Foundations of World Civilization: Notes 14

Technology and Kleptocracy

- So, what about the origin and spread of scientific and technological ideas, which gave Eurasians such an advantage in dominating the world? (Diamond chapter 13)
  - ideas must first originate somehow. How?
    - Great men theory of science and technology
      - technological advances are due to particular innovators
      - Thomas Edison, Albert Einstein, etc.
    - Social evolution theory of science and technology
      - ideas arise from combinations of previous ideas
      - when the ideas are there, someone will put them together
      - if not Edison now, then someone else a year later…
    - Reasons to believe the social evolution view:
      - every invention was preceded by equally difficult advances, and followed by equally difficult development
      - multiple people have often made the same discovery or invention independently around the same time
        - Charles Darwin, Alfred Russel Wallace (natural selection in 1859)
        - Isaac Newton & Gottfried Leibniz (calculus around 1670), etc.
    - Diamond holds the social evolution view
      - inventions simply come about as people work with the available ideas
        - naturally, inventors have motivations
        - but they typically don't know the long-term role of their work
      - so science and technology develop cumulatively
        - the more ideas around, the more combinations create new ideas
      - and the development accelerates
        - new ideas add to the existing ones, creating the potential for even more combinations
        - advancement feeds on itself, going faster and faster
      - so even a modest head start and/or access to more ideas has a big effect on speeding up technological advancement
      - and Eurasia (says Diamond) had both that head start and access to more ideas, due to larger population and easier, faster diffusion
  - Once something is invented, whether it is ignored, adopted, developed, or spreads depends on the social context
    - Diamond suggests that there are four factors that affect whether or not an idea is accepted and developed. To be accepted:
      - the idea must offer some clear advantage, typically economic
        - which means that associated technologies must also be present
        - example: the movable type technology of the Phaistos disk was not adopted because
          - there was no widespread literacy, paper, limited metals, etc.
          - no need for it in the existing society
          - no economic advantage to be gained from it

- the idea must fit with ideas of social value and prestige
  - example that didn't: guns in Samurai Japan (1543-1853)
- the idea must be compatible with established interests
  - example: better keyboard layouts haven't replaced QWERTY ones due to vast existing commitments to QWERTY
- examples of its benefits must be accessible to see
  - example of two British earls witnessing the successful use of cannons by Arabs against the Spanish in a battle in 1340
    - the general technology was known, but not yet appreciated or used by the British
    - but with that evidence of its value, they easily got British forces to adopt cannons

- Diffusion is crucial in the advancement of technology
  - Most innovations in most societies are not original, but adopted from others (by diffusion)
  - and these ideas combine with each other to spur more innovations
    - so the more and faster the diffusion of ideas,
    - the more and faster the development of science and technology
  - without diffusion, for example in an isolated country, useful ideas can actually be lost
    - for various internal reasons, as in Japan with guns
  - diffusion prevents these losses, in effect
    - if there is much diffusion, the idea can be re-acquired from outside again
    - also, diffusion is greatest when multiple societies are in contact with each other
      - typically in competition
      - and competition encourages societies not to abandon ideas in the first place
      - Japan could drop gun technology because it was isolated, but European countries could not, because they would be trounced by neighbors who had not abandoned guns
- Diamond argues that Eurasian geography encouraged rapid diffusion of ideas,
  - thus encouraged more rapid advancement of science and technology
  - Specifically, Eurasia
    - has the largest land area,
      - supporting the most people (innovators),
      - thus originating the most new ideas and combinations of them
    - is oriented along an E-W axis
      - which facilitates diffusion
        - bringing more new ideas into each society there
        - and thus encouraging more new combinations of ideas
      - also allows many similar societies to be in competitive contact,
        - encouraging adoption and maintenance of tech advances
    - has fewer serious barriers to movement and thus diffusion than do other continents
      - which allows for greater diffusion and competition
        - encouraging advancement of science and technology for the same reasons as above
      - [is this claim about barriers really convincing? Are the Himalayas and central Asia deserts really less significant barriers, or more easily avoided, than the Sahara in Africa, the outback in Australia, the Isthmus of Panama, or the northern Mexican/Texas desert areas?]

- So food production spread fastest in Eurasia
  - in addition to starting soonest there
- The wide adoption of food production then promoted the rapid diffusion of other ideas
  - because food producing societies
    - can support specialists
    - have additional needs such as intensifying agricultural production, managing surplus, waging wars, etc. that make them likely to adopt useful ideas or technologies
    - have leaders and states that can direct surplus to support specialists, travel, etc.
  - So Eurasia had a technological advantage because
    - they started food production first
    - they had faster diffusion of food production and subsequent ideas
    - they had greater population, so more innovators
    - they had more competition to encourage advancement and discourage backsliding
    - this lead was self-catalyzing (involved positive feedback), so the advancement of science and technology accelerated
      - the more ideas arose and spread, the more new combinations of them were formed
      - so the advancement of science and technology started early and took off exponentially

- The last of Diamond's proximate causes for Eurasia's domination of the world is that they had state government and institutionalized religions (Diamond ch. 14)
  - much of the rest of the world did not, which Diamond says gave the Eurasians an advantage
    - of course, Europeans toppled societies that *did* have state governments and institutionalized religions in both Central and South America
      - so this particular advantage may apply less in these cases
  - we should be interested in the rise of hierarchical societies
    - even aside from Diamond's Grand Narrative and Grand Theory
    - because this kind of society now characterizes almost the entire globe
    - including the society we live in
    - so, how did it come about?
  - a more general view of the rise of state government and institutionalized religions would describe it as a change from egalitarian society to hierarchical society
    - in other words, the rise of elites with wealth and power
    - government obviously involves a hierarchy of power
      - in practice, the people at the top generally are wealthier, too
      - they are supported by the surplus production of others
      - they are typically well clothed, housed, attended by aides and servants, etc.
        - both out of their own self-interest and in order to do their job well
        - they must be impressive to outsiders
        - and impressive to the populace, who can benefit from leadership and conflict resolution only if they are suitably impressed by their own leaders
      - and their very role requires them to be able to control others
        - the populace reaps some benefits from elites having this power
          - such as the benefits of big projects built for the common good
          - being able to live safely with internal violence controlled and order maintained

        - being able to effectively defend militarily against raiders or invaders
      - but power also is a benefit for those elites personally
  - institutional religions also involve elites, for similar reasons and with similar results
    - institutional religion: a formal, hierarchical system for coordinating ritual and the associated practical matters of financing, buildings, etc.
      - like the Catholic church
      - which has a hierarchy of power
      - has elites with power who live very well (like cardinals and the Pope)
      - controls land, buildings, vast wealth, even police and (formerly) armies, etc.
    - versus what we might call individualized religions
      - like Buddhism or shamanic beliefs
      - with little or no hierarchy, wealthy elites, etc.
  - Diamond calls this government and religious hierarchy "kleptocracy": rule by thieves
    - an overly dramatic word meant to draw your attention to the nature of elites
- Diamond sees "rule by elites" as the fourth main proximate cause of Eurasian domination
  - 1. germs
  - 2. writing
  - 3. technology
  - 4. centralized political organization: governments and organized institutional religions (rule by elites)
- Why do we think that government and elites, organized religion, etc. are important?
  - Because over time, societies with organized governments and religions have consistently tended to dominate, displace, or absorb egalitarian ones
  - Once, all people lived as egalitarian foragers
    - Now, virtually all people live in complex, hierarchical societies
  - So the origin and spread of such organization must be important
- To discuss the development of complex societies, anthropologists, historians, and others often use a set of idealized types of societies, proposed by Elman Service
  - Band
    - usually foragers
    - small groups
    - mobile
    - egalitarian
  - Tribe
    - low-intensity food producers, or foragers in particularly rich environments
    - larger groups
    - segmentary social organization
      - often clans (large groups of people who are supposed to be related, but cannot all trace their genealogies fully to a shared ancestor)
      - groups come together at some level for a given threat or task, then break apart again
      - with no permanent leaders or hierarchy

    - for example: "usually it is me trying to get the best of my brother, sometimes it is me and my brother against our cousins, and once in a while it is my whole village against the village down the river"
  - some inequality of power and wealth, usually earned (not hereditary) and temporary ("big men")
- Chiefdom
  - food producers, maybe some specialists
  - larger groups yet
  - hierarchy of prestige, power, and wealth
  - hereditary chiefs
- State
  - intensive food producers, lots of specialists
  - very large groups
  - complex, institutionalized hierarchy of power and wealth
- More features of each of these types are listed in the table in Diamond pp. 268-269
- These are generalized, artificial categories for discussion
  - many societies do not fit the scheme perfectly
  - some people object that this scheme is such an oversimplification that it is really fiction
- Point: many features of societies tend to vary in parallel
  - Small population → very large population
  - Foraging → highly intensified food production
  - Mobile → sedentary
  - Simple division of labor → extremely complex division of labor
    - that is, most adults do about the same tasks → many different specializations and roles in life, all interdependent on each other
  - Egalitarian → wide range of wealth and power (from commoners to elites)
  - Minimal organization → highly structured, many levels of power
  - No conflict resolution system → laws, judges, police
  - No control of violence → state monopoly of the legitimate use of force
  - Individualistic religion → hierarchical religion
- Why did societies become increasingly complex, that is, move along the scale from small, egalitarian chiefdoms towards large, hierarchical states?
  - Diamond covers many of the generally recognized factors, but there are certainly others
  - First, people began to shift from foraging to food production and become sedentary
    - in the process we have looked at earlier
  - Food production and sedentism encouraged their populations to rise
    - as we have seen earlier
  - in fact, both processes reinforced each other
    - growing population encouraged greater intensification of food production, to produce more food per acre
    - and intensification encouraged more population growth
  - sedentism and intensified food production permitted production and storage of surplus
    - allowing some families to become wealthier than others

    - also increasing exchange and concentration of surplus
    - which supported more non-agricultural specialists
    - leading to concentration of still more people into towns and cities where the surplus and goods and services provided by specialists was… and around it goes
- the growing and increasingly dense population created needs for conflict resolution and coordination
- Conflict resolution
    - in small populations, conflicts will almost always be between kin (people who are related to each other)
        - so there will be people who are relatives of one, and often both, disputants
        - these people will generally step in to mediate
        - they have an interest in preventing violence among their relatives
    - but in large populations, often there are no relatives of the disputants around
        - almost never any relatives of both, who are the best situated to mediate
        - so there is no one with reason to risk getting involved
        - disputes go unchecked, and violence often results
    - faced with uncontrolled violence, people may find it acceptable to grant that
        - one person (a chief, priest, etc.) or institution
        - has a legitimate right to make binding decisions
        - and monopolize the legitimate use of force
        - keeping order, protecting the wronged, etc.
    - in fact, we have many historical and ethnographic examples that suggest that this is true
        - colonized people who otherwise resented foreign rule have often voluntarily used and supported colonial courts and their authority
        - they appreciated the ability to resolve problems without having to fight or kill each other
        - !Kung in southern Africa
        - New Guineans, who appreciated outside powers' ability to stop their endless, bloody wars
- Coordination (what Diamond covers under "decision making")
    - larger populations may need to coordinate activities of more people
        - building defensive walls or organized military action
        - digging, cleaning, repairing canals
        - building and maintaining suitably impressive ritual structures, etc.
    - large groups need leadership and hierarchy to work effectively
    - so, as with conflict resolution, people may find it acceptable to grant power to one person or institution
        - to coordinate efforts needed for big projects, defense, etc.
- some comments about the powerful roles that arise in response to these needs
    - these reasons need not be conscious decisions made all at once by "the public"
        - a self-aggrandizing individual may recognize an opportunity and promote him/herself for a task
            - since he/she is meeting real needs, people may go along

    - once some people start to have more power than others,
      - those people might actively try to maintain and extend their position
      - getting involved in new areas
      - using their power to create propaganda in their own interests, etc.
    - initially, these sorts of offices were often hereditary
      - which eliminates doubt about who is entitled to this power
      - ensures that incoming office holders are known since birth, trained, experienced
    - there must be an ideology that justifies the power of these people
      - often involved the supernatural, as in chiefly families being descended from mythical heroic ancestors, gods, or forces of nature
      - usually involved formal ways of showing respect
      - the emerging elite would encourage and elaborate this ideology, because it reinforces their claim to status and power
- the economy began to include some redistribution, for several reasons
  - there must be a way to financially support the conflict-resolving, managerial elite
    - such people cannot spend much time producing their own food, except maybe at first
    - to carry out their roles as legitimate authority figures, elites require
      - identifiable, impressive clothing, ornaments, etc.
      - suitable places or buildings for meetings and decision-making
      - objects that "materialize" or visually represent the ideology that justifies their position and/or the economic or political power that supports it
        - a throne, a decorated storehouse full of food, a soaring cathedral, etc.
    - the chief may eventually need assistants to enforce his/her decisions
      - requiring still more surplus to support them
  - the group activities (building a defensive wall, etc.) that the chief coordinates must be supported somehow, typically by redistributed surplus
    - primarily to feed or compensate people who work on the project
    - also to acquire any special materials, etc.
  - Diamond argues that any large economy must involve redistribution because it would be too inefficient without it
    - [I am skeptical of this one.]
  - in order to support the elite and group projects,
    - people typically had to provide some part of their harvest, labor, or other offerings/taxes to the chief, or later to the state
    - who redistributed it to support people who provide the needed goods and services
  - this led to an elite that controlled the redistributive system
    - that is, an elite that controlled the stored surplus
    - partly for their own benefit
    - hence Diamond's term: "kleptocracy": rule by thieves
- Finally, Diamond argues that any society's economy must have become very complex and interdependent as the population rose
  - with more and more people, each family had to get by with a smaller amount of land
    - and thus a reduced variety of kinds of resources directly available to them

    - or, if they lived in a town or city, maybe no land at all except for their dwelling
  - this reduced the variety of foods and goods that any given family could produce
  - making people ever more dependent on exchanging with others to get what they need
- These emerging elites maintain and extend their power in (according to Diamond) in four general ways
  - 1. elites ensure their monopoly on the legitimate use of force by disarming the populace
    - and arming their own thugs or police
  - 2. elites use much of the surplus that they control in ways that please the populace
    - genuinely meeting needs such as defense, security against individual crop failures, temples that arouse civic pride, etc.
    - in many cases, giving big festivals or feasts with food and drink from the stored surplus
  - 3. elites use their monopoly on the legitimate use of force to maintain social order, control violence, resolve disputes, etc.
    - this is a real benefit to the populace
    - evidence: multiple cases of recent and historically documented foragers who have been settled and incorporated into modern states
      - often unfortunate results,
      - who nevertheless specifically recognized and appreciated the outside authority's ability to mediate disputes and control violence
      - which is actually quite high in many foraging groups
      - example: the foraging Dobe !Kung of Namibia had a homicide rate from 1920-1955 of 135 homicides / 100,000 / year (Lee 1984)
        - US in 2007: 5.6 homicides / 100,000 / year (FBI Crime in the United States 2007)
        - Oakland in 2007: 30.3 homicides /100,000 / year (FBI CIUS 2007)
        - the !Kung had a murder rate 4.5 times that of Oakland, or 24 times that of the US as a whole – they appreciated that outside authorities controlled this violence
  - 4. elites encourage an ideology that justifies hierarchy and elite privilege
    - elites as having special contacts with gods, descended from gods, or divine themselves
    - a supernatural world in which gods, spirits, etc. are arranged in a hierarchy of power
      - implying that hierarchy is natural and part of the order of the universe
    - priests or institutions of religion as being very impressive and powerful
      - often by building monumental temples
      - one message of which is "don't even think about messing with the institution capable of building this"
    - Diamond suggests two additional benefits of institutionalized religion
      - it gives the many unrelated people in a large population something in common
        - a sense of solidarity and identity
        - that helps them get along,
        - and be unified in opposition to other groups
      - it may provide motivation for people to sacrifice up to their lives for their group
        - which is a big asset for the group in war and defense
  - the balance among these four methods varies from society to society
    - in some societies, elites will

        - expend most of the surplus on projects, services, and maintaining order in ways that the population likes
        - manage the ideology so that people believe that their form of hierarchy is legitimate and good
        - these elites will be relatively secure in their positions
            - they can enjoy their personal benefits without having to expend much of the surplus on force to control the populace
    - in other societies, elites will
        - expend too much surplus for their own benefit, rather than the public's
        - and/or fail to maintain order,
        - and/or fail to resolve conflicts in a publicly acceptable way
            - maybe by being too obviously unfair or biased
        - and/or fail to use the ideology to legitimize their position
            - maybe by violating ideological rules about honesty, cooperation, generosity, religious practices, morality, etc.
            - or by allowing the ideology itself to lose credibility by under-funding religious or political rituals, etc.
        - these elites will find their positions threatened by public unrest
        - and may have to expend more resources on force to keep the populace from rebelling
- Diamond suggests a process that could actually bring these changes about
    - this is a social Darwinist argument about competition between groups of people, with the "fittest" societies surviving and growing
        - like much of Diamond's book, these ideas are not new
        - this argument was proposed by William Sanders and Barbara Price in 1968
    - As we saw above, the larger the group, the more necessary are elites and hierarchy
    - Societies will naturally vary in how hierarchical, economically complex, etc. they are
        - those that develop workable forms of hierarchy survive as large groups, and grow
        - those that do not eventually split up into smaller groups
            - because they cannot handle internal conflicts
            - they are not good at organizing for defense, to build canals, etc.
            - they are economically inefficient because they lack effective redistribution, etc.
    - the surviving large, hierarchical, effective societies have advantages over the small fragments of the ineffective ones
        - they can conquer them in battle because they have
            - greater populations,
            - more coordinated military tactics,
            - better weapons made by specialists, etc.
    - so social groups will tend to join together into larger ones
        - or "amalgamate", as Diamond puts it
        - either by force, when they are conquered by larger ones
        - or in response to threat, to defend themselves against a large, hierarchical aggressor
    - and in growing larger, they increase their degree of hierarchy, economic complexity, etc.

- in the long run, the larger, more hierarchical, more economically complex societies survive and grow,
  - and the smaller, less hierarchical ones get swallowed up and disappear
- Diamond focuses on warfare, but in addition, these larger, more complex groups may also survive and grow better for other reasons
  - they may be better at surviving natural crises
    - because they may have large stored food surpluses that help them get through crop failures
    - they may build levees that protect from floods, etc.
  - they may simply attract people to voluntarily join them or marry into them
    - because they offer the advantages of such groups:
    - the justice and stability brought by conflict resolution
    - domestic safety due to the control of internal violence
    - security from attack and natural catastrophes due to coordinated projects of defense, stored surplus
    - more varied goods and services due to having more specialists, etc.
  - the effect is the same: large, complex groups continue and grow, while smaller, simpler ones dwindle and disappear
- Finally, Diamond argues that the outcome of this process depends on population density
  - this is based on an idea proposed by Robert Carniero in 1970
  - if population density is low, as among foraging bands,
    - violent conflicts do not lead to amalgamation of groups into larger ones
    - because the losers in a conflict can simply move away
  - if population density is moderate, as is typical of early food producers (often tribes)
    - violent conflicts still do not lead to amalgamation of groups into larger ones
    - the losers cannot easily move away, because the land around them is generally already occupied by others
    - but the victors have little to gain by incorporating the losers into their society
      - they do not have much use for the losers as slave or other laborers because they are still producing food relatively easily using low-intensity methods [hmmm]
      - and the losers cannot produce enough surplus to be worth controlling them in order to extract tribute
      - so the victors take what they want,
        - and probably kill as many of the defeated fighters as they can
        - so they won't be a threat in the future
    - if population density is high, as is typical of some chiefdoms and of states
      - violent conflict can lead to amalgamation in two ways
      - again, the losers cannot easily move away
      - the victors may take the losers as slaves (or other kinds of coerced laborers, as in a labor tax)
        - because they are now practicing intensive agriculture
        - which demands a lot of labor per amount of food produced
          - so they can use the additional labor

- and they are doing more specialized, non-farming activities
  - which may involve labor-intensive tasks
  - like shaping stones, making and hauling bricks, etc.
- or the victors may leave the losers in place,
  - but demand tribute from them
  - that is, the losers have to produce some surplus and turn it over to the victors

- Summary:
  - the ultimate causes
    - the configurations and ecologies of continents
  - affected the timing and degrees of
    - food production,
    - competition between societies,
    - and diffusion
  - which affected the timing and degrees of
    - sedentism and large, dense populations
  - which affected the development of
    - infectious diseases,
    - writing and other technologies
    - and complex, hierarchical social and economic organization
  - which were the proximate causes of Eurasia (really Europe's) domination of societies in the rest of the world

- Thanks, Dr. Diamond, for helping to lay some foundations for us
  - Now, on to some specifics and later history…