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HOW DID THE WORLD ZONES CONNECT?

The rise of agriculture ushered in an era of increasing innovation in communication and transportation that led different parts of the world to connect in meaningful new ways. In this three-part video, David Christian explains how the world became more interconnected. After watching these videos, you should understand systems of exchange and be familiar with the four world zones. You should also be able to explain the technological advances that enabled interconnection and why collective learning developed at different rates in each of the world zones.

Key questions

- 1 What advances in communication and transportation played the biggest parts in promoting interconnection and collective learning?
- 2 Where are the four world zones and what distinguishes them?

Transcript: Part 1

In the Paleolithic era **exchange networks** were tiny, linking hundreds or at most thousands of people, most of who lived pretty similar lifeways.

0:11-0:49

In the agrarian era they got much larger as populations grew and as the number of settlements expanded. They also got much more diverse as people began to specialize so they could bring different types of information to the exchange networks.

DENSE
POPULATIONS
ACCELERATE
COLLECTIVE
LEARNING

All of this speeded up processes of **collective learning**. It's not that people got smarter; it's just that there were more of them, there was more information, and over time they got better at sharing their information.

Technologies of communication and transportation, once they improved, also sped up these processes. They magnified the size, the diversity, and the efficiency of networks of exchange.

0:48-1:57

Improvements in **technologies of communication** did a lot to enhance the power of networks of information exchange. The invention of **writing** 5,000 years ago was particularly important because what writing did was to lock in information over many generations. Writing explains why we can still read the laws that Hammurabi issued in Babylon 4,000 years ago because he carved them in blocks of stone.

COMMUNICATION
TECHNOLOGIES
WRITING

PAPER AND PRINTING More recently the invention of **paper and printing** has revolutionized the storage and dissemination of information. In fact, here I am in Cheongju in South Korea, where the first book was printed using moveable metal type. It was actually printed in 1377, which is 78 years before Gutenberg built his press in Europe.

1:57-2:58 Improved **technologies of transportation** also made a huge difference. **The use of horses, of oxen, and camel to transport** people and goods revolutionized both transportation and warfare. They also allowed pastoral nomads to settle the steppes of Eurasia, creating a huge mobile zone that ran all the way from East Asia to the Mediterranean and allowed a huge movement of people, of ideas, and of goods.

TRANSPORTATION TECHNOLOGIES

THE USE OF ANIMALS

BOATS AND NAVIGATION Meanwhile, in South East Asia, new **boat-building technologies and new navigational techniques** allowed people to start migrating into the Pacific Ocean until, by 1,500 years ago, they had settled most of the islands of the Pacific.

ROAD AND COURIER SYSTEMS And finally, the great empires of Persia and China started developing **road systems and courier systems**, and those systems provided the most efficient ways of moving information until modern times.

Transcript: Part 2

In Africa and Eurasia long-distance **trading systems** developed. What they did is they connected regional and local exchange networks.

3:02-3:48

The first of these carried goods, people, and ideas by sea from China around India to Africa and the Mediterranean and backwards. The second is known as the **Silk Roads**. It carried goods, people, and ideas by land connecting China, Central Asia, India, and the Mediterranean world.

TRADING GOODS, IDEAS, AND DISEASE

As a result of these networks, 2,000 years ago silk was being traded all the way from China through central Asia to Rome and Egypt. At the same time you could find Roman coins all the way from Britain to Vietnam.

3:48-5:04

A thousand years ago, wealthy Persian consumers could order specially designed porcelains in China and have them transported specially around India to Persia. In the 1400s, a Chinese imperial fleet went to Africa, picked up a giraffe, took it back to Beijing, and presented it as a gift to the emperor. In the same century, a Muslim traveler, **Ibn Battuta**, traveled all the way from Morocco, to Central Asia, to India, maybe onto China, and wherever he went he encountered Muslims.

ADVENTURERS SHARE TRAVEL STORIES

RELIGIONS SPREAD As Ibn Battuta's experiences show, religions also traveled along these exchange networks. Buddhism, for example, traveled from India through Central Asia to China, Korea, and Japan. While Islam traveled from Arabia to Persia, to Central Asia, to India, and Southeast Asia. Technologies also traveled these routes. For example, East Asian techniques of printing, of gunpowder manufacturing, and also of paper making traveled through central Asia to the Mediterranean and to Europe. Diseases also traveled these routes, devastating diseases.

5:04-5:43 We know that 1,800 years ago there were smallpox epidemics in Rome, and all of a sudden these were transmitted through the Silk Roads, but worst of all was of course the **Black Death** in the 1400s.

DISEASE SPREADS These seem to have traveled from China, through central Asia, to the Mediterranean and Europe, and wherever it arrived it decimated populations in the great hub regions of Eurasia. But over time what these disease exchanges also did was to strengthen immune systems just as exchanges of ideas strengthened the technologies of the hub regions of Eurasia.

But throughout the agrarian era, there was a clear limit to the size, the extent, and the power of these exchange networks. That's because the world was in effect divided into four great **world zones**, between which there was hardly any connection. It's almost as if human history had taken place on four separate planets.

By far the largest and the oldest of these world zones was the **Afro-Eurasian zone**. This extended all the way from eastern Siberia to southern Africa. Within this zone, from as early as 4,000 years ago, technologies such as the domestication of animals and the use of metals diffused over wide areas. These technologies had their greatest impact in the hub zones. Those were the zones where there were large populations and very diverse connections. In the Afro-Eurasian world zone the major hub zones were the Mediterranean and Europe, Mesopotamia and the Muslim world, northern India, and eastern Asia.

The second largest of the world zones was the **American zone**. This was settled from about 15,000 years ago, but within it there emerged two major hub zones, with agriculture and agrarian civilizations in Mesoamerica and in the Andes region. These, however, had smaller populations and much smaller and less powerful networks than in Afro-Eurasia. So fewer ideas were exchanged, fewer people, fewer technologies.

5:43-6:46

THE FOUR
WORLD ZONES

AFRO-EURASIA,
THE FIRST AND
LARGEST WORLD
ZONE

6:46-7:55

THE AMERICAS,
THE SECOND-LARGEST
WORLD ZONE

AUSTRALASIA, THE THIRD-LARGEST WORLD ZONE The third great world zone was the **Australasian zone**. Here, until very recently, most people — the vast majority of people — lived as foragers, except in the highlands of Papua New Guinea, where there were farming communities. Now, this meant that populations were tiny by Afro-Eurasian standards. Exchange networks carried limited amounts of information. But nevertheless, in some areas innovations accrued, populations began to grow, and it's possible that some societies in this zone were heading, like the Natufians 10,000 years earlier, toward some form of agriculture.

7:55-8:36 THE PACIFIC, THE SMALLEST WORLD ZONE The final world zone was **the Pacific**. This was settled by mariners from Southwest Asia from about 3,500 years ago to form what was at least geographically speaking by far the largest of the world zones, and by far the largest exchange network. Some of the islands, such as Tonga and Hawaii, were quite large and they had quite large societies and chieftains, but on the whole the distances between islands were so vast, populations were so small, that the exchanges of information and goods and technologies were very, very limited — much, much more limited than in the Afro-Eurasian world zone.

Transcript: Part 3

Exchange networks seem to have worked most efficiently where populations were densest, most diverse, and most interconnected.

That meant, of course, above all in the great hub regions of the Afro-Eurasian world zones. But even here throughout the agrarian era innovation and growth faced significant limits. The most critical of those limits seems to be associated with a characteristic pattern of rise and fall of populations that you see in all agrarian civilizations.

Here's how it seems to have worked. You get an innovation, say irrigation. It allows populations to rise and they may rise for several centuries, but then, as the great 19th-century scholar **Malthus** pointed out, there comes a point where populations are rising too fast. They're rising faster than innovation and at that point you have too many people to feed. Starvation begins to appear. Famines become more regular. Diseases begin to spread. Governments begin to fight over dwindling resources, and eventually you face catastrophic calamities like the Black Death in the 1400s.

8:40-9:14

EXCHANGE NETWORKS WORK BEST WHERE POPULATIONS ARE DENSE AND DIVERSE

9:14-9:54

MALTHUS PREDICTS FAMINE

9:54-10:32

MALTHUSIAN CYCLES
EMERGE, AND
THEN DISAPPEAR

If you look at graphs of population growth in an agrarian civilization you can see this characteristic pattern of rise and falls that we call **Malthusian cycles**. You can see it over and over again. Then, quite suddenly in recent centuries, the pattern seems to vanish. The reason seems to be that rates of innovation increased so fast that they began to overtake rates of population growth.

So here's the question. Why did this happen? Why did collective learning become so powerful in recent centuries?