**Evolution and Spontaneous Order**

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Ladies and Gentlemen, in the hope to be able to offer something which will be of interest not only to economists but also to natural scientists generally, I have chosen a problem to discuss which although it arose from my study of economic problems seems to me to apply in a much wider field in fact everywhere where the increasing complexity of the phenomena of which we have to deal forces us to abandon the hope of finding simple explanations of cause and effect and have to substitute an explanation of the evolution of complex structures. I like to speak in this connection of the twin problems of the spontaneous formation of orders and evolution.

There is usually an evolutionary process by which alone we can account for, but account to a very limited extent, the existence of certain types of structures. In this sense I can agree with what sir John Hicks said yesterday that the degree to which in these sciences we can make predictions is extremely limited. What I like to say in this connection is that we are confined to pattern predictions to the likelihood of the formation of certain structures without ever being able to make various special prediction of particular events. In this sense, as Sir John Hicks indicated, we are sciences of a certain order that we have in common with such an enormous field as the biological theory of evolution which on the strictest, which Sir John has yesterday suggested, would also not be a science since it is not able to make specific predictions, and the same is true in our fields.

Now the whole interrelation between the theory of evolution and other accounts of the existence and formation of complex structure of interaction has a very complex and paradoxical history, and I will allow myself even if it delays the length of my lecture to tell you little about the historical evolution which in itself has had profound effects on our attitude to these phenomena. Of course, in recent times the application of evolution to social phenomena has been rather unjustifiably discredited when social scientists had to learn from Charles Darwin and developed something known as Social Darwinism, as if the idea of evolution were originally an idea of the biological sciences, while in fact there is a much older tradition of evolution in the study of society, and it can be demonstrated that it was Darwin who borrowed it from the social sciences and not the other way around.

There is another deep connection on which I want to say a few words: that our attitude to all partial phenomena particularly our judgment of various moral views is very closely connected with an age old tradition which starts in antiquity, with no less a person then Aristotle, who has given us a wholly a-evolutionary conception of social institution which through its effect on St. Thomas Aquinas has become the attitude of a large part of Christianity towards everything which amounted to a growing development of civilization because he had defined as good what was necessary to preserve an existing order without ever asking himself the question, “how was it ever possible that if all our duty was to provide for the preservation of what is that mankind ever greatly developed.” It has even been asserted by a modern economic historian that Aristotle could not have seen the problem of evolution and the problem of the connection of evolution with an operating market economy because at the time when he lived, the market economy as we call it as a result of evolution did not yet exist.

Now, on two points I can give you rather interesting brief evidence since my assertion that Aristotle did not possess any conception of evolution which prevented him from ever understanding social problems has remarkably been confirmed by the grand latest history of the biological sciences, one of the greatest history of any modern science which I have recently come across, Ernst Mayr's The Growth of Biological Thought. In which he, to my great satisfaction since this has been a part of my argument for a long time, explicitly argues this idea that the universe could have a development from an original state of chaos, that higher organism that evolved from lower ones was totally alien to Aristotle's thought. To repeat: Aristotle was opposed to evolution of any kind.

Now that had a profound effect on his views about society which we have inherited from him. A view, which I have always suggested, that which was good was that served the preservation of existing institutions. That he never asked himself, how in fact in his very lifetime, Athens had about doubled in size. A largely increased population had arisen, but he detested the market as so many intellectuals did. But I will just give you another illustration of how lively the market at the time was which comes from a contemporary of Aristotle, one of these writers of comedies of his time of whom only fragments are preserved. But that particular one is especially amusing because Mr. Euboulos, as his name was, was even then common attitude of the intellectuals to commercial affairs expressed his contempt for the role of the market in a few lines that have been preserved in which he tells us, “you will find in Athens things of all sorts and shapes for sale in the same place figs, summoners, grapes turnips pears apples witnesses sausages, honeycombs, roses, medlars, chickpeas, water clocks, myrtle, lambs, bluebells, laws, impeachments, lawsuits, curds, bee stings, and the ballot box.”

Now that in a society in which the comedians could make fun about the market in such a form, clearly the market was most active. Now why did Aristotle not see it and what effect had it? Well, the fact is that at that time the idea of evolution had hardly yet arisen in any field except two, and the original insight of man and the fact that his institutions have gradually grown not as the result of intellectual deliberate design but as a matter of slowly growing tradition existed even then in two fields: law and linguistics. At least the ancient Roman students of law and linguistics were fully aware that these institutions had not been deliberately designed by the human mind but had grown by a process of evolution. And that concept of evolution remained for the next two thousand years.

But in the eighteenth-century things began to change. A first remarkable instance is at the very beginning of the eighteenth century when a man - a Dutchman living in England called Bernard Mandeville began to study the formation of institutions, and already pointed out the four paradigms, or paradigmatic as I still prefer to call them, of these phenomenon: the two classical ones of law and language, but adding to them morals, money and the market. David Hume was a great figure who took over from Mandeville this idea and created the tradition of Scottish philosophers, and particularly and basically relevant to what I shall be going to say, that the deep insight that human morals are not the design of human reason. An insight of double importance. A) it followed for him that if human morals, were not the design of human reason, it also followed that reason, science did not allow us to judge human morals. You could never derive moral conclusions from purely factual statements. An idea which is nowadays mainly usually ascribed to Max Weber, but which ever since the time of David Hume was well established.

But in this connection, of course, he arose the problem: what were our morals really due to? And the conclusion from his principle is not that science has nothing to say about morals at all, but that the questions that we can legitimately ask are rather limited. A question which we can still ask which we can demand an answer from science: what are the morals which we have inherited due to? How came it about that we developed those morals and never others? And certainly, and clearly connected with it, a certain question, which is also a scientific question: what have these morals done to us? What has been the effect of mankind developing this particular kind of morals? As a field, in which I as an economist had to pursue these problems worthy of enormous importance, is the field of the morals of property, honesty, and truth.

There are moral rules that are not the creation of human design, which on the union terms we cannot scientifically say whether they are good or bad unless we look at them from the point of view of what effect they had on the development of humankind: of the number of humans and of their civilization This remains a basic question. At the same time, we must be aware that the very tradition of several, or as we usually say private, property is that part of our morals which is the most disputed and disliked (politically opposed). And that is due to the fact that it truly is a tradition which is neither natural in the sense that is innate in our physical make up, nor artificial in the sense of being deliberately made by human reason, because as the Scottish philosophers of the eighteenth century so clearly understood man had never deliberately made his society.

Indeed, when we look back at history, we find that these traditions, never rationally justified, were preserved in a variety of groups of communities because they were confirmed by supernatural beliefs, not scientific reasons, but beliefs which I think I should respectfully call *ceremonial truths*. They are not truth in the sense of scientific truths, demonstrable truths, but truths in the sense of making men actually do what was good for them. Good for them in the sense of helping them to maintain even larger numbers of themselves, yet without being able to give the actual reasons why they ought to do them. Truths which stand between the natural insights which are innate in us and the rational insights which we construct from our reason, but which belong to the intermediate field of tradition which is a result of a product of selective evolution in many ways similar to the selective evolution of which for the first time we got a full theory developed by Charles Darwin and the Darwinian school (but then fundamentally respects different function).

I referred before that it was a great misfortune that the social scientists about a hundred years ago had to borrow the idea of evolution from Charles Darwin and borrowed with it the particular mechanism which Charles Darwin, or rather Neo-Darwinism later, had provided as an explanation of this process of evolution which is very different from the mechanism of cultural evolution, as I shall call it now. That was a misfortune and a quite unnecessary misfortune due to the fact that is seems that by that time the social scientists had forgotten what was a much older tradition in their own field and weren’t even aware that Charles Darwin developed his ideas largely by learning of the idea in the other fields. I believe recently it has even been shown that the crucial idea came to Darwin’s mind in 1838 when he was reading what book? The Wealth of Nations of Adam Smith, which of course was a classical exposition of the Scottish idea of evolution, and which seems to have been the decisive influence even on Charles Darwin. Darwin himself admitted that he was influenced by the school, but he usually mentions Malthus as an influence, which he recollected, but his notebooks now show that what he was reading at the critical moment seems to have the Wealth of Nations of Adam Smith.

Now the result is that this first great success in developing an actual theory of evolution in first the field of biology made people believe that this example had to be followed. Now I might just insert here another illustration of my story which I have only just recently discovered, but which perhaps much more clearly than anything else confirms my basic assumption that the conception of evolution *derived from the study of society* and was taken over by the study of nature. I can demonstrate very easily that the term “genetic,” which today is the exclusive term for biological evolution, was actually coined in Germany in the eighteenth century by a man like Herder, Wieland, and Schiller, and was used in the quite modern term by Wilhelm von Humboldt long time before Darwin. The Humboldt passages are so interesting that I will even quote some. Humboldt spoke in 1836 about the fact that the definition of language can only be a genetic one, “nur eine genetische seyn,” and goes on to argue that the formation of language successively through many stages, like the origin of natural phenomena, is clearly a phenomena of evolution. All that was ready in the theory of languages thirty years before Darwin applied it to the natural sciences. Yet it had been forgotten, or at least ignored, outside the two classical instances of language, law, and I may now add economics including the market and money. And when it was reintroduced by the social Darwinists, all the parts of the explanation of the mechanism were also taken over.

So, my next task will be clearly to distinguish what the social theories of evolution and the biological theories of evolution have in common and what they do not have in common. We shall begin with the must more important differences before I turn to the crucial, but very confined, similarity between the two. The differences are the following and are now concentrating on the account of the mechanism of biological evolution given by Neo-Darwinism (Darwin was on some of these points still himself not quite sure, particularly on the first point I shall mention). Cultural evolution depends wholly on the transmission of acquired characteristics: exactly what is absolutely excluded from modern biological evolution. If one were to compare cultural evolution with biological evolution, you would have to compare it with Lamarckian rather than with Darwinian theory. Number two: the transmission of habits and information from generation to generation in cultural evolution is, of course, not only passed from the physical ancestor to the physical descendants, but in the sense of cultural evolution *all* of our predecessors may be our ancestors and *all* of the next generation may be our successors. It’s not a process preceding from physical parent to physical child but proceeding in a wholly different manner (that perhaps is even more important). Thirdly: the process of cultural evolution undoubtedly rests not on the selection of individuals, but on the selection of groups. Biologists still dispute, I believe, what role groups selection plays in biological evolution. There is no doubt that in cultural evolution group selection was the central problem: that where groups, which had developed certain kinds of habits, even certain kinds of complementarities between different habits within the same group, which decided the direction of cultural evolution, and in that respect, it is fundamentally different from biological evolution. Now this implies what I shall call number four perhaps, it then implied: that of course the transmission of cultural evolution is not of innate characteristics but is all to be learned in the process of growing up. The contribution of natural evolution to this is a long period of adolescence of man, which gives him a long chance of leaning, but what is transmitted in cultural evolution is taught or learned by imitation. Now, that has produced an immaterial structure of beliefs and opinions, which recently Sir Karl Popper has just given the name of World Three, a world of structures which exist at any one moment only because they are known by a multiplicity of people, but which yet despite of their immaterial character can be passed on from generation to generation. And finally, cultural evolution, because it does not depend on accidental variation in their selection but on deliberate efforts which contribute to it, is infinitely faster than natural evolution can ever be. That in that time of ten or twenty thousand, or perhaps forty thousand, years that modern civilization has grown up, man could have developed all that he has developed by the process of biological evolution is wholly out of the question in this respect. The much greater speed of cultural evolution is decisive.

Now, having got here, you will ask, “what similarity there remains? They seem wholly different altogether.” There are two fundamental similarities between the two which justify, up to a point, the application of the same name 'evolution.’ The first is that the principle of selection is the same. In biological evolution and in cultural evolution, what is being selected is what contributes to assist man in his multiplication. It assists him in growing in numbers, just as those physical properties, which helps individuals to survive, those cultural properties which are being selected are those which helps the group which has adopted it to multiply faster than other groups in this form, gradually to displace and take the place of the other. And there is a second close similarity, which is very important but generally not understood, and it may even surprise you at first when I mention it. Both biological evolution and cultural evolution do not know any laws of evolution: laws of evolution in the sense of necessary stages through which the process has to pass. This is a wholly different conception of evolution which asserts, since Hegel and Marx and similar thinkers, that they are discovering laws or sequences of stages through which the evolutionary process must pass. There is not only no justification for such an assertion; much worse, they are in conflict with the other ideas of evolution. Both biological evolution and cultural evolution consist in a mechanism of adaptation to unknown future events. Now, if this is an adaptation to unknown future events, it is wholly impossible that we should know laws. It must follow because this development is by definition determined by events which we cannot foresee and not know.

And that brings me to what ought to have been my central subject, but for which I am afraid I do not have as much time now as I would like to have, what is the essential subject of the cultural evolution to which I have attached such importance. As I indicated before, there are two general characteristics which all civilizations which have survived and expanded have so far possessed and against which all revolutionaries have at all times protested. This is the tradition of private or, as I prefer to call, several property and the tradition of the family. I haven't time here to consider any further the tradition of the family; it would be a much more difficult problem because I believe there are changes in our factual knowledge which will probably lead to fundamental changes in the tradition of the family, so I will confine myself wholly to the proposition of private property, which of course is that tradition against which for two thousand years all revolutionaries have directed their efforts. Nearly all religious reformers with very few exceptions invented a new religion which abolished several property and usually also the family, but none of these reformers or none of these revolutionary religions which constantly crop up have ever lasted for more than a hundred years, and I think the most recent one of that type, which we also must regard as such a religion opposed to property and the family, that of communism, has not yet lasted for its hundred years, and I very much doubt whether it will reach its hundred years. But all the great religions which have come to expand and to be held by an ever-increasing part of the world have these two things in common: that they affirmed private property and the family.

Not only the three monotheistic religions, but also the two or three great Eastern religions, all agree on these two features, and my contention is that it is because they affirmed and preserved those traditions in their groups; that these groups were selected for indefinite expansion because they made possible the multiplication of the people who obeyed moral rules dictated by them. Now, such religious support was indispensable, because if it is true what is my main and starting contention: that the morals of private property and those of the family are neither natural, in the sense of innate, or rational, in the sense of designed, it is a great problem why any group should long enough stuck to a habit in order to give the process of chance of it to expand and select. Only groups which for long periods believed in what I have meant to call symbolic truth; only traditions which succeeded in making whole to certain symbolic truth would be led to maintain moral rules whose advantages they never understood. It implies the assertion that the institution of private property was never due to the fact that a smaller proportion of a population, who could see how private property benefited them, defended their interest. It could only exist if a much larger number than those who knew that they benefited from private property supported these beliefs, and it was possible only due to religious beliefs which taught it to them.

This is what I meant before when I said: we owe civilization to beliefs which in our modern opinion we no longer regard as true, which are not true in the sense of science, scientific truths, but which nevertheless were a condition for the majority of mankind to submit to moral rules whose functions they did not understand, they could never explain, in which indeed to all rationalist critics very soon appeared to be absurd! Why should people respect private property if this private property seems to benefit only the few people who have it in societies where very soon very much larger numbers existed then those in the primitive agricultural societies where still a majority owned the instruments of their production? That creates a situation which is historically very interesting. Did mankind really owe its civilization to beliefs, which in the scientific sense, were false beliefs, and further to beliefs which man very much disliked? Because I can really not very much doubt that if my thesis is true, mankind was civilized by a process which is intensely disliked by being made to submit to rules which it neither could understand nor liked. But I believe that this is perfectly true, and I believe I can claim that before the birth of the science of economics, before the eighteenth century began to explain why the market society could arise only on the basis of institution of private property, it would have been impossible for mankind ever to multiply as much as it did. And equally, it was only in the eighteenth century, essentially David Hume, Adam Smith, and his contemporaries who did clearly see that the mechanism of selection was that those groups were selected, which thanks to the institution of private property were able to multiply faster than others.

Now this is of course a criterion which again has become very unpopular, and which only the economists, and only some of the economists understand. At the present time, the general attitude of the other is to think that the multiplication of mankind is a great misfortune; that nothing we have to fear more than a too rapid multiplication of mankind; and we are constantly painted the horror of a society in the near future which will be a society of standing room only. Now, there are several things to be said about this. I must abbreviate it, or this could be a subject of another very interesting lecture. The first is that the fear of an increase of population leading to impoverishment is wholly unfounded, and it is never in history yet happened that an increase of population led to people becoming poorer. The contrary impression is due to the fact that the concept of poor and rich is mentioned in terms of *averages,* not in terms of *individuals.* It is true that economic progress based on the private property and the division of labor leads to a faster increase of the poor than of the rich, with the result that average incomes may indeed fall as a result of the population. But nobody needs to have become poorer for this reason, it only means that the poor have increased more than the rich, that therefore the average is brought down, but nobody has been pulled down by the result of this development.

An explanation of this, both of the actual fact and the mistake, which derives largely from Malthus, is that with an increase of population human labor must also be subject of decreasing returns. That would be true in a world like the one in which Malthus was largely thinking, where human labor was uniform and all people or nearly all people were working in agriculture, and in that such a society indeed an increase of population would lead to reduction of the product per unit of labor. But the great benefit of an increase in population is that it makes possible a constant differentiation of human activities. An increase in the quantity of man is not an increase in the number of one factor of production, it’s a constant growth of new additional and different factors of production, which in collaboration can produce much more. It seems, indeed, that in a way the increase of population leads to an increase in civilization, brings increasing, rather than decreasing returns. Let me repeat: there is no evidence that ever in history an increase of population has led to a real impoverishment of the existing population.

There are two or three special cases which I must mention. It has, of course happened, that when other circumstances destroyed the source of income which made an increase of population possible, great poverty resulted. The classic case, of course, being Ireland in the nineteenth century which on the potato had to increase its population to something like four times what it had been before when the potato disease struck, removed, the source of the income and led to the result of this greatly increased population [which] could no longer be nourished. Another case which we must consider separately, and that I think ought to give us cause to serious reflection: that there are instances and we are now creating instances when increase of local population is due not to an increase of that population to produce more, but to foreign help; and that, in instances, there will never be space or food for a larger home produced population in these places. I can give you as instances the much quoted instance of the region immediately south of the Sahara, the so called Sahel regions, which are clearly not able now to feed their population, and which we are exhorted to help to feed; with the result of course that we cause their further increases in population which will be our responsibility because, for all one knows, they will never have an opportunity in their own region to produce enough. I think it raises extremely serious problems for our present policy of help to *some* underdeveloped countries.

All this changes, of course, our attitude to policy in a great many ways, but the crucial one is still the one towards the necessity and essential condition of the institution of several property, and in particularly, several property in the means of production as an indispensable instrument of preserving the present population of the mankind. Half the mankind, at least officially, we are told believes in the opposite believes that it is by abolition of the institution of several property that we not only can still maintain the present population, but that we can provide for it better than we did now. If what I have said is right, if it is true, what I could only hint at: that several property is the indispensable basis of that utilization of widely dispersed knowledge on which the market economy rests, it means that the opposite view, chiefly that represented by communism, would lead not to an improvement of the population, but probably bring it about that something like half the present population of the world would die. We have, of course, various significant illustrations of this. Quite a number of countries who were great exporters of food so long as they were operated on a market economy (not only Russia but also Argentina and others) are already no longer able themselves to maintain their own population, which has not increased a great deal, nothing like as much as the population in the West.

But the final conclusion is therefore what seems to be a political conclusion: a conclusion about the consequences of two alternative ethical systems to which the two halves of the world now adhere. If it is true that we can maintain even the present population of the world only by relying on that whole system of market economy resting on the several property in the instrument of production, and that its abolition would lead to something like a large proportion of mankind dying of hunger, that would seem an undesirable result. Even if the scientist is not allowed to call it undesirable, I can say [it’s] a result which most people would not desire if they knew it. And the last conclusion, which I am afraid I will draw even at the risk of totally discrediting this glorious meeting of scientists here, that the contrary view which believes that we can do better in maintaining the present population of the world by abolishing several property is well meant, but very foolish.

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