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CULTURE AS AN IMPORTANT FACTOR OF EVOLUTION

ABSTRACT. In this paper dealing with the role of social environment in relation to biological factors two focal ideas are stressed: First, in modern man natural selection has lost the power necessary for formation of a new species, instead of it taking over the role of controlling agent keeping human population in status quo in the existing social environment. Second, biological factors are mediated through social institutions in such a way that they evoke both differentiations (divergence) and unification (homogenization), i.e. two different processes which, however, tend to the integration of modern mankind.

KEY WORDS: Natural selection — Evolution — Culture — Differentiation — Homogenization — Integration — Social filter.

The prolonged and sometimes painful arguments concerning the problem of whether natural selection goes on in man in its operative activity have been overcome. Today the attention of the professional public is focused rather on the action of natural selection in its consequences, i.e. whether it follows the trend which is denoted as improvement or deterioration (Dobzhansky Th., 1961; Medawar P. B., 1965). Our justified opinion is that natural selection does not always operate in the same way, since it is fully dependent on the environment, on its relative stability or rapid dynamic variability. Natural selection then, with some delay reflects in this responses all those changes. It worked in another way in the Paleolithic than in the Neolithic, when man for the first time set the seeds into the soil to get rid once for ever the dependence on Nature, when he made the first step away from the infinite chain of murders in Nature. And natural selection works in different way also nowadays — at the time of scientific and technical revolution.

Hand in hand with the evolution of man went also the evolution of his culture. By this we mean all that has been devised and produced by man — from the first pebble tool up to the latest type of computer. In other words, culture is understood to be the world of artifacts, work, and ideas.

The creation of culture has in no case been an activity without any purpose. At has always been directed in such a way as to facilitate man's life in his environment, allowing him full development in his activity. That is why man has placed it between himself and Nature, thus making it his mediator. For this, however, he had to pay an improportionally high price. In the course of time, he became dependent on it and this dependence has been permanently growing.

Today we can rightly assert that the succes of mankind as a biological species is fully due to its culture. Culture has enabled it to adapt itself more quickly and more easily to the permanently changing world than its "slow" genes. With certain reservations one could say that man has more often adapted his environment to his conservative genes than vice versa (Dobzhansky Th., 1961).

The relation between human groupings (tribe, ethnic group, nation; biological population, race, etc.) and their culture has until recently been very peculiar one, provoking at least somewhat heretic questions which were approached in a very silent way with the index finger pressed against the lips. And not without reason! Many of us remember the time when the results of an unfruitful, often purely metaphysicaly aimed discussion about the so-called

racial differentiation of man were misused by the advocates of racistic doctrines for their political purposes. There is no wonder that at a time there was a conception in anthropological circles according to which the biological differentiation of mankind was a mere biological process and that therefore the task of anthropologists was the study of man as a biological organism. It is, of course, as plain as pikestaff that this view — still surviving in places — is quite onesided, erroneous and misleading, one that puts up an artificial barrier between man and his culture, and besides one that results in a purely biological explanation of the origin and evolution of man.

Today the prevailing opinion is that in the disintegration of ancient human groups and in the subsequent formation of biological populations the decisive influence biological factors was gradually suppressed by the development of social work. In connection with that several partial assumptions were pronounced that reduced the importance of biological factors in the evolution of modern man to the minimum or eliminated it altogether. But these assumptions were not confirmed in the "laboratory" or in any other experiment. A partial reconciliation of those two antagonistic views took place in the nineteen-fifties, when the first evidence was presented stating that biological factors are active even in modern man and even at present.

Judging from inherited traits and disease suspectibility (see hypothesis "little more finess of blood group 0 — Jörgensen G., 1974), judging from some inherited traits (such as abnormal hemoglobin, G-6-PDD, blood systems and others) which in man exist in the state of balanced polymorphism, biological forces have preserved their evolutionary character and by no means have become "stable" (Allison A. G., 1964). But one fact is quite undisputed. Modern man has not changed essentially for about 40,000 years, and maybe more, physically. Although some evolutionary phenomena have been noted in him in the form of body gracilization (Schwidetzky I., 1969), increasing stature with earlier sexual maturation (acceleration) (Fetter V. et al., 1965), or phenomena resulting in conspicuous changes in the cranium which becomes shorter a rounded (brachycephalization) or on the other hand, longer and more slender (debrachycephalization) (Dokládal M., 1965), all those phenomena with respect to the above time space remind rather of some oscillation within a finished body plan continuing directional or disruptive selection resulting in species differentiation. This means that natural selection has lost the power necessary for the formation of species, instead of it taking over the role of controlling agent keeping human population in status quo in the existing social environment. What is the role of social environment in relation to biological factors?

The role of social factors in forming modern man in the last 40,000 years has been considerable. It is very strange to note how little it has been studied, states Alexeyev (1976) in his introductory paper "On the role of social factors in the biological divergence of human populations" with which he opened the discussion on the pages of the journal "Soviet Ethnography".

Social environment represents a dynamical system with a characteristic structure formed by social institutions. Alexeyev distinguished seven of them (the level and character of productive forces, marriage structure, settlement patterns, social stratification, ethnicity, state frontiers, psychological traditions, and psychological stereotypes) and he thinks that all those social institutions represent a social filter through which biological race formation processes percolate has always furthered man's biological differentiation, not retarding but accelerating it (p. 119).

This thesis has not been generally accepted and there have been justified objection that, although social environment may have formed barriers, thus causing certain segregation of groups of, say, a certain physical type, it is the very social environment that, by its dynamics, is able to call forth great changes in a short time (revolutions, wars, great migrations etc.) resulting in doing away with such a segregation.

Although Alexeyev's views admits a deformation of biological factors in one direction due to the social filter, which lacks in direct evidence, nothing can prevent us in seeing the action of biological factors in modern man mediated through social institutions in such a way that they evoke both differentiation (divergence) and approach and unification (homogenization), i.e. two different processes which, however, tend to the integration of modern mankind as a biological species. In this connection we ought to stress the fact that the conditions under whose influence the Upper Palaeolithic hunter, collector and fisherman developed morphopsysiologically and differentiated in contact with different ecosystems are gone for good. This of course, does not mean that the evolution of Homo sapiens has ceased. Its evolution goes on, only the conditions creating that very varied set of so called racial populations have disapperead in the depth of the evolutionary time. Instead of biological differentiation an opposite process comes — homogenezation, although at present there exist new reosons for mutations, new kinds of selection and gene flow, enhenced or suppressed by social factors.

And what are the prospects of man in further development?

Since the limits of genetic stability in man have almost been reached and its reserves in the process of adaptation have almost been exhausted, the main objective of human activity should be keeping ecological balance. Medical experiments have discovered the pernicious action of new substances not only to the present health of man, but also to his genetic substance. In other words, the growing denaturation of the environment which, in many places, is menacing, can besides others become a source of different changes in the organism of the progeny in such a direction as cannot be predicted exactly on the basis of the present state of knowledge. Since ecologic disaster is considered

to be a historical phenomenon, conditioned by certain a socio-cultural background (Frolov I. T., 1975), it remains up to man what evolutionary development he will choose.

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