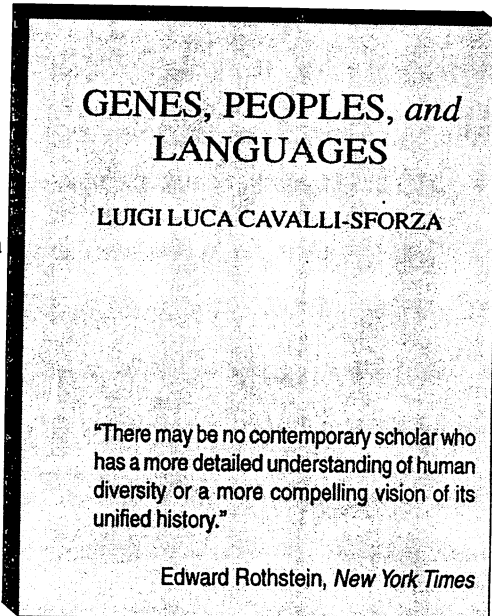


# GENES, PEOPLES AND LANGUAGES

by  
LUIGI LUCA CAVALLI-  
SFORZA

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Reviewed by  
Cecilia Titiek Murniati<sup>1</sup>



Basically, *Genes, Peoples, and Languages* attempts to describe human history through different points of view. The writer, Cavalli Sforza, is a geneticist whose primary interest is the human population genetics. He states that this line of inquiry cannot be separated from other disciplines (p. xi). Furthermore, he believes that using other disciplines will enrich his research (p.33).

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<sup>1</sup> **Dra. Cecilia Titiek Murniati, M.A** is a lecturer of the Faculty of Letters, Soegijapranata Catholic University, Semarang.

In this book, Cavalli-Sforza uses genetics, language, and culture to elucidate human history, evolution and expansion. His basic claim is that the history of human evolution can be traced through the genes of modern people, languages, and cultural transmission (p. 33). He has a strong argument that genes and languages are in fact complimentary. He highlights the relationship between genes and languages in chapter 5, Genes and Languages.

The book starts with the issue of racism. In this chapter, he describes the nature of race; why are there so many different races and what causes them. Race, according to him, is superficial. People are different and the differences can be seen through physical appearance, such as skin color, hair, eyes, and so forth. He argues that the main cause of the different races is the adjustments to new climates and environments (p. 10). Modern humans first appeared in Africa and later expanded to other continents. The adaptation to new climates in other continents results in different physical appearances. For example, modern humans who migrated to South Asia would have darker skin to protect them from the sunlight. Race, then, is being biologically different (p. 25). He believes that racism issue is misleading because it is only a matter of genetic differences. He discusses this in his Preface. However, his view is in contrast to anthropologists'. Anthropologists commonly believe that race is a matter of social patterning (Nanda & Warms, 2002)<sup>2</sup>. They believe that the notion of race as biological issue is problematic because of "the arbitrary selection of traits to define races" (p.9). It is a common knowledge that racial issue is one of the most disputable issues among scholars of various disciplines and there seems to be no agreement how race should be viewed and evaluated.

Despite Cavalli's one sided argument on race, I find this chapter very fascinating. Cavalli-Sforza, in my opinion, has successfully made the readers interested and more absorbed due to his amusing examples and lucid explanation of what causes racial differences. Although there is a discussion of method of genetic distance measurement, this chapter is by no means complicated and boring.

Chapter 2, 3, and 4 discusses the human history, evolution, and expansion using genetic data from the living population. Although Cavalli-Sforza tries to make this book readable for any readers, I particularly think that these chapters are difficult for those who do not have a background in

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<sup>2</sup> Nanda, S and Warms, R.L. Cultural Anthropology. Belmont: Wadsworth, 2002.

genetics, or biology at least. The methods of reconstructing a genetic tree, and calculating genetic distance are confusing. The terms are too abstract and the calculation is complicated. Basically, in these chapters, he makes a strong argument that genetics distance is a good tool to reconstruct human history.

He started by criticizing the method of DNA studies. He points out that they are not accurate given it is very difficult to find DNA samples from a living creature who lived thousands of years ago. Then, he suggests that it is possible to establish an evolutionary tree based on genetic distance. He posits that the populations who are genetically more similar might share more recent common ancestors. This approach, however, is criticized by anthropologists who believe that the effort to determine genetic distance is fruitless due to the fact that it is impossible to completely trace the boundaries between separate, relatively homogenous populations (Whitten, 2001)<sup>3</sup>

Cavalli-Sforza also touched on the modern human expansion, where and when did it start, what was the direction, and how. These are very crucial questions in human evolution. Cavalli-Sforza claims that modern humans, as also believed by many other scholars, may have originated in Africa and later they migrated to Asia, Australia and New Guinea, Europe, and finally North America. By measuring genetic distance, it is possible to estimate the time of separation. He provides detailed and elaborate discussion of human expansion using genetic data. It is not surprising because he is a geneticist and he has dedicated his life to study human population genetics.

With regards to human expansion, he acknowledges the importance of language. Language development made the expansion possible. It helped human communicate and explore new land.

Equally important as the discussion of genetic distance is his argument on the expansion of agriculture in Europe. Approximately 10,000 years ago, there was a shift from hunting to agriculture and this is known as Neolithic transition. He attempts to address questions whether the agriculture was brought by migrating farmers or whether the knowledge of farming was copied. He answers the questions by drawing synthetic geographic map of genes. He concludes that, based on the genetic evidence, farming was spread because migrating farmers brought the knowledge with them.

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<sup>3</sup> Whitten, P. *Anthropology: Contemporary Perspectives*. Needham Heights: Allyn and Bacon, 2001.

The heart of the chapter lies in chapter 5, Genes and Languages. In this chapter, Cavalli-Sforza relates the role of genetics and linguistics in revealing human evolution. He describes language change and elaborates how human evolution can be traced through language change. He provides a vivid and fascinating explanation about the methods used to reconstruct language families as well. His claims are mostly justified and clarified in this chapter. In my opinion, this chapter is the main strength of his book. His arguments that human history can be traced through genes and languages are adequately illustrated. He argues that genetic and linguistic evolution work in a similar way. When modern humans migrated from Africa to other parts of the world, they took their genes with them. For thousands of years, some genes underwent changes or 'mutation', while most of them do not change. When there was no communication and no exchange between the separated groups, the genes of each group became distinct. Language change takes place in similar manner. Human ancestors spoke one language. As they developed, their language underwent changes. These changes caused the root language become unintelligible and thus, a new language emerged. Experts use genetics to reconstruct a genetic tree with which human expansion and evolution are traced. Similarly, one can also use linguistic data to reconstruct a linguistic tree and to trace proto language. Furthermore, he points out that linguistic differences play an important role in determining a genetic tree. The less frequent the communication, the more different the language is, and hence the more distant the genetic tree is. The linguistic differences apparently "...lessen the chance of genetic exchange" (p. 150)

In chapter 6 Cultural Transmission and Evolution, he compares cultural transmission and evolution. He states that cultural transmission works similar to genomes. It results from "the accumulation of new information". The difference between the two is that the cultural changes is "more often intentional and can be directed to a specific goal, while biological mutation are blind to their potential benefit" (p. 176). With regard to language, he discusses linguistic evolution as an example of cultural evolution and that language development gave rise to cultural and technological progress. In this chapter, a student of historical linguistics will benefit from his discussion of linguistics drift and lexical diffusion

As a student of linguistics, this book certainly contributes to my knowledge of how languages developed and spread through time. Although

he is a geneticist, Cavalli-Sforza has made a significant contribution to the understanding of how language changes and what prompted the changes. The discussion of the relation of linguistic data and the genetic data to describe how modern human migrated and developed is something new to me. It is fascinating to read a book, which discusses language development and changes from the perspective of an expert from a different field. I also find that the section of the book that deals with archaeology, the Kurgan culture, is enlightening.

What bothers me when reading this book is my unfamiliarity with the terminology pertaining to genetics. Although he tries to make this book readable for any readers, I am still of opinion that some parts of the book are too technical for me. I have very limited background in biology or genetics to adequately comment on his arguments. I do not suggest that this book is tedious; on the contrary, in spite of the jargons he uses, this book is an interesting book to read. People who are particularly interested in archaeology, anthropology, genetics, and linguistics, will likely to benefit from the book.