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REVIEW

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Richard Lerner seems to have set himself four tasks in *Final Solutions*: one, to argue that scientific theory, in this case a theory about human nature, has implications for social policy and, in turn, that scientific theory is not immune from social influences; two, to demonstrate the horrors to which one erroneous view of human nature—biological or genetic determinism—led when it informed social policy in the Nazi state; three, to show that this error is alive and well and continuing to do damage; and four, to make the case for a different view of human development—developmental contextualism.

These tasks are worthy. Each of them could have been developed at greater length and each one has been discussed by other writers. For instance, Lerner focuses on Konrad Lorenz as an example of a scientist whose work derived legitimacy from the Nazi state and also supported it. I have written on this too, and Lerner discusses my work at some length. I am not going to comment directly on his discussion, except to say that Lerner has given more evidence to support a thesis I have argued for, and I'm pleased to see it. However, I do want to show the power of the combination of tasks that Lerner has chosen by grappling with the work of Konrad Lorenz once again, this time with a focus on biological or genetic determinism.

Warning about the imminent degeneration of society was a constant theme in Lorenz's work, along with the presupposition that genetic decline was the root cause. But his view of the reasons for decline changed at least three times over a career spanning the middle of our century. In the 1930s and 1940s, Lorenz attributed the cause to domestication-induced mutations in the human genome; in the 1950s and 1960s, the cause was supposed to be simply the removal of natural selection factors from the conditions of civilized life, so that a wider variation in (presumably deleterious) genetic endowments could be reproduced in successive generations. The 1970s and 1980s saw Lorenz attribute the decline of civilization to the fact that the knowledge produced in society far over-

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whelmed the information programmed into the human cognitive/instinctive equipment, so that we could no longer control the forces we had unleashed and might destroy our environment. In each generation biological determinism was presupposed as correct, and failures in the human genome were attributed to different causes.

In every era, too, there was a corresponding social movement to combat the alleged cause. Nazism attempted to eliminate the "cancers" and "dregs" from society. Later, *On Aggression* unleashed a media blitz of "naked apeism," whose underlying thesis was that we had to preserve our instinctive emotional and behavioral equipment in the face of civilization's threats to it. (These threats could be construed to include the Civil Rights and women's movements.) Finally Lorenz became a grand eminence of the German Green party, railing against the evils of an overly complex society in the best Old Testament prophetic tradition.

How explain Lorenz's success, indeed, his celebrity? As Lerner makes clear, he was a scientist whose work, deliberately or not, spoke to the already existing presuppositions of a wider society, who used "scientific" reasons to legitimate and explain the concerns, and who prescribed "scientific" remedies. This can be seen in each of the three eras I have mentioned.

In the first era, Lorenz was young, struggling and not at all famous when he wrote his apologies for National Socialism mixed in with reports of observation, theory and experiment, but what he wrote fit in with the prevailing world view. I have argued elsewhere that Lorenz's use of race-political language might have been a deliberate strategy to gain acceptance for the new science of ethology, which he was consciously building. Besides, there is strong evidence that Lorenz really believed the claims he made. In this connection, Lerner is especially good at showing the continuity of Lorenz's thought with that of other scientists and physicians of the time.

In the 1960s the notoriety of *On Aggression* (and clones by other authors) again signalled that Lorenz's claims echoed what many people were ready to hear. While opponents thought that his ideas were horribly wrong, argued against the determinism implicit in them, pointed out connections with the Nazi genocide, and so on, the commercial success of writers like Desmond Morris, Robert Ardrey and Lorenz himself showed what side the popular world view favored.

In the 1980s, environmentalists in Germany took over Lorenz's concerns with a new twist. Human activity is, after all, responsible for the sad state of the environment. Lorenz gave reasons for this activity that had much more to do with individual human limitations in a complex society than with economics, business or government; truly a prophet that everyone could accept without guilt.

When every generation brings a new reason for decline and a new social

movement to capitalize on it, this is a clue that we have entered the realm of ideology, here defined as the set of presuppositions underlying theories and world views. Teasing these presuppositions out is a useful exercise.

The first presupposition is that decline is a real phenomenon that needs to be explained. Nostalgia is a social disease. For whatever complicated historical, psychological or other reasons, human beings throughout Western history have been prone to thinking that the past was always better, the present generation is no good, the world is coming to an end. Of course, when we have the capacity to destroy the world by nuclear or environmental holocaust, that is real. But it is important to distinguish the desperately real from illusions of cultural despair.

The second presupposition is that a complex set of social-political phenomena—named, incorrectly, as decline—can be explained and corrected on the basis of the individual organism. But most of the changes (excluding disasters) that affect human behavior on a mass scale are changes on the level of ideas or of social organization. Blaming the genetic decay of individuals for the "ills" of the social and political world just does not work.

The third presupposition is biological or genetic determinism itself. This is one of the controlling metaphors of the 20th century and of 20th century biological sciences. While its roots are very old, it was not until the 19th century that evolution theory was available to begin the strengthening of biological determinism into a controlling metaphor for human nature. But, while Darwinism claimed that human nature had been shaped by biological processes over millennia, there was no clear understanding of how traits were passed on to succeeding generations. Even Darwin left room for the influences of environment. But the inception of genetics at the beginning of the 20th century soon led to a view that human nature depended totally on the genes.

Lerner describes the results eloquently:

> From the perspective of genetic determinism, it is not what any of us does in life, not the environment we encounter, that is involved in the manifestation of our particular set of behaviors. Instead, those behaviors are functional outcomes of our biological heritage, our genes. Thus, what we do, what we become, is built into us at conception, is biologically predetermined. As a consequence, those who are most able to compete, who have achieved and mastered the world, and who therefore occupy positions of power and prestige, have those places in society because of what has been inherited, not because of what has been encountered or learned. (p. 13)

As Lerner demonstrates, presuppositions, metaphors and myths matter. They affect the doing of science; scientific results influence social policy.

The sequence can iterate itself. Not only have we had a Holocaust, but biological determinism continues to do great damage to groups like African-Americans and women.

Other damage can result to science and society. For example, as R. C. Lewontin argues in the "The Dream of the Human Genome" (1992, pp. 31–40), biological/genetic determinism is a guiding presupposition of the Human Genome Project, currently planned to take many millions of dollars to complete, with goals that may be elusive or even unreachable. What are the social implications, the consequences for individuals, and the effects on the scientific enterprise, if much money and time are spent on a project whose conceptual underpinnings are seriously flawed and whose promises therefore cannot be kept?

As I have argued elsewhere (1990), what we need is a new post-modern myth or metaphor for what it is to be human in the world. We need to construct a new ideology. Part of it will be what Lerner argues for, developmental contextualism. R. C. Lewontin, in his introduction to *Final Solutions,* calls this the central point of Lerner's work. Here is a further description of developmental contextualism from Lewontin:

> Even the organism does not compute itself from its DNA. A living organism at any moment in its life is the unique consequence of a developmental history that results from the interaction of and determination by internal and external forces. The external forces, what we usually think of as "environment," are themselves partly a consequence of the activities of the organism itself as it produces and consumes the conditions of its own existence. Organisms do not find the world in which they develop. They make it. Reciprocally, the internal forces are not autonomous, but act in response to the external. Part of the internal chemical machinery of a cell is only manufactured when external conditions demand it. . . .
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> Nor is "internal" identical with "genetic." . . . The variation between sides [of a fruit fly] is a consequence of random cellular movements and chance molecular events within cells during development, so-called "developmental noise." It is this same developmental noise that accounts for the fact that identical twins have different fingerprints and that the fingerprints on our left and right hands are different. A desktop computer that was as sensitive to room temperature and as noisy in its internal circuitry as a developing organism could hardly be said to compute at all. ("The Dream of the Human Genome," p. 34)

Developmental contextualism has been around for awhile. Beginning in the 1950s, the eminent comparative psychologist T. C. Schneirla and his school argued for it against Lorenz's approach. Developmental psychologists like Lerner may have adopted it because earlier theories do not do justice to all the phenomena they have observed. In any era,

ingredients for more than one ideology can be available, rather like traits of an organism that become useful when conditions change.

Of course, developmental contextualism is more than a presupposition for a world view. It is a theory like biological determinism, and it may even represent a next stage in the latter's development. That would depend on transcending the simple dichotomy of nature vs. nurture, while still using the many important results of modern biological science. But this means giving up a view of human nature that we in the 20th century have responded to so many times in so many guises. Lerner has brought together powerful arguments why we should do so. Perhaps his book will be an impetus for a new synthesis.

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