H-Net Reviews
in the Humanities & Social Sciences

Jared Diamond. *Guns, Germs and Steel: The Fates of Human Societies.* New York: W.W. Norton & Company, 1997. 480 pp. $17.95 (paper), ISBN 978-0-393-31755-8; $29.95 (cloth), ISBN 978-0-393-03891-0.

Reviewed by Joel Mokyr (Northwestern University)
Published on EH.Net (May, 1998)

Jared Diamond is a physiologist and evolutionary biologist with a passion for archaeology and linguistics. That, by itself, should seem to make him irrelevant to economic history. Yet his widely read and admired recent book, honored last month with a Pulitzer Prize, is one of the more important contributions to long-term economic history and is simply mandatory to anyone who purports to engage Big Questions in the area of long-term global history. He starts off his account with what he calls "Yali's question." Yali is a New Guinea notable, who one day poses to the author the question why white people have so much "cargo" (western manufactured goods desired by New Guineans), but New Guinea produces no cargo that Westerners are interested in.

Indeed, the question of questions. Diamond joins such heavyweights in economic history as Eric Jones, Douglass North, Nathan Rosenberg, and recently David Landes in asking why "we" are so rich and "they" are so poor. Is it institutions? Culture? Technology? Religion? Diamond does not reject any of these answers altogether, but instead formulates models in which they become endogenous variables. The real exogenous variable, when all is said and done, is geography. Diamond, to put it bluntly, is a geographical determinist. The shape and location of continents, flora, fauna, microbes, water, climate, topography, all are truly exogenous to history. The rest is endogenous.

Geography has of course a terrible reputation. David Landes, in *Wealth and Poverty of Nations* (New York, 1998) starts off by recounting how geography departments were closed around the country without a tear, and notes that "no other discipline has been so depreciated and disparaged." Simple models that submit that "Britain had an Industrial Revolution because it had coal" have long been abandoned. Yet before we dismiss this as another simplistic model, we have to face the fact that Diamond knows his stuff inside out, to the point where any thought of using the adjective "crude" (traditionally preceding "determinist") evaporates as we turn the pages. Diamond fires off a barrage of facts and observations based on half a dozen disciplines most economic historians this side of Eric Jones are unschooled in: archaeology, botany, linguistics, anthropology among them. The story he tells is one of a trajectory in which the world's population bifurcated for geographical reasons. Once on different paths, Africa, America, and "Eurasia" diverged more and more through positive feedback effects, in which geography fed into technology, technology fed into power structures and culture, feeding back into technology and growth until we got a world of Western economic hegemony. Such "autocatalytic" models which view economic history as a disequilibrium process once were shunned by the neoclassical cliometric orthodoxy. Today, thanks to the efforts of scholars as diverse as Douglass North and Paul David, we are getting used to them, and the intellectual gains are substantial.

What, then, are the geographical factors that Diamond thinks determined the course of economic history? Above all, it is that human wealth and success depends on interaction with the environment. Economic history in his view is a game against nature, not primarily a social process. Production–especially in agriculture–depends on the geographical hand we have been dealt. Yet Diamond's emphasis is not on soil fertility and minerals as in the writings of most geographers, but on the ability of homo sapiens to domesticate plants and animals. His view is that all societies and cultures have approximately similar abilities to manipulate nature, but the raw materials with which they had to work were different. Diamond points out in his witty prose that domestic animals are much like Tolstoy's view of happy marriages: all happy marriages are the same, each unhappy marriage is different in its own way. Domesticable animals are all domesticable in the same way, but recalcitrant animals are all different. To exploit large animals for food, energy, or other services, domesticable wild animals need to exist, a condition that did not obtain in Precolumbian America (where the arrival of homo sapiens 13,000 years ago had led apparently to their extinction). But even if they ex-

isted, they needed to satisfy some conditions such as being able to breed in captivity, safe for children and other living beings, and so on. He argues, with great conviction, that the hippos and giraffes of Africa, the jaguars of the Amazon, and the kangaroos of Australia did not meet those conditions. The domesticated llamas, turkeys, and dogs of America could not pull it off either. Eurasia, on the other hand, was lucky enough to have had the wild animals from which our cows, sheep, horses and chickens could be bred. This gave the Europeans huge advantages, not only in terms of the development of technology (e.g. mixed farming and wheeled transport) but also in providing them eventually with immunity against infectious diseases caused by the proximity of these animals. When they then established sudden contact with non-Europeans, the "Plagues and Peoples" effect simply overwhelmed the unprepared victims.

A similar and perhaps less well-known effect occurred with respect to domesticable plants. Eurasia was simply lucky in that its environment provided a much larger stock of plants that lent themselves to domestication, and plants that had better quality in terms of the nutrients supplied, resistance to disease, ease of cultivation and so on. Botanical wealth, constrained by the local flora, determined agriculture, agriculture determined everything else, says Diamond. Eurasia won because the supply of wild plants that provided the gene pool for domesticated crops was larger, richer, and better. If you feel that this is a bit simplistic, read his chapters on "How to Make an Almond" and "Apples and Indians." It is a serious, informed, and well-thought out argument, and if in the end we are not wholly convinced, thinking of how to refute Diamond will make us wiser and better informed.

Diamond's argument makes serious use of counterfactuals, to the point of wondering in the last chapter what would have happened if a German truck driver in 1930 would have hit his brakes a second later and killed Hitler in a head-on collision. But in the chapters on agriculture his imagination abandons him. How much of the performance of non-Europeans was really constrained by their environment and how much their own making? In Diamond's view, the answer is "all and nothing." Yet one can imagine crops that were manipulated and selected to produce crops that are as unimaginable to us as poodles and sweet corn would have seemed 10,000 years ago. Take one example: among the disadvantages that the indigenous plants of what is now the Eastern U.S. suffered from is a lack of founder crops. Yet he does concede that some of them on the surface could have done nicely, such as a flower named sumpweed, "a nutritionist's ultimate dream" with 32 percent protein. Sumpweed, Diamond explains, did not make it to the rank of corn, potatoes, and rye because it causes hayfever, does not smell good, and handling it can cause skin irritation (p. 151). Are we really sure that these vices could not have been bred out of them? After all, all domesticated plants had originally undesirable characteristics, but through deliberate and lucky selection mechanisms they eventually got over them. Wheat, rye, and maize, which feed much of the world's population, all had humble beginnings. Diamond points out that much of our ability to improve plants depended on whether certain characteristics were the result of epistatic effects, that is, caused by more than one gene. People could select for a particular trait as long as it was caused by one of very few genes; if it was controlled by many genes, breeding specimens that displayed the traits would be unlikely to fix it in the population. But apart from a few examples, Diamond does not persuade us that this lay at the heart of the geographically challenged societies.

A somewhat similar problem exists with Diamond's view of technology. In a chapter cleverly named "Necessity's Mother" he notes the many links between geographical constraints and technical options. Why would a society produce wheels if it had no horses or oxen to pull them? Wheelbarrows and rickshaws might have been an option, but maybe draft animals came first. Not all questions can be answered that way: some indigenous populations in America might have built seaworthy ships, or managed to develop some technology we cannot imagine today. If they did not, is this because they tried but failed, or because they never tried?

Yet Diamond points out two elements that suggest that links between geography and technological progress may be significant. One is that geography constrains mobility of knowledge. Assume, somewhat implausibly, that the idea of a wheelbarrow only occurred to one person in history, but that it spread to people seeing their neighbors use. If this happened in Central Asia, it may well have reached China, France and Yemen in a few centuries, but before 1500 it would never get to America or Australia. Agricultural technology, he notes, also diffuses easier from East to West than from North to South, as changing longitude has a stronger effect on climate and seasonality than changing latitude–giving Eurasia an advantage over America and Africa. Furthermore, Diamond resurrects the late Julian Simon's argument that technological success depends on population density and the ability of a society to produce a surplus beyond subsistence, so that there are resources available for thinking and experimenting. Maximum population density was

largely a function of the ability of the environment to feed the population. Writing, for instance, required large and dense settlements with complex hierarchical institutions, much different from hunting and gathering tribes.

The notion that much economic history is a game against nature, in which people form certain views about its regularities and use these to manipulate them to improve material conditions is a powerful one. Diamond's insight is that nature differs from place to place and that certain environments are easier to manipulate than others. The economic historian must add two qualifications to this. One is that environments can be manipulated or abandoned. While Diamond describes in detail prehistoric population movements (which he deduces from linguistic evidence), he does not realize that he tells the story of regions, not necessarily of people who always had the option to move to a more generous and flexible area. Secondly, it could be argued that much technology emerges precisely because the environment is not generous and requires hard work and ingenuity. What is the partial derivative of technological creativity with respect to initial geographical endowment? In the final analysis, this is still unknown.

The book is full of other clever arguments about writing, language, path dependence and so on. It is brimming with wisdom and knowledge, and it is the kind of knowledge economic historians have always loved and admired. If you teach economic history, any kind of economic history, go read this book. Or else you are taking a serious risk that a clever undergraduate who has read it will ask you a question you don't know the answer to. Nothing worse is imaginable, short of organizing a world conference and cancelling at the last moment.

If there is additional discussion of this review, you may access it through the list discussion logs at:
http://h-net.msu.edu/cgi-bin/logbrowse.pl.

Citation: Joel Mokyr. Review of Diamond, Jared, *Guns, Germs and Steel: The Fates of Human Societies.* EH.Net, H-Net Reviews. May, 1998.
URL: http://www.h-net.org/reviews/showrev.php?id=2016