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ABSTRACT

This paper argues that the emerging discipline of sociobiology has the potential of doing what epistemologists, developmental psychologists, psychoanalysts, and ethologists have been unable to do: to provide a theory documenting our inherited dispositions as reflected in cultural evolution and personal development. Accordingly, the paper begins with a summary of the basic concepts of sociobiology, and then shows how these concepts are compatible with a number of theories already applied in education, such as those of Piaget, Kohlberg, Chomsky, and Jung, which describe certain inherited behavioral or psychological patterns. A central concern of sociobiologists is an inquiry into the natural selection processes that govern the evolution of human culture. Elements of culture--"memes" which can be communicated but not subdivided--are selected according to some criterion of value. The major tasks that sociobiologists face are: (1) describing the nature of these "memes" or bits of culture, which then evolve in a competitive process; and (2) identifying the values--based on inherited predispositions--that determine the survival of one set of memes over another. (TE)

Applying the Sociobiological Synthesis to Education

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An increasing number of biologists and social scientists have been applying the methods of evolutionary biology for a decade or more to the study of human culture. Their intent is to identify a process which would help interpret the progression of human history. To date much of this effort has served to set the stage for a new synthesis which would bring the social sciences more fully into the realm of science. This work has received extensive coverage in the popular press and has stirred academic controversy. Critics have charged the sociobiologists with propounding genetic determinism and the undermining of free will. Such charges are not justified by the claims mainstream sociobiologists have made thus far in their studies of the nature of human instinct and their efforts to hypothesize a process of cultural selection and its relationship to natural selection. If one grants, for argument's sake, the central claims sociobiologists are making, one arrives with them at a highly challenging juncture. This challenge calls for the identification of the specific components of culture and a clarification of the criteria for their selection.

Until now educators have not been a part of the sociobiological debate although many of its implications speak directly to them.[1] The twin processes of teaching and learning are fundamental to cultural transmission. And,

clearly, motivation and ego development have certain genetic characteristics. A number of theories already widely applied in education, like those of Piaget, Kohlberg, and Chomsky, are compatible with the emerging sociobiological viewpoint. The conscious, deliberate enculturation of human beings who will in turn create a better, more just society is education's charge. No professional goal is so complex. In view of this, if evolutionary biologists are speaking to educational concerns, educators should begin to listen and respond. What follows is an effort in this direction.

Two Planes of Evolution

The realm of instinct provides the transition between natural and cultural selection. Few would argue against the proposition that a variety of our physical traits are genetically dictated. However, the genetic background of psychology is hotly debated. Ethologists have accumulated, by observation and experiment, a growing body of innate behaviors manifest in animals. To a lesser, but significant, degree similar behaviors are found in humans--the songs of some birds, for example, and their nest building styles, and the hand grasping reflex and sucking patterns in infants, and facial expressions in people of all ages.[2] At first glance, such specific behaviors may seem trivial. But their significance lies in whether they serve to establish the claim that behavior, the foundation of culture, can be genetically programed. The food washing of raccoons, the

plucking habit of ocelots, the construction work of beavers appear innate. The deep structure of grammar according to Chomsky, the stages and nature of cognitive development according to Piaget, and Jung's archetypes of the collective unconscious,[3] all bear strikingly similar qualities. It is clear that great psychologies from unassuming instincts grow. Certain inherited behavioral/psychological patterns can hardly be denied in the context of these theories.

Continually confusing is the fact that instinct is nearly all form with little specific content. Any sounds can be used to form words which will be structured into a familiar grammar. The range of human environments provides the specific phenomena and objects essential for cognitive development. Gestaltists are able to decoy the senses and evoke patterned responses to fragmentary, enigmatic stimuli. Every society has its folklore, religion and esoteric studies. The concrete manifestations in all cases exist in the physical world and have meaning in that context. This parallel significance creates difficulty in any analysis of the psychological importance of these objects and events and the neurolcgical structures which resonate with them. The evolutionist suggests that we have a long history of using symbols to help us exploit our environment. The self-conscious, systematic study of our symbol-making apparatus is, however, a relatively recent undertaking.

While the disposition toward language, abstract reasoning, transcendental tales and so on does not change, the specifics

of each, in every society, do change. It would appear impossible to hold in a static state any of these manifestations of culture. This dynamism introduces a central concern of sociobiologists, that is: What process governs the evolution of culture? Seeing natural selection universally operative at the level of biological change, they unsurprisingly look for a similar process to function with respect to culture.[4] Elements of culture, "memes" which can be communicated but not subdivided, are selected among according to some criterion of value. Culture evolves in the process. Such a hypothesis provokes at least three major questions: Can memes be defined as specifically as genes? Is the beneficiary of such selection species, group, individual or the meme, itself? Is the value criterion survival and reproduction or something qualitatively different?

The idea that culture evolves, or changes in an orderly fashion is attractive, but clearly natural order has little to do with human notions of justice or morality. Up to the appearance of human beings nature seems to have developed in progressively more complex forms. Even granting our destructive tendencies, there is a similar dynamic to the history of our species in the context of our accumulated culture. A major worry of sociobiologists is that we are not ultimately viable as a species because we may be fundamentally and inevitably oriented to groups who will vie (war) with other groups with whatever means available.[5] This perspective

exemplifies the "determinist" aspect of the new synthesis. However, those who seek to analyze cultural evolution may entertain alternate, more hopeful, hypotheses. Basic to these conceptualizations is the idea that cultural selection is a process of higher order than natural selection. This higher process cannot transcend the physical laws of the universe or the limits of flesh and blood, but patterns with less integral entailments can be supplanted.

If we need not be wedded to groups, is it also possible that our consummate value might not be biological survival and reproduction? Cultural forms which lobby for societies of limited numbers based on a secure standard of living are now with us. For the sake of analysis, let us look a step further. Putting aside the obvious psychological benefits of parenting, if a qualitative element is present in cultural selection, is it possible that the process operates independently of the demands of biological continuance? It may be that culture, irrespective of its contribution to biological reproduction, is selected in terms of its benefits for the individuals who experience it. With natural selection, the end is always and only the replication of genes. With cultural selection, the governing principle may, indeed, be purely qualitative--a state of affect, for example--with reproduction tagging along for its ancillary benefits.

The memes, or units of cultural selection, present definitional problems. Even genes which do have phenotypic manifestations are elusive and multifaceted. Describing the

nature of these "bits of culture" which then evolve in a competitive process is a major task sociobiologists face. For example, the idea of God might be such a datum.[6] Or, perhaps, the idea of divinity in one or many manifestations. Or the true meme might be the concept that immaterial phenomena exist, consciousness being the foremost. Sociobiology has a dynamic enlisted, but the contents to which this dynamic can be applied are problematic. It is of little benefit to assert that cultural selection is occurring if we cannot specify the elements involved in the process. For a starting point, we may return to instinct, the crossing point between gene and meme, biology and psychology. If we examine the realm of that which predisposes behavior there is the possibility that we might come to better identify the urges culture satisfies.

Motives for Cultural Selection

Memes are a by-product of the activity of genes;[7] they only come into being in the context of conscious organisms, particularly the most complex of these, human beings. Among these a distinctive culture has appeared and has evolved through what we call history due to its survival value. Ideation provided a new plane for competition among species and within humanity. Its products, memes, initially related to aiding the most fundamental of processes: eating, sheltering, protection, reproduction. Given an environment, which foods are nourishing, which poisonous? Which dwelling

is most efficient? What clothing, tools, weapons are most beneficial? Culture among humans has, however, grown beyond simple manifestations by means of deliberate enculturation (education), written language, and the accumulation of artifacts. The elements of culture are commonly selected with such unexamined routines that often we lose any awareness of their original, genetic, instinctive inception. What is the significance of passive entertainment? Of diamonds as jewelry? Of belief in God? Of the last, we might hypothesize that it is a residue of the original instinctive impulse of curiosity toward the self. The ageless quest to "know thyself" has become a succession of ideas about models outside the self. The individual sees himself or herself as a "noble animal" or as kin to an imagined pantheon, or as the "child" of a single deity. Finally, the meme is secularized and demystified as in contemporary psychology where self-knowledge is bred from introspection rather than projection onto a hero. Notice how a useful, natural urge like that of self-curiosity on the part of the individual is addressed in a succession of cultural forms ("theologies") which come to obscure their own original purpose. Ironically, individuals begin to see themselves in service to the idea rather than vice versa. Memes functioning in this way may well reach a point where they undermine their bearer's survivability.

For a clearer description of memes, let us return to the quest for self-knowledge at the point where it becomes the focus of psychology. Keeping mimetic ideas in their place

as means rather than ends, those who study the evolution of consciousness organize into a psychology of self-realization the progression of mythic, religious and esoteric symbols developed by civilizations.[8] The birth of the ego is the inner progression to which these metaphors and narratives give substance. Involved are individual consciousness of self; its development to independence of identity; then an awareness of the context of its origins ("the collective unconscious"); and, finally, an acceptance and appreciation of the self, or total psyche, conscious and unconscious. This is the analysis of C. G. Jung and his collaborators, laid out after they had studied past writings and compared these with reports from contemporary individuals. This is analytical psychology's description of a mimetic evolution which has often been untracked by a confusion of means and ends, but which persists as a possible resolution of the search for self-understanding. In this context, education has the role of discriminating between content and meaning as well as introducing the progression of symbols.

Although such a psychology might have consummate appeal and potential for reorienting society as dramatically as the religious awakenings of the past, will its value be determined by how well it contributes to biological survival and reproduction? It can be argued that the value of memes should not be assigned in this way. By moving to cultural selection, we have seen a transformation of the evolutionary process. Cultural types appear that do not provide for fecund biological

reproduction and have disappeared except as vestiges. The social world continues to manifest itself in unprecedented forms while past conventions provide uncertain clues to the future.

An unlikely scenario may illustrate the point: Suppose that by technology individual, self-realized consciousness could be supported outside the body and brain. The costs of such would include a loss of the pleasures, pain, and mortality of the body; but the benefits would include a consummately satisfying state of psychological experience. In a world where communication was pervasive and literacy high, might the practice not spread until our species had, in effect, chosen to "decorporealize" itself? Thus a meme, a cultural datum, might be selected over others even though biological survival was undermined. In such a scenario, the culture would continue to evolve without a biological existence, but with the presence of an individual consciousness of sort.

This fantasy highlights the idea that cultural selection could theoretically proceed on a divergent course from natural selection. This is important, not because it is likely to occur in such an extreme, but because it is fundamental to our understanding of the process to know how value is assigned to memes. If quality of experience, or some other qualitative value is preeminent, the selected bits of culture will be significantly different from those dictated by survival. In a quality-of-experience context, these memes would be judged

and selected not by a fitness for survival criterion but by their impact on the subjective experience of individuals.

From what instinct would this value-oriented criterion have germinated? This same curiosity to know the self, perhaps, which when pursued reveals to the seeker the unprecedented phenomenon of a manifestation of nature which is thoroughly and unremittingly aware of its being, its character and surroundings. For the first time self-consciousness appears in the world and, unsurprisingly, it sets about remaking the world according to a plan different from what chance had previously determined.

The Contents of Cultural Selection

Several of the theories most frequently discussed by educators are complemented by the work of sociobiologists. The research of Piaget, Chomsky and Kohlberg points to inherited human factors influencing human development without narrowly determining it. The prevailing emphasis in education has been on the contents of these theories. Piaget, for example, gives us detailed, discriminating experiments through which we can ascertain an individual's level of cognition. The predictability and consistency of the stages suggest that the course of development is genetically influenced although environmental factors are necessary for innate potential to be realized. Likewise, Kohlberg's study of diverse cultures for their concurrence with his seven stages of moral development has supported a similar thesis,

i.e., moral reasoning, like cognition, when fostered proceeds through a definable, logical series of levels each representing a qualitatively improved understanding of the world's phenomena. In general, the emphasis in such theories has been on the substance of the progression and whether it is cross-cultural. Sociobiology gives precedence to why such a process is to any degree innate and how it has come to have its specific form.

Cognition, therefore, in the Piagetian sense would be argued as having first of all survival value, as would moral development. Humans have prospered through a mix of guile and concessions to group interest. In moral development, however, the sociobiological process of cultural selection can lend insight into the memes, cultural dispositions, necessary for an improved condition of the species. Kohlberg hypothesizes a stage of commitment to universal moral principles while cultural selection provides a rationale for testing what those principles might be. Cultural selection is a vital complement to such theorizing because it introduces a method for extrapolating the development process beyond contemporary conventional forms. Why do we reach in art and the humanities to create obscure symbolic forms? Why in ethics do we revere persons whose practices our laws hardly tolerate? Why do we temper our justice with mercy which is often perceived only as weakness? These are a few of the relevant questions this theoretical perspective suggests.

As we already have alluded to, there remain some unanswered questions about cultural selection. This slows our application of it as a principle. In behalf of what unit does it function: individual, kin, group, nation, species? Is it ultimately bound to biological reproduction and survival and wedded inevitably to primitive and violent drives?

Let us make some tentative assumptions to further our analysis: We are fundamentally individuals and make our choices accordingly. Human intelligence is a phenomenon identified with its individual carriers and is exercised in behalf of securing the physical necessities of life and, perhaps, some intrinsically rewarding affective experiences. This latter criterion is important because it raises the possibility of a motive for selection which is distinct from the demands of survival and reproduction--an effective dimension for the evolution of consciousness and culture. The vanguard of our cognitive and ethical development may be propagated because of an aesthetic which has supplanted the old rule of fitness and survival. If such a viewpoint spreads widely and rapidly enough, its bearers may avoid being victimized by less genteel cultures because they, too, see the attraction of heightened consciousness.

There is the chance for synergy between the evolutionary dynamic of sociobiology and the rigorous, descriptive accounts of social scientists and epistemologists. These alternate brands of inquiry profit from an association yet to

be fully explored. Sociobiologists are discovering that personally replicating the body of social science research so that their thesis of selection can be tested is more than a formidable task. Similarly, traditional theorizing in human development has been lacking a connection to natural science and the dynamic of organic life. In effect, synergy would serve both fields of inquiry.

C. G. Jung's concept of self-realization and its psychodynamic progression in the psychology of individuals provides a clear opportunity for illustrating the continuum from biology and organic life through conscious to self-conscious life. Jung, and, particularly, Erich Neumann theorized that an evolution of consciousness had accompanied the course of human history and that the outline of its progress was genetically influenced by a sequence of archetypes.[9] These archetypes are the "instincts of ego development" and, as revealed in the mythologies and esoteric teachings of diverse cultures throughout history and around the globe, sketch out a universal human process of the birth, maturation, and eventual transcendence of ego-consciousness. The archetypes comprise the contents of the collective unconscious, that part of our genetic heritage which predisposes our behavior and the accumulation of culture.[10]

Jung's analytical psychology is a sound complement to sociobiology since, on a general level, evolutionary thought is in both instances applied to human behavior and culture. Additionally, the survival value of the ego is seen by

analytical psychologists as well as its transformation into a vehicle permitting experience for its affective content. Both theories rely on a significant genetic contribution to the development of human psychology. Jung's structure and dynamics of the psyche and his theory of archetypes has, for decades, been dismissed by those of a more restricted scientific persuasion as being "mystical."[11] Ironically, the sociobiological impetus out of natural science is likely to find s gnificant commonality with this co-founder of psychoanalysis.

Evolution and Education

This discussion suggests ways in which certain theories of development, well-known to educators, are compatible with sociobiology. Further it posits the idea that these separate modes of inquiry may contribute to one another's progress. Sociobiologists incorporate the powerful dynamic of evolutionary thought in their work, extending it beyond the organic to the cultural. Psychology and related disciplines have a wealth of carefully gathered data on the specifics of human culture. As educators acquainted with sociobiology, we can raise cogent, new questions about human development. Key among these may be to query why ethical forms develop beyond the give and take of traditional open competition. We may also examine anew why our curiosity about our psychological make-up is persistent and insatiable.

The assertions of sociobiology clearly have meaning for educators both in the day-to-day realm of curriculum and

instruction and in the theoretical underpinnings of educational foundations. A review of the literature, however, shows educators tend not be involved in examining E. O. Wilson's "new synthesis."[12] Contrary to the assertions of sociobiology's vociferous critics, applying evolutionary thought to a field like education is not likely to bind the theorist to a reductionist-determinist worldview.[13] The vital transition between natural and social science is moving haltingly for sociobiologists for the very reason that converting the data of human culture into memes, competing discrete elements, is a task for which they have not been trained. Educators may borrow and apply a process, cultural selection, but they need hardly fear a subversion of the values and principles of their field. It is this coevolutionary perspective that frees sociobiology from the weaknesses of genetic determinism.[14] Some sociobiological interpretations may mislead by giving cultural selection too little emphasis but such interpretations do not characterize the field.

Of primary interest to educators is the concept that as individuals, societies, and as a species, humans are caught up in an evolutionary process. Our civilizations have, to a great extent, interrupted the course of natural selection. We are not, however, free of a parallel dynamic operating with respect to human culture. Evidence of our ignorance is the only recent postulation of concepts like the "unconscious" and the "collective unconscious" and the continuing inability

of society at large to grasp the significance of these ideas. Likewise, the importance of human instinct has been little integrated with social science and education, though the work of our dominant developmental theorists repeatedly points to structural elements in our psychological process of maturation. Cultural selection is a dynamic in which these inherited forms respond to ideas, behavior, artifacts, and incline the individual to adopt some and decline others. To a noticeable degree individuals are not aware of the fundamental sources of this choicemaking. They become aware as they bring to consciousness their species-specific genetic predispositions toward cultural content.

The paramount task of educators is to promote self-understanding by making the structure of the psyche a subject of study and by analyzing the components of culture as elements evaluated by individuals for their relative merit in satisfying the needs of self-realization. Self-realization in this context is the analytical psychologists' term for the dynamic of cultural selection as it is manifest in the stages of ego development.

Nothing could be more basic to education in the 1980's than granting students an awareness of the innate deep structures, instincts and archetypes, which predispose much of their choice-making. Concurrently, there is the need to explain the "marketplace" of culture where memes are in competition and are selected in light of their contribution

to the progress of individual development. There is in the literature of education and related disciplines a wealth of relevant data now commonly employed only in a piecemeal way in the planning of curricula. Little movement toward unifying this body of theory has occurred, however, with the result tnat the power of these insights has not been brought to bear on reforming society. We remain as naive participants in a process which we have not identified and we assign value to the objects of our projection while remaining ignorant of the factors which motivate us.

Sociobiology is of particular promise because it may serve to do what epistemologists, developmental psychologists, psychoanalysts, and ethologists have been unable to do, that is: to provide a theory documenting our inherited predispositions which can, in turn, be disseminated taking general self-awareness to a hitherto unrealized plane of understanding. As the most traditionally "scientific" attempt so far to lay out the instincts of mankind which affect culture, sociobiology offers a new critical approach which is compatible with basic research in social science and the humanities. Unable to conceptualize the evolutionary process of which our culture is a manifestation, we tend to be victims of its cycles. A recognition of our nature, our predispositions, will not reduce our freedom; ironically, it is the only way ultimately to increase it.

Footnotes

1. Note the absence of education in a collection like T. C. Wiegele, ed., Biology and the Social Sciences (Boulder, Colo.: Westview Press, 1982).

2. I. Eibl-Eibesfeldt, Ethology: the Biology of Behavior (New York: Holt, Rinehart and Winston, 1970), Ch. 18.

3. The ethologist's point of view on this is well recorded in K. Lorenz, Behind the Mirror: A Search for a Natural History of Human Knowledge (New York: Harcourt Brace Jovanovich, 1977).

4. Memes are introduced in R. Dawkins, The Selfish Gene (New York: Oxford University Press, 1976).

5. Lorenz, 1977, takes up this theme, as has D. A. Hamburg, president of the Carnegie Corporation, in a lecture at the American Museum of Natural History reported in B. Nelson, "Peril Now Seen in Old Traits," The New York Times (January 20, 1983) p. 11.

6. Dawkins, 1976, employs this particular example.

7. J. T. Bonner, The Evolution of Culture in Animals (Princeton, N.J.: Princeton University Press, 1980), p. 21.

8. E. Neumann, The Origins and History of Consciousness (Princeton, N.J.: Princeton University Press, 1970) has this as its thesis.

9. See Neumann, 1970, and C. G. Jung, The Collected Works of C. G. Jung: The Archetypes of the Collective Unconscious (London: Routledge & Kegan Paul, 1959) Vol. IX, i.

10. In D. Barash, The Whisperings Within (New York: Harper & Row, 1979) p. 207, the author, a psychologist employing the sociobiological point of view writes: "To my knowledge, no one has attempted to analyze Jungian archetypes with an eye specifically toward evolutionary biology, but it would almost certainly be an interesting project."

11. C. G. Jung, Analytical Psychology: Its Theory and Practice (New York: Vintage Books, 1970), p. 60.

12. E. O. Wilson, Sociobiology: The New Synthesis (Cambridge, Mass.: Harvard University Press, 1975).

13. For such a critique see A. Montagu, ed., Sociobiology Examined (New York: Oxford University Press, 1980).

14. W. H. Durham, "Toward a Coevolutionary Theory of Human Biology and Culture," in Biology and the Social Sciences, pp. 77-94.