 million tons of wheat a year.

Aerial view New York City at night

Voiceover: There are some who think Jared Diamond's argument is too neat and easy. Can the distribution of wealth and power really be reduced to cattle and wheat? What about culture, politics and religion? Surely they've been just as important? Diamond's been criticized for being too deterministic, for ignoring the part people have played in shaping their own destiny.

Jared in boat on river, New Guinean hunters, Women harvesting sago, Jared with New Guineans, New Guinean farmers working

Jared Diamond: My years in New Guinea have convinced me that people around the world are fundamentally similar. Wherever you go, you can find people who are smart, resourceful and dynamic. No society has a monopoly on those traits. Of course there are huge cultural differences, but they're mainly the result of inequality, they're not its root cause. Ultimately what's far more important is the hand that people have been dealt, the raw materials they've had at their disposal.

Voiceover: New Guineans acquired pigs from Eurasia, but not cows or sheep or goats, or horses, or wheat or barley. They didn't develop in the same way as Europeans or Americans, because they didn't have the same raw materials.

New Guinean marketplace with throngs of people

Jared Diamond: I'm not saying that those divisions of the world are set in stone and can't be changed; it's quite the opposite. The towns of Papua New Guinea are becoming bigger and more developed, populated by modern New Guineans trying to keep up with the rest of the world. Unfortunately for them, there's still a big gap to overcome.

Yali asking question: Why you white man have so much cargo and we New Guineans have so little?

Jared Diamond: Yali caught me by surprise 30 years ago. I had no idea what to say to him then but now I think I know the answer. Yali it wasn't for lack of ingenuity that your people didn't end up with modern technology. They had the ingenuity to master these difficult New Guinea environments. Instead the whole answer to your question was geography. If your people had enjoyed the same geographic advantages as my people, your people would have been the ones

to invent helicopters.

Helicopter taking off, Jared in helicopter

Voiceover: Jared Diamond set out to explore the division of the world into haves and have nots. He's convinced the blueprint for that division lies within the land itself.

Conquistadors entering South American city and engaging locals in battle

Voiceover: But can his way of seeing the world really shed light on the turning points of human history?

Man firing gun to camera, Computer Generated Image of microbes, Swords

Voiceover: Can it explain how a few hundred Europeans conquered the New World, and began an age of domination? The age of guns, germs and steel.

ENDS