

01 The Neolithic Revolution

10,000 BCE – 3,000 BCE

The Agricultural Revolution in World History



Summer Terms

- Gathering and hunting
- Neolithic or Agricultural Revolution
- Domestication
- Innovation
- Diffusion



- Agriculture is the second great human process after settlement of the globe.
 - started about 12,000 years ago
 - often called the Neolithic or Agricultural Revolution
 - deliberate cultivation of plants and domestication of animals
 - transformed human life across the planet
- Agriculture is the basis for almost all human developments since.
- Agriculture brought about a new relationship between humans and other living things.
 - actively changing what they found in nature rather than just using it
 - shaping the landscape
 - selective breeding of animals

- “Domestication” of nature created new mutual dependence.
 - many domesticated plants and animals came to rely on humans
 - humans lost gathering and hunting skills
 - population increase: too many humans to live by gathering and hunting
- “Intensification” of living: getting more food and resources from much less land.
 - more food led to more people
 - more people led to greater need for intensive exploitation

Agricultural Breakthroughs

LOCATION	DATES (B.C.E.)	PLANTS	ANIMALS
Southwest Asia (Fertile Crescent)	9000-7000	Barley, wheat, lentils, figs	Goats, sheep, cattle, pigs
China	6500-5000	Rice, millet, soybeans	Pigs, chickens, water buffalo
Saharan and Sub- Saharan Africa	3000-2000	Sorghum, millet, yams, teff	Cattle (perhaps 8000 b.c.e.)
Highland New Guinea	7000-4000	Taro, bananas, yams, sugarcane	N/A
Andes Region	3000-2000	Potatoes, quinoa, manioc	Llamas, alpacas, guinea pig
Mesoamerica	3000-2000	Maize, squash (perhaps 7000 b.c.e.), beans	Turkey
Eastern woodlands of North America	2000-1000	Sunflower, goosefoot, sumpweed	N/A



Black Sea

CAUCASUS MOUNTAINS

Caspian Sea

ANATOLIA

Halys R.

ARMENIA

Araxes R.

Çatalhöyük

CYPRUS

SYRIA

Euphrates R.

Abu Hurerya

SYRIAN DESERT

ZAGROS MOUNTAINS

IRAN

Mediterranean Sea

NILE DELTA

PALESTINE

Jericho

Jordan R.

Dead Sea

MESOPOTAMIA

Tigris R.

ARABIAN DESERT

Persian Gulf

EGYPT

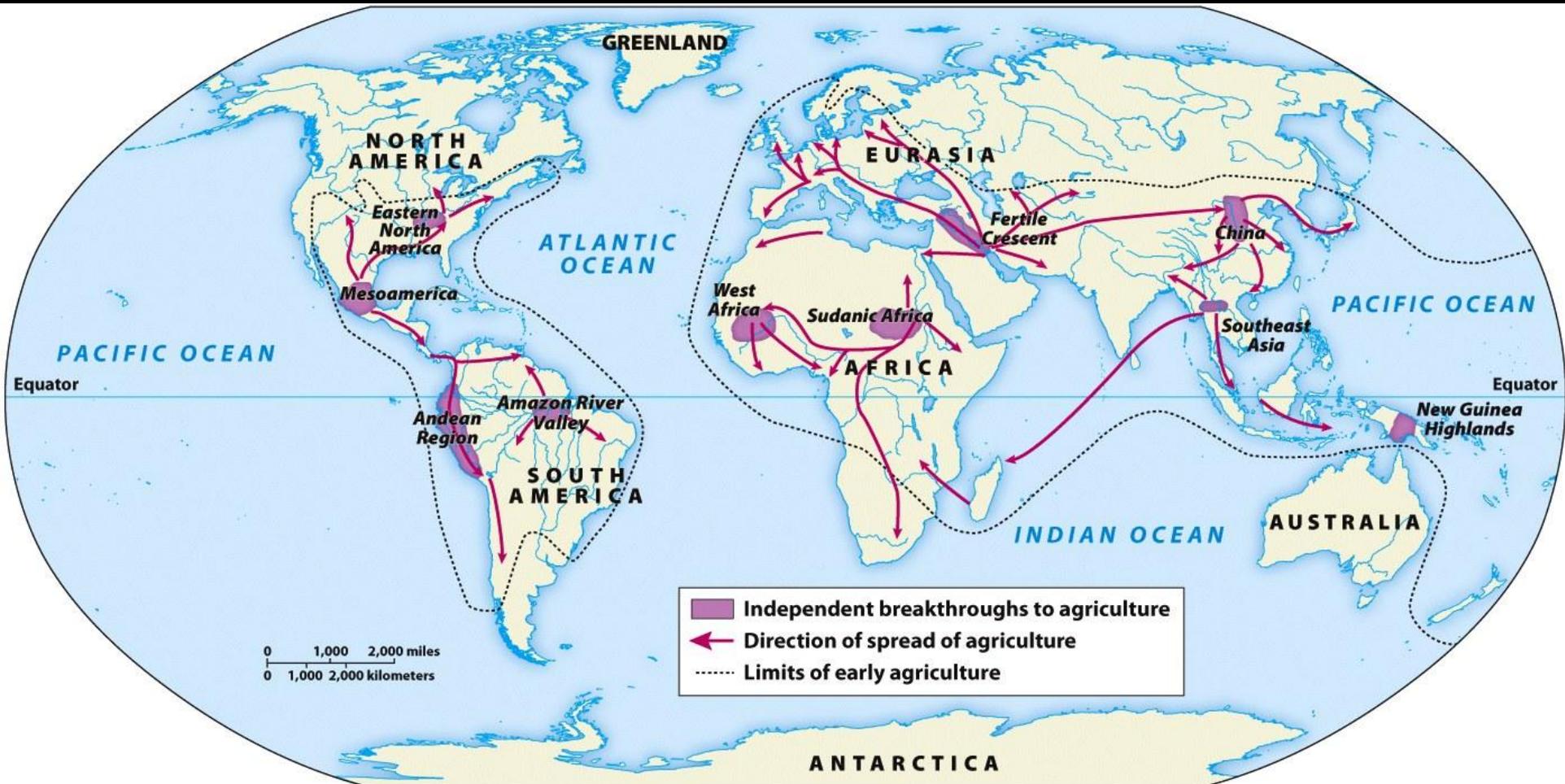
SAHARA

Nile R.

Red Sea

Fertile Crescent

Comparing Agricultural Beginnings



- The Agricultural Revolution happened independently in several world regions.
 - Fertile Crescent of Southwest Asia
 - several areas in sub-Saharan Africa
 - China
 - New Guinea
 - Mesoamerica
 - the Andes
 - eastern North America
 - all happened at about the same time, 12,000–4000 years ago
 - scholars have struggled with the question of why agriculture developed so late in human history

- Common Patterns

- Agricultural Revolution coincided with the end of the last Ice Age
 - global warming cycle started around 16,000 years ago
 - Ice Age was over by about 11,000 years ago
 - end of Ice Age coincided with human migration across earth
 - extinction of some large mammals: climate change and hunting
 - warmer, wetter weather allowed more wild plants to flourish
- gathering and hunting peoples had already learned some ways to manage the natural world
 - “broad spectrum diet”
 - development of sickles, baskets, and other tools to make use of wild grain in the Middle East
 - Amazon: peoples had learned to cut back some plants to encourage growth of the ones they wanted
 - Australians had elaborate eel traps

- women were probably the agricultural innovators
 - men perhaps led in domesticating animals
- gathering and hunting peoples started to establish more permanent villages
 - especially in resource-rich areas
 - population growth perhaps led to a “food crisis”
 - motivation to increase the food supply
- agriculture developed in a number of regions, but with variation
 - depended on the plants and animals that were available
 - only a few hundred plant species have been domesticated
 - five (wheat, corn, rice, barley, sorghum) supply over half the calories that sustain humans
 - only 14 large mammal species were domesticated

- Variations

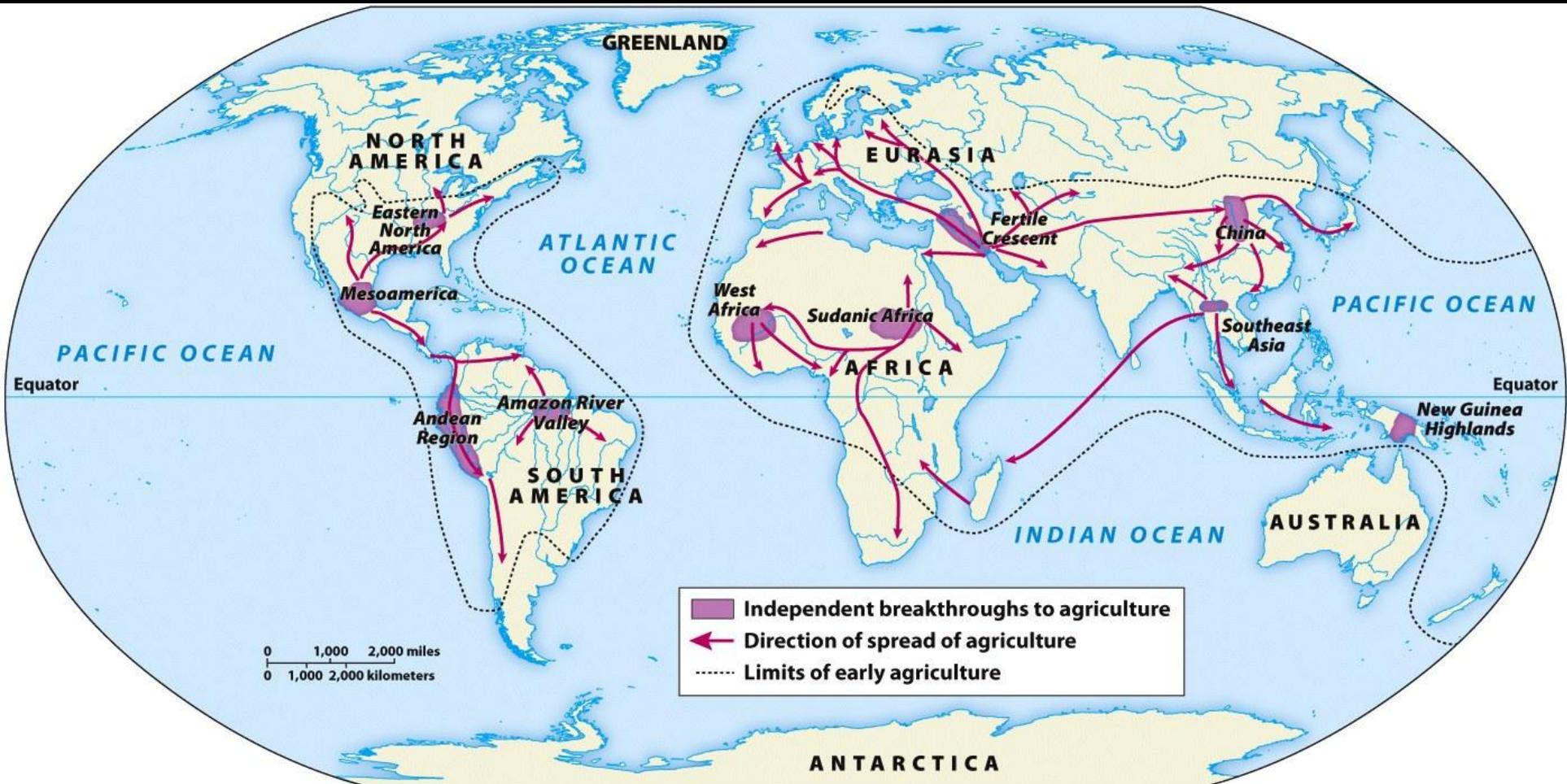
- the Fertile Crescent was the first to have a full Agricultural Revolution

- presence of large variety of plants and animals to be domesticated
 - transition to agriculture triggered by a cold and dry spell between 11,000 and 9500 b.c.e.
 - transition apparently only took about 500 years
 - much larger settlements
 - much more societal sophistication (mud bricks, monuments and shrines, more elaborate burials, more sophisticated tools)

- at about the same time, domestication started in the eastern Sahara (present-day Sudan)
 - the region was much more hospitable 10,000–5,000 years ago
 - domestication of cattle there about 1,000 years before Middle East and India
 - the donkey was domesticated nearer the Red Sea
 - in Africa, animals were domesticated first; elsewhere, plants were domesticated first
 - emergence of several widely scattered farming practices
 - sorghum in eastern Sahara region
 - teff and enset in Ethiopian highlands
 - yams, oil palm trees, okra, and the kola nut in West Africa
 - African agriculture was less productive than agriculture in the Fertile Crescent

- separate development of agriculture at several places in the Americas
 - absence of animals available for domestication
 - only one of the 14 domesticated large mammals existed in the Americas: the llama/alpaca
 - so Americans lacked protein, manure, and power of large animals
 - Americans continued to rely on hunting for meat
 - only cereal grain available was maize or corn
 - required thousands of years of selective adaptation to reach a size sufficient for productive agriculture
 - nutritionally poorer than cereals of the Fertile Crescent
 - result: replacement of gathering and hunting with agriculture took 3,500 years in Mesoamerica
 - Americas are oriented north/south, so agricultural practices had to adapt to distinct climate zones to spread
 - east/west axis of Eurasia helped the spread of innovation
 - domesticated plants and animals took much longer to spread in the Americas

The Globalization of Agriculture



- Agriculture spread in two main ways:
 - diffusion:
 - gradual spread of techniques and perhaps plants and animals, but without much movement of human population
 - colonization or migration of agricultural peoples
 - conquest, absorption, or displacement of gatherers and hunters
 - often both processes were involved
 - innovation:
 - New ideas and new ways of thinking – civilization was innovated 7 times:
 - Mesopotamia
 - Nile River Valley
 - Indus River Valley
 - Huang He River Valley
 - Mesoamerica
 - the Andes
 - the Niger River Valley

- Triumph and Resistance

- language and culture spread with agriculture
 - Indo-European languages probably started in Turkey, are spoken today from Europe to India
 - similar process with Chinese farming
 - spread of Bantu language in southern Africa
 - Bantu speakers originated in southern Nigeria or Cameroon ca. 3000 b.c.e.
 - moved south and east over several millennia, taking agriculture with them
 - similar spread of Austronesian-speaking peoples to Philippines and Indonesian islands, then to Pacific island
- the globalization of agriculture took about 10,000 years
 - did not spread beyond its core region in New Guinea
 - did not spread in a number of other regions
 - was resisted where the land was unsuitable for farming or where there was great natural abundance
 - some peoples apparently just didn't *want* agriculture
- by the beginning of the Common Era, gathering and hunting peoples were a small minority of humankind
 - expansion of agriculture destroyed gathering and hunting societies
 - process was sometimes peaceful, sometimes violent

- The Culture of Agriculture
 - agriculture led to much greater populations
 - e.g., early settlement near Jericho had about 2,000 people
 - changes in world population
 - 10,000 years ago: around 6 million people
 - 5,000 years ago: around 50 million people
 - beginning of Common Era: around 250 million people
 - farming did not necessarily improve life for ordinary people
 - meant much more hard work
 - health deteriorated in early agricultural societies
 - new diseases from interaction with animals
 - the first epidemics, thanks to larger communities
 - new vulnerability to famine, because of dependence on a small number of plants or animals

- new constraints on human communities
 - all agricultural people settled in permanent villages
 - the case of Ban Po in China (settled ca. 7,000 years ago)
- explosion of technological innovation
 - pots
 - textiles
 - textile work, like horticultural farming, was especially suitable for women with children
 - metallurgy
- “secondary products revolution” started ca. 4000 b.c.e.: a new set of technological changes
 - new uses for domesticated animals, including milking, riding, hitching them to plows and carts
 - only available in the Eastern Hemisphere
- deliberate alteration of the natural ecosystem
 - removal of ground cover, irrigation, grazing
 - evidence of soil erosion and deforestation in the Middle East within 1,000 years after beginning of agriculture

Social Variation in the Age of Agriculture



- Pastoral Societies

- some regions relied much more heavily on animals, because farming was difficult or impossible there
- pastoral nomads emerged in central Asia, the Arabian Peninsula, the Sahara desert, parts of eastern and southern Africa
- relied on different animals in different regions
 - horses were domesticated by 4000 b.c.e.; encouraged the spread of pastoral peoples on Central Asian steppes
 - domesticated camels allowed human life in the inner Asian, Arabian, and Saharan deserts
- no pastoral societies emerged in the Americas

- Agricultural Village Societies
 - most characteristic form of early agricultural societies, like Banpo or Jericho
 - maintenance of equality and freedom (no kings, chiefs, bureaucrats, aristocrats)
 - the case of Çatalhöyük, in southern Turkey
 - population: several thousand
 - dead buried under their houses
 - no streets; people moved around on rooftops
 - many specialized crafts, but little sign of inherited social inequality
 - no indication of male or female dominance
 - village-based agricultural societies were usually organized by kinship, group, or lineage
 - performed the functions of government
 - the Tiv of central Nigeria organized nearly a million people this way in the late nineteenth century
 - sometimes modest social/economic inequality developed
 - elders could win privileges
 - control of female reproductive powers

- Chiefdoms
 - chiefs, unlike kings, usually rely on generosity, ritual status, or charisma to govern, not force
 - chiefdoms emerged in Mesopotamia sometime after 6000 b.c.e.
 - anthropologists have studied recent chiefdoms in the Pacific islands
 - chiefdoms such as Cahokia emerged in North America
 - distinction between elite and commoner was first established
 - based on birth, not age or achievement