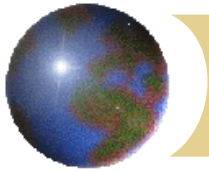


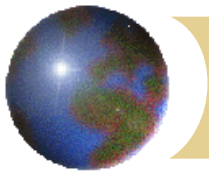
# *Geography and Global Inequality*

A summary of the main ideas  
proposed by Jared Diamond in his  
book *Guns, Germs, and Steel*



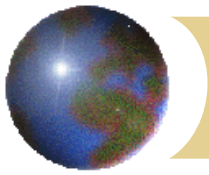
# *Yali's Question*

- ✦ Jared Diamond is a biologist and anthropologist
- ✦ On Papua New Guinea Diamond befriended an aboriginal man named Yali
- ✦ Yali asked Diamond, “Why is it that you white people developed so much cargo and brought it to New Guinea, but we black people had little cargo of our own?”
- ✦ In short, how can we account for western societies’ (European nations and their offshoots) disproportionate levels of power and innovation?



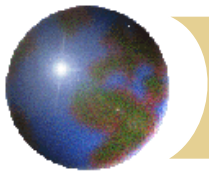
# *Diamond's Thesis*

- ❖ **Geographical factors** determined the development of civilizations and patterns of conquest
- ❖ "...history followed different courses for different people because of differences among people's environments, not because of biological differences among people themselves."
- ❖ **Proximate Causes** (such as guns, germs, and steel) were the result of **Ultimate Causes** (such as access to plants and animals that could be domesticated)



# *Unequal Starting Points*

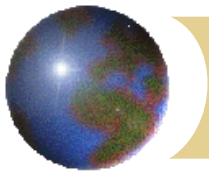
- ⊕ According to Diamond, different societies developed at different rates due to **unequal starting points**
- ⊕ The ability to develop the proximate causes of dominance—guns, germs, and steel—depends upon geographical factors that determined the relative ease with which a group of people could hunt, gather, & farm
- ⊕ In other words, the easier it was for people to farm (using domesticated plants and animals), the more likely they were to develop advanced civilizations



# *Plant Power*

- ✪ Certain grains such as wheat and barley have much larger seed sizes, thus making it worthwhile to gather them instead of hunting
- ✪ Areas where **grains with large seed sizes** grew were naturally more conducive to settlement and farming





# Sources of Plant Production

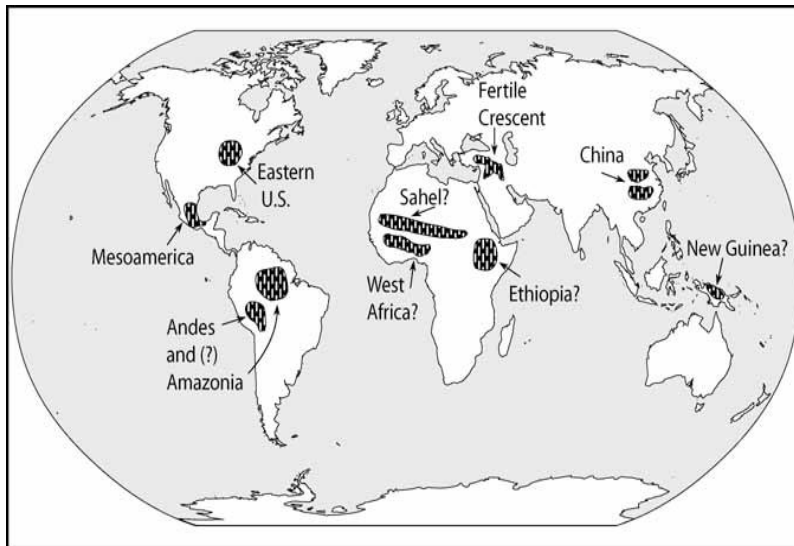
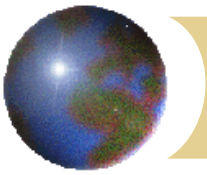


Table 1. World distribution of large-seeded grass species

Area	Number of Species
West Asia, Europe, North Africa	33
Mediterranean zone	32
England	1
East Asia	6
Sub-Saharan Africa	4
Americas	11
North America	4
Mesoamerica	5
South America	2
Northern Australia	2

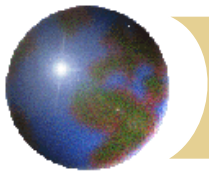
- ❁ Farming and planned food production were developed in many different regions around the world. So what made the fertile crescent different than these other regions?



# *Taming Beasts*



- ❖ Key to successful sedentary villages is the ability to **domesticate animals** for food, energy, and other services
- ❖ To be domesticated, animals must be naturally inclined to breed in captivity and be safe around people--they must have **passive** temperaments
- ❖ The most common domesticated mammals are sheep, goats, cows, oxen, pigs, and horses
- ❖ The ancestors of most modern domesticated animals inhabited Eurasia and North Africa



# Mammalian Domestication

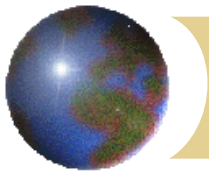
Table 3. Mammals available for domestication.

	Eurasia	Continent Sub-Saharan Africa	The Americas	Australia
Number of "candidates" for domestication*	72	51	24	1
Species domesticated	13	0	1	0
Percent of candidates domesticated	18%	0%	4%	0%

\* A candidate for domestication is a mammalian species weighing on average over 100 pounds. A candidate must be terrestrial (not marine), and either herbivorous or omnivorous.

- ✦ What factors make some animals capable of domestication while others are not?
- ✦ Just like plants, all animals are not created equal. Most animal species would not benefit people even if they were tamed and, of the species that might be beneficial to people, only some are capable of being tamed. Also like plants, potentially beneficial mammalian species were not evenly distributed around the world.





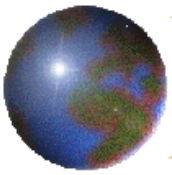
# Runners take your marks ...

Area	Domesticated Plants	Domesticated Animals	Earliest Attested Date of Domestication
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Independent Origins	of Domestication		
1. Southwest Asia	wheat, pea, olive	sheep, goat	8500 BC
2. China	rice, millet	pig, silkworm	by 7500 BC
3. Mesoamerica	corn, beans, squash	turkey	by 3500 BC
4. Andes and Amazonia	potato, manioc,	llama, guinea pig	by 3500 BC
5. Eastern US	sunflower, goosefoot	none	2500 BC
? 6. Sahel	sorghum, African rice	guinea fowl	by 5000 BC
? 7. Tropical West Afr.	African yams, oil palm	none	by 3000 BC
? 8. Ethiopia	coffee, teff	none	?
? 9. New Guinea	sugar cane, banana	none	7000 BC?

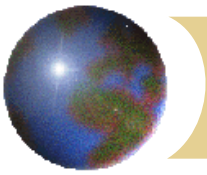
Local Domestication	Following Arrival of	Founder Crops from	Elsewhere
10. Western Europe	poppy, oat	none	6000-3500 BC
11. Indus Valley	sesame, eggplant	humped cattle	7000 BC
12. Egypt	sycamore, fig, chufa	donkey, cat	6000 BC

- Imagine a race in which each runner starts at a very different place on the path. Naturally not all the runners would finish the race at the same time. Just like that race, **different regions domesticated plants and animals at different times in history. Because of this, some regions developed advanced civilizations earlier in history than others.**



# *An Unfair Race*

- ✦ Not only are the starting points different, but **some places can more easily adapt imported technologies, plants, and animals**
- ✦ As villages and settlements grow, they often trade goods, services, and ideas with nearby villages; however, trade may be limited by **physical geography** such as mountains, large bodies of water, deserts, and harsh climates.
- ✦ Plants and animals that flourish in some environments may not survive in other environments (for example, why are there so few palm trees in Oregon, but lots in California?)
- ✦ The extent to which technology, such as new crops or breeds of domesticated animals, can spread depends upon the ease with which different communities of people can adapt them to their own climate and region



# *Axis of Power*

- ❖ Crop and animal diffusion depends upon similarity of climates. Thus, the ease with which fertile crescent crops spread across the world can be understood as a result of similar climates along an **East-West axis**.

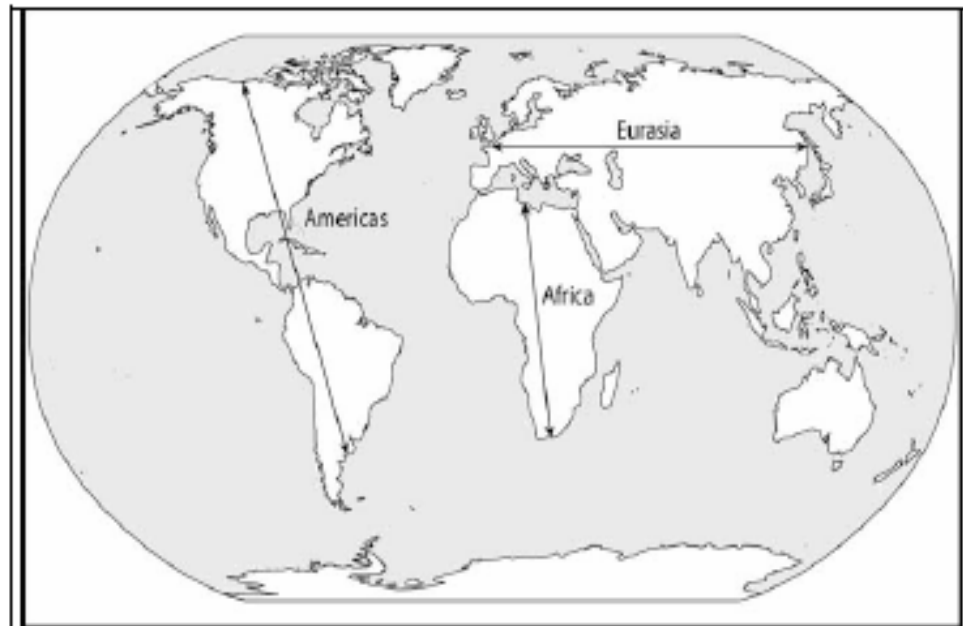
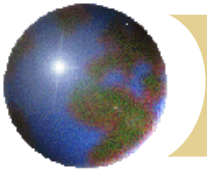
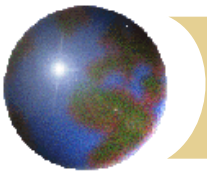


Figure 6. Axis orientation of the continents



# *Farming Leads to Conquest*

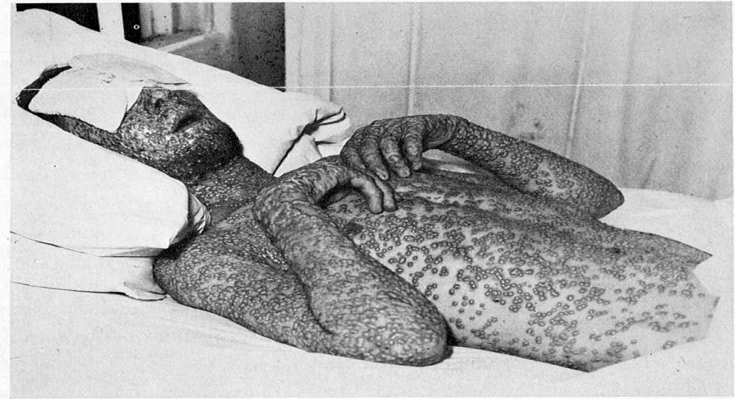
- ⊕ So how do crops and domesticated animals lead to advanced civilizations and conquest?
  - ❖ Once people can stop moving around and have access to stored food they have more **leisure time** to devote to **innovation** and **technology**
  - ❖ More food and more time also results in **more births**
  - ❖ As populations increase societies adopt **rules** and **codes** of conduct to **regulate** the increasing interactions between people and groups
  - ❖ Population pressures also lead to **competition** for scarce resources (the roots of conflict and wars), as resources increasingly become scarce and populations continue to **grow**, people look **elsewhere** for new resources
  - ❖ Ultimately nearby populations are forced to either **adopt** their neighbors' technological advantages **or** be **conquered** (either through violence or overwhelming numbers)



# What About Disease?

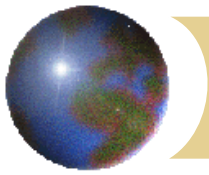
## ⊕ Disease

- ⊕ History demonstrates that not only is conquest typically the result of technological imbalance but also immunity imbalance
- ⊕ Most deadly diseases are mutations of **animal disease**. **Proximity** to animals transmits the diseases.
- ⊕ Societies with domesticated animals have more exposure to diseases and build immunities
- ⊕ As societies spread, diseases spread with them



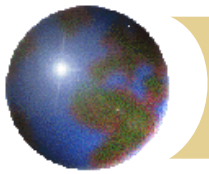
*New York State Department of Health Photograph*

Human Disease	Animal with the most closely related pathogen
Measles	cattle (rinderpest)
Tuberculosis	cattle
Smallpox	cattle (cowpox) or other livestock related to pox viruses
Flu	pigs and ducks
Pertussis	pigs, dogs
<i>Falciparum malaria</i>	birds

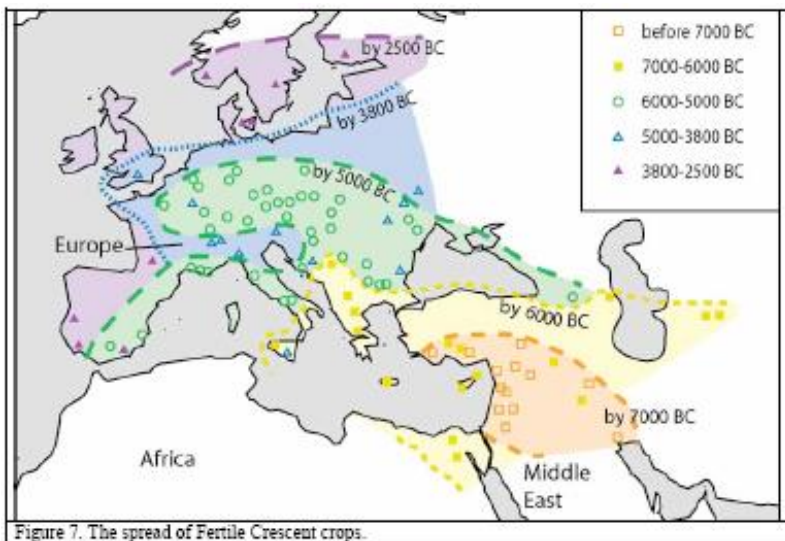


## *So why isn't the Middle East more powerful?*

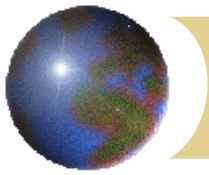
- ❖ **Climate change** and **overuse of the land** in the Middle East led to the collapse of many of the advanced societies in the region (but not before their **technology** spread)
- ❖ **Europe** was the chief beneficiary of the Middle East's head start because of similar climates and the relative ease of transportation and trade via its seas and rivers, thus Europeans ended up having a technological head start in the race toward **guns, germs, and steel**



# Europe's Advantage



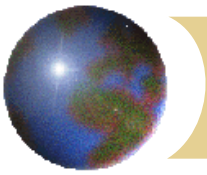
- ✦ Crops, domesticated animals, and ideas from the fertile crescent spread throughout Europe, kick-starting sedentary farming villages
- ✦ European societies developed quickly due to the rapid diffusion of technology from the Middle East (allowing Europe to skip over the long periods of time normally necessary for such advancements in technology)



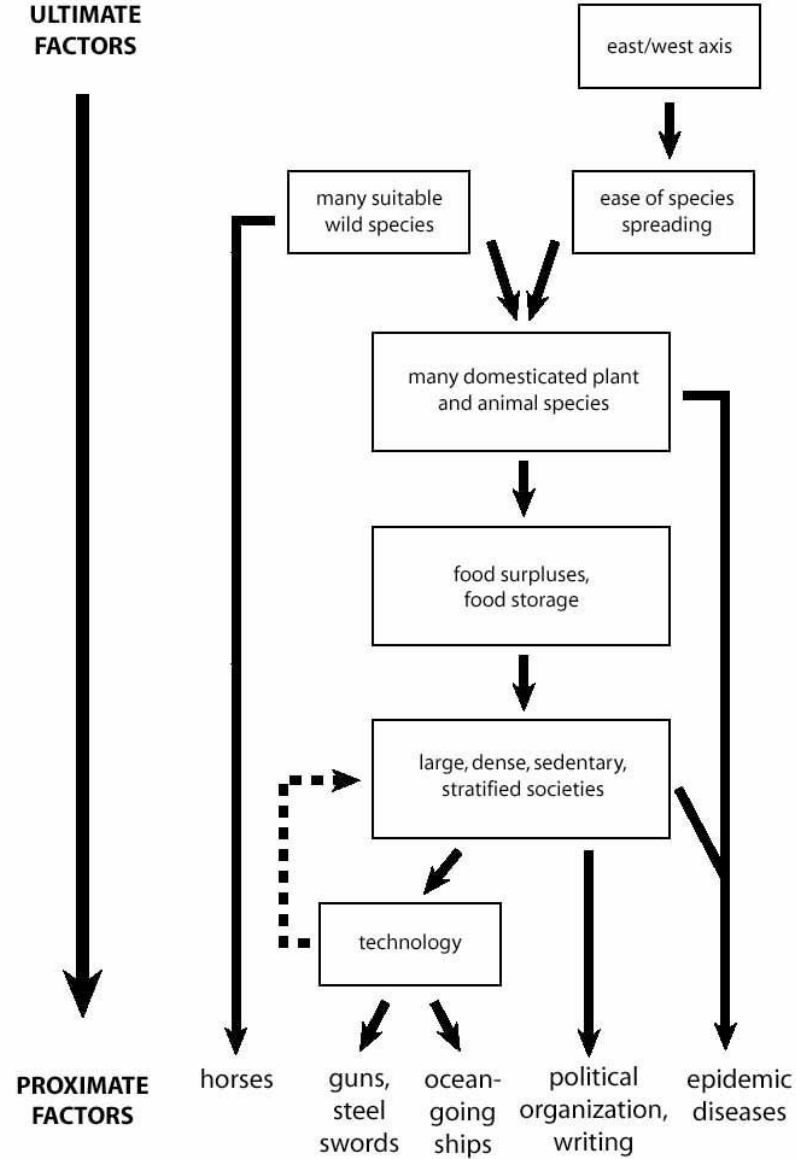
## *To Sum Up...*

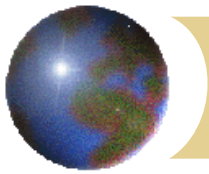
- ❖ **Global inequality** is a result of which societies had natural and geographical head starts leading to earlier advances in technology
  
- ❖ Immediate (proximate) causes of conquest such as guns, germs, and steel are really just the natural outgrowth of the more distant (ultimate) causes such as physical geography and availability of plant and animals that can be easily domesticated
  
- ❖ So what does the title of Diamond's book mean?
  - ❖ **Guns** represent the weapons of war developed due to conflict over resources and ultimately used to conquer others
  - ❖ **Germs** represent the diseases resulting from domesticated animals, which devastate unexposed populations (intentionally or not)
  - ❖ **Steel** represents technological innovations (especially in tools, communications, and transportation) which provide conquering civilizations the advantage over competing societies





## FACTORS UNDERLYING THE BROADEST PATTERN OF HISTORY





## *Resources Used*

- ❖ Diamond, Jared. (1997). Guns, Germs, and Steel: The Fates of Human Societies. W.W. Norton & Company, NY, NY.
- ❖ <http://alliance.la.asu.edu/temporary/fogel/FogelDiamondGunsHandout.pdf>
  - ❖ All the charts and tables used are from this website