

## Guns, Germs and Steel

A Short History of Everybody for the Last 13,000 Years

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*Guns, Germs and Steel*  
*A Short History of Everybody for the Last*  
*13,000 Years*

by Jared Diamond  
 Vintage Publications,  
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Why did history unfold differently on different continents? Why did wealth and power get distributed in the way they now are and not in some other way? Why is it that the native Americans, Africans and Australian aborigines were not the ones who conquered Europe?

The search for answers to these questions motivates this incredibly enjoyable and scholarly book which takes the reader through 13,000 years of human history. The author, a highly regarded evolutionary ecologist, brings a refreshing new approach to these questions which have for long been considered intractable by historians.

Recent advances in molecular genetics, archaeology, ecology, bio-geography and a myriad other fields are combined to fashion a refreshing new inter-disciplinary approach which makes this book a highly readable and original contribution to an area of history which is of enormous intellectual and moral significance.

The most common explanations to these questions have, either implicitly or explicitly, invoked intrinsic biological differences amongst people as causes for these disparities. These explanations were based on the premise (albeit never validated!) that the Europeans were more 'intelligent' than, for instance, the Africans and especially more so than the Australian aborigines!

In spite of the fact that these explanations have often been shown to be wrong they find favor with a surprisingly large number of people. More convincing however have been explanations which stress the role played by more immediate factors such as the possession of guns, infectious diseases (to which the native Americans for instance were very susceptible) and advanced metal technologies. However, these are at best proximate causes. The ultimate question haunts us: Why was it that it was the Europeans that were in possession of these scale tipping factors and not, for instance the native Americans or Africans? In other words, what are the ultimate causes which determine the immediate advantages some people had (and continue to have) over others?

Going beyond proximate causes, Diamond's explorations begin at the end of the Ice Age, 11,000 BC, when human beings everywhere were engaged in 'hunting-gathering' constituting what one might call a level playing field. From this 'equal' beginning the book develops the chain of causes which lead to a fresh and insightful understanding of the reasons that lie behind the 'unequal' distri-

bution of power and wealth on the planet today. Diamond uses 'ultimate causes' to imply those initial causes which generated significant differences between various (yet 'equal') peoples beginning 13,000 years ago. 'Proximate' causes, on the other hand, are those which proved to be of immediate consequence in determining the outcomes of actual encounters between peoples.

Diamond's search for ultimate causes begins with the rise and spread of food production. Food production as opposed to food gathering led to the availability of much more food resulting in denser human populations. It is from within these densely populated human settlements that politically centralized, socially stratified, economically complex, literate societies arose. Through six wonderfully detailed chapters encompassing archeology, molecular genetics, bio-geography (and much more!) Diamond outlines the factors which rigidly constrain the rise and spread of food production. One of the most crucial constraints was the availability of 'domesticable' (biologically amenable to domestication) plant and animal species which are so essential for laying the foundations of a settled society. So strong was this constraint that only five regions in the world witnessed the independent origin of food production. Among these five regions it was Eurasia which was the most blessed being home to as many 11 of the 12 cereals and 13 of the 14 mammals to have ever been domesticated. Studies in crop molecular genetics indicate that in fact a large number of plant and animal species on

other continents were not amenable genetically to domestication. However, such questions need to be subjected to more intense scientific scrutiny. Such efforts may throw more light on why the Eurasian land mass was home to these favorable plant and animal species in the first instance. Food production in other parts of the world arose as a consequence of the spread of this 'technology' from the different places of origin. The presence of ecological and geographic obstacles to the diffusion (or spread) of innovations was a vital factor which severely limited this process and acted in different ways on different continents. Despite the invention of the wheel, writing and cereal cultivation in parts of America these innovations did not spread on this continent thanks to insurmountable barriers in the form of deserts and the Panama isthmus. This was in sharp contrast to Eurasia where these very innovations, diffused with great rapidity from their places of origin throughout the entire continent largely due to the absence of such barriers. These differences bear testimony to the profound role (not often given its due) that ecological and geographical barriers can play in the evolution of human societies. This advantage was further accentuated by the fact that Eurasia's major axis, in terms of spatial extent was East-West (a story which I will leave for you to read from the book!). Eurasia thus succeeded in evolving a suite of domesticated flora and fauna which served to catapult it ahead in the race for the evolution of complex societies which were to prove to be the engines of European expansion. A more general point



that these arguments lead up to is that when two peoples from different regions confront each other at any time in history, the history of food production of these peoples often plays a decisive role in determining the outcomes of these encounters.

The unequal geographic rise and spread of food production assume immense importance and constitute in many ways the ultimate causes for present day inequalities. The third part of the book explores the connections between these ultimate causes and the proximate causes (*Guns, Germs and Steel*) which played a decisive role in determining the disparate distribution of wealth and power. Four chapters dealing with the evolution of four momentous proximate causes: disease, writing, metal technology and complex social organization serve to articulate and fully develop Diamond's explanatory framework of world history which began with the origin of food production. Diamond, the biologist, is at his best in the chapter on the evolution of disease, expertly guiding the reader through intricate and enjoyable details of the natural history of disease. The importance of disease is illustrated by the fact that far more native Americans, Aztecs, Incas, Khoisan and others died in bed from European germs than on the battlefield. This sinister advantage was further magnified by the fact that the flow of disease was completely one sided: from the Europeans to the people they invaded. Smallpox which was brought into the Americas by the Spaniards devastated more than half of the entire population of Mexico.

All these diseases were derived from microbes infecting domesticated animals which had evolved to successfully utilize humans as hosts. What facilitated their evolution was the presence of dense human societies with intimate ties to their livestock. These features qualified Eurasia as a breeding ground of these diseases which gave people from these areas a lethal advantage. In the absence of domesticated animals and dense human societies other regions of the world did not harbor these diseases. Clearly there were exceptions to this rule and diseases did not always work to the Europeans advantage such as in Africa and parts of Asia. But, in this case, other proximate factors ruled in the Europeans' favor. Writing brings power to societies by making it possible to transmit knowledge with greater accuracy, in greater quantity and detail, and across greater distances and stretches of time. The difficulty associated with developing a writing system from scratch is such that in the entire history of humanity writing systems were developed independently only in Sumer and Meso-america (and possibly in China and Egypt). It then diffused from these regions to other parts of the world. Despite this, writing remained rather restricted in its global spread. Explanations for this rather limited and uneven geographical spread of writing are to be sought in a complex of causes. First and foremost was the intrinsic difficulty in the development of a writing system. It was only food producing and hence stratified societies with complex political organization which found use for writing. Even in these, writing



was restricted to administrative purposes which limited its initial spread. In addition geographic barriers on many continents (such as Africa, the Americas and Australia) proved detrimental to the diffusion of language. Here again, the lack of these barriers in Eurasia greatly aided the spread of writing systems on this continent. These causes acting together finally determined the evolution of writing systems all over the world.

Technology occupies the pride of place in conventional explanations of the differential development of the world's people and duly so. The history of technology clearly shows the unequal geographic development of technology as evidenced by the evolution of electronic technology in some societies while many others remained very much stone age societies. Why and how did these disparities arise? True to the original motivation the search for explanations is pushed back to what Diamond's ultimate causes! After a delightful romp through many interesting events in the history of technology, Diamond makes out a convincing case for the limiting role played by the combination of rise of food production, barriers to diffusion and human population density in the evolution of technology. All other things being equal technology develops fastest in large productive regions with large human populations, many potential inventors and many competing societies in combination with the absence of barriers to diffusion. Here again, Eurasia's head start in food production enabled it to fulfill these requirements and

hence possess insurmountable advantages technological advantages.

In addition to proximate factors such as disease, writing, and technology, the formation of centralized socio-political organizations like States and Empires in some parts of the planet amongst some people was yet another proximate factor which played an incredibly important role in world history. A persuasively argued chapter tracing the rise of complex centralized socio-political organizations succeeds (yet again) in making a strong case for the role with the rise and spread of food production (ultimate causes) played in their origin and spread. In driving home this point Diamond marshals evidence from anthropology, sociology and political science. In essence then, the means of food production and their diffusion acting as ultimate causes through complex (yet decipherable) chains of causation, always involving large dense populations and sedentary living, led to the proximate agents of conquest: germs, writing, technology and centralized societies. These proximate causes acting at different rates and in concert with each other to varying extents finally determined whether a given society became the conqueror or the conquered. These outcomes, in turn have finally determined the present configuration of the people of the world.

In the last part of the book this carefully constructed explanatory framework is brought to bear on bringing about an understanding of the outcomes of five separate

encounters between different peoples ranging across the globe, from Polynesia to Africa and from America to China. This, the concluding part of the book, illustrates the power and parsimony of this bio-geographic framework in coming to terms with what one might unhesitatingly term the most important set of questions confronting us today as citizens of an increasingly 'globalized' world.

At the end of the book what we have is more than just a case for the role of environmental factors in human history or a set of partial answers to momentous questions. Diamond has succeeded in setting and passionately pleading for an alternative research agenda for history. An agenda which will borrow heavily from other historical sciences, such as geology, astronomy, ecology and evolutionary biology. With great precision, Diamond elaborates the many methodological

and philosophical parallels between these endeavors and human history, parallels which leave one with a lot of food for thought if not often completely convinced.

The book is an absorbing effort at synthesis which takes on some of the most profound questions we face and sets out answers (which in turn raise many more questions) which are bound to leave a lasting impact on the way historical research is done. A large number of interesting anecdotal detours more than make up for the one aspect of the book which detracts from it ... its length! But then when you take on something as awesome as world history itself you surely cannot get shorter than this! Beg, borrow or steal it (better still buy it)...but do read it!

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## Material Marvels

*Sheela K Ramasesha*



*Material Marvels*  
B C Sharma  
National Book Trust of India, New Delhi  
1999, Price Rs. 40/.

Many new materials are being synthesised for use in our daily routine. The book, which is for popular reading, describes different

types of materials in a simple way. The anecdotes and a couple of sentences here and there about the scientists involved make reading lively. The chapter heading and sub-headings are well chosen. The book is divided into eight chapters and each chapter is devoted to different kinds of materials. In fact, the book has a whole chapter on different forms of carbon, making the book complete and up to date information.

Chapter 1 gives good introduction to materials of present times. How new materials were

Guns, Germs and steel. The fates of human societies. Jared Diamond. W. W. Norton & Company New York London. More praise for Guns, Germs, and Steel. "No scientist brings more experience from the laboratory and field, none thinks more deeply about social issues or addresses them with greater clarity, than Jared Diamond as illustrated by Guns, Germs, and Steel. In this remarkably readable book he shows how history and biology can enrich one another to produce a deeper understanding of the human condition."  
—Edward O. Wilson, Pellegrino University Professor, Harvard University. &quo