

## 1. SOCIOCULTURAL EVOLUTION: A CONCEPT AND ITS DIFFICULTIES

There are probably few concepts in the social sciences which bear so many difficulties as the concept of sociocultural evolution. The reasons for it are at least twofold: on the one hand theories about evolution of societies were often mixed with ideologies about race, nation or sociocultural classes; on the other hand since Darwin the concept of evolution has more and more been identified nearly totally with biological evolution. Therefore social theorists who tried to develop a theory of sociocultural evolution had not only to defend themselves against the reproaches of ideology, but had also the task to classify their approaches in regard to the overwhelming paradigm of Darwinian biological evolution. It is no wonder that often social theorists declared the concept of evolution to be useless for the social sciences.

To make matters worse, it was (and is) not even very clear what may be meant when speaking of sociocultural evolution. For example, is sociocultural evolution the same as (human) history (cf. Habermas 1976)? A lot of scholars would deny an equivalence between the two terms, in particular historians. And more: if there is such a thing as sociocultural evolution, what exactly does evolve? Human beings for example and if yes, in what sense of the term? Or do ideas, beliefs, norms or social structures evolve? For all potential candidates there are supporters in the long history of social evolutionary thought.

Darwin, as is well known, defined rather precisely (according to his time) not only the concept of biological evolution but also the *mechanisms* by which evolution occurs, namely variation and selection. By adding the genes as evolutionary units after Mendel's discoveries it became possible to define these mechanisms even more exactly: mutation and heterosexal recombination (crossover) vary the genome, natural selection chooses between phenotypes and affects the genomes via the different reproductive success of the phenotypes. That is the classical Darwinian scheme which, as far as I know, is still the basis for most of the recent biological evolutionary theories (cf. Dawkins 1986). Of course, things are probably not quite so simple as this scheme

suggests; for example, some biologists think that the DNA is not the only hereditary system but that, e.g. epigenetic hereditary systems must also be taken into account (Falk and Jablonka 1997). Biological evolution may, after all, have some "Lamarckian" aspects. From quite another point of view Kauffman (1993 and 1995) argues that selection, in contrast to the traditional Neodarwinian approach, is not the only important factor and that systemic self organisation also plays a decisive role. I shall come back to these problems in Chapter 1.3. The main factor I wish to emphasise here is that in biology not only the units but also the mechanisms of evolution are rather well defined and, at the latest since the great works of R.A. Fisher (1930), can also be treated mathematically.

Neither is the case when social scientists define sociocultural evolution. There is not only, as I mentioned, no consensus in regard to the units of sociocultural evolution among social scientists but also no precise mechanisms of evolution have been developed. Of course, there are exceptions: Cavalli-Sforza and Feldman (1981) for example constructed a mathematical theory of cultural transmission, using the mathematics of population genetics, and identified learning and acceptance of ideas as the mechanisms of cultural evolution; in a similar spirit Boyd and Richerson (1985) saw "social learning" as the main mechanism of the evolution of culture and used the same mathematics. Yet these approaches had no great impact on social evolutionary thought for reasons I shall deal with later. The main stream of evolutionary sociology and/or cultural anthropology does not contain precise definition(s) of evolutionary mechanisms.

This being the case, one should perhaps abandon the task of developing evolutionary social theories and in particular mathematical ones. A lot of social theorists believe anyhow neither in the possibility of evolutionary theories outside of biology nor in mathematical social sciences. But in my opinion, and fortunately not only in mine, this would be a voluntary capitulation before one of the greatest tasks with which social science has to deal: the theoretical and systematical reconstruction of our history. I am quite sure for reasons that have to be shown later that even a *logically* complete theory of sociocultural evolution will not explain thoroughly all the difficult courses and events of human history; but I am equally sure that without such theories we never get a real

understanding of our past (and no idea how to shape our future either). Science, after all, always has to look for theoretical, i.e., general explanations. If there are at present no theoretically sufficient explanations of human history, i.e. theories of sociocultural evolution, then this just signifies that it is a very difficult task. However, this well known fact certainly is no reason to refrain from it.

This study offers no complete theory but, as the title says, theoretical *principles* for developing complete theories and some mathematical models by which the principles are tested. However, we shall see that even with such a relatively modest claim it is possible to gain some insights into the evolutionary logic of human history. The evolution of the social *sciences* will hopefully demonstrate whether the ideas presented in this book can be enlarged to real theoretical understanding of our common history.

As there is no consensus in the social sciences about the concept of sociocultural evolution, which is unfortunately rather often the case with fundamental social concepts, it is my first purpose to give a brief description and evaluation of the numerous and different attempts to capture sociocultural evolutionary processes. It is neither my task nor my interest of research to give a comprehensive overview of this subject. Several authors, to whom I can fortunately refer, have, in recent years, already done this (e.g. Sanderson 1990; Trigger 1998; Turner et al. 1997). I just try to explain rather briefly why the social sciences had and have so many difficulties in dealing with evolutionary theorising. But I also wish to demonstrate how much has already been achieved, despite my rather pessimistic remarks above, which gives foundation to build upon. The fact that I try to develop an own model of sociocultural evolutionary processes and to transform it into mathematical schemes does not devalue in the least the great attempts of scholars from whom I have learned very much.

It is also not my subject, by the way, to give a theoretical reconstruction of human history in terms of the concepts and mathematical models with which I shall deal. Such reconstructions have been done rather often and in particular recently by such outstanding authors as Sanderson (1995) and Turner (1997) from different points of view. I presuppose in this text that readers are, if only in a general sense, familiar with the courses that human history has taken and that they

know about the great transitions from hunter-gatherer societies to agrarian state societies and finally to societies characterised by industrial capitalism, functional differentiation and so on. The intention of this book is to establish a theoretical model for sociocultural evolution and to demonstrate the transformation of this model into a certain mathematical algorithm, which serves in turn as the mathematical realm of performing experiments with the theoretical model. I am well aware of the fact that such a theoretical and methodical approach is still comparatively unusual for dealing with sociocultural evolution. That is why I explain this approach rather thoroughly. However, as I explained elsewhere at some length (Klüver 2000), this may be a way to make the social sciences more precise without losing its content and to gain in this way new insights that cannot be achieved in the traditional manner.

As evolutionary biology was and is the leading science in dealing with evolution, I also sketch some of the main ideas of current evolutionary biology. Of course, as a social scientist I am neither competent nor interested in valuing the different opinions that can be found there. Yet if one tries to speak about evolution in a scientific sense, one has to be aware of the achievements of theoretical biology in this respect. Evolutionary social sciences have to solve their own problems by themselves and no natural science can do the task for them. However, it is often very useful to look to other, and in this regard more advanced, scientific disciplines, either to learn from them in order not to reinvent a scientific wheel, or to learn from their mistakes.

## 1.1 A SHORT REFLECTION ON THE HISTORY OF SOCIAL EVOLUTIONARY THINKING

Nowadays it is quite common to identify "evolution" with biological evolution and each evolutionary theory has to define its own relations to *the* theory of evolution, that is the Darwinian model of biological evolutionary processes. Yet it is well known that the concept of evolution is far older than the Darwinian and Neodarwinian theories in biology and that the idea of the development of systems through time was first thought of in relation to human history. Darwin himself, as he said in a famous remark, got the main idea of the evolution of biological species by learning about the evolution of languages, a concept developed in the first half of the 19th century by the emerging comparative and diachronic

linguistics. Gould (1982) emphasises in addition the influence of the concept of the "invisible hand" of Adam Smith. Therefore it is no exaggeration to claim that the idea of evolution is a heritage of the emerging social sciences and humanities.

In a detailed reconstruction of social evolutionary thinking, Trigger (1998) identifies two main positions in regard to sociocultural evolution. The first one originated in the Enlightenment: human history was looked upon as *progress* of the whole race; all human beings were considered to be principally equal and capable of the same achievements; therefore the different cultures and societies mankind had developed so far had to be judged as variations of the same theme; in particular different cultures had to be evaluated as earlier or later stages of a universal scheme of succession; the driving force of history or sociocultural evolution is the capability of humans to invent new ideas and to act according to them. As doubtless the European societies in the time of the Enlightenment were the most progressive ones in terms of new ways of thinking, they defined the criteria for progress, that is, they defined the goal of development, which sooner or later all societies would reach.

It is important to note that originally, during the Enlightenment, this "Eurocentric" view of human history had nearly nothing to do with racism or beliefs in the "natural" supremacy of European nations over the rest of the world. As Trigger emphasises, the political connotations of these evolutionary ideas were mainly directed against the old feudal regimes, in particular at France, the main centre of the Enlightenment. The idea of the equality of rights of all human beings forbade all speculations about a superiority of the European races. The concept of the "noble savage" illustrates this quite clearly: men are good by their (biological) nature and only bad social norms and values, including those of the European societies, can corrupt people and lead them to deeds contrary to their nature.

Of course, the ideas of the Enlightenment about the nature of mankind and the inevitable progress of the human race were quite idealistic and two centuries of social research have demonstrated that things are a lot more difficult, including the concept of the noble savage. Yet it is interesting to note that the founder of Historical *Materialism*, Karl Marx, has exactly the same premise at the bottom of his own theory of human history: the driving force is the development of the *Produktivkräfte*