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Evolution, Human Diversity, and Social Policy

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It is understandable that current efforts to apply evolutionary and behavioral genetics to man are greeted with suspicion, since we have seen how Social Darwinism <sup>not only</sup> was used to rationalize reactionary economic and political views, but even contributed to the background for Nazi genocide. But as we guard against further abuses we must also recognize that Social Darwinism is hardly a proper paradigm for modern extensions of biology to man, any more than phlebotomy would be a proper paradigm for modern medicine. For Social Darwinism was not a scientific development: it was only a superficial analogy from organic evolution to human society, and it was built on an inadequate understanding of the evolution of social species.

In contrast, more recent developments in evolutionary genetics, seeking limited but solid insights into the biological roots of the broad range of human behavior, have had positive social consequences. However, this contribution has received little public recognition, and it has unfortunately been further obscured by the recent spread of a curious doctrine: that any attention to genetic aspects of behavior threatens the movement for racial justice.

In fact, evolutionary genetics has actually had the opposite effect, for it has destroyed the biological misconceptions that long underlay racism. One of these is a pernicious earlier conception of the nature of \_\_\_\_\_ race, based on the essentialist metaphysics of Plato and Aristotle. In this philosophical scheme any group or class was characterized in terms of its essential nature or ideal type, the actual individual variations being of only secondary importance. In modern biology, however, this typological concept has been replaced by a populational one, which identifies a group in terms of its statistical distribution of attributes. Accordingly, we now recognize races (subspecies), in any species, as populations that have been reproductively separated for very many generations, and that have consequently accumulated substantial differences in their gene pools.

To be sure, in man a few traits do have a typological distribution, i.e., they do not overlap among separated groups. And the high visibility of these traits (e.g., skin color, \_\_\_\_\_)

facial shape) gave rise to the typological interpretation of race. However, most genes, and particularly those that influence behavior, overlap extensively from one group to another in their distributions. Hence there is no biological justification for the racist pretense of defining an individual's intellectual potentials, of his inherited personality tendencies, by identifying him with a given race (or, in our mixed society, with a group that has derived many of its genes from a given race).

Genetics has also destroyed another foundation for racism: a primitive biological determinism, based on the false nature-nurture dichotomy. We now know that an individual's genotype does not determine his behavioral traits. Rather, it provides him with a set of genetic potentials, i.e., a characteristic pattern and range of responses to a given range of environmental stimuli. Such interactions, continuing from the moment of conception, produce the observed phenotype. This advance in ~~biology~~ biology tacitly underlies the belated public recognition that disadvantaged groups necessarily possess a large reservoir of undeveloped talent, hidden by lack of opportunity.

These insights now sharpen our understanding of the meaning of racism. I would suggest the following definition: racism is an attitude toward other individuals, and a differential treatment, that depends not solely on their personal qualities but also on their identification with one or another group. It is not racist to recognize that groups may differ in genetic potentials, provided one also recognizes that these differences are populational and overlapping, and hence do not justify differential treatment of individuals. Evolutionary considerations should also help us to correct a distorted perspective on the social significance of intelligence. Various species throughout the biological kingdom benefit enormously from genetic diversity, i.e., from having some individuals better endowed in one respect and others in another: no one trait is decisive. The recent polemics over the distribution of the particular trait (or bundle of traits) called intelligence, within the human species, have given it far too much attention. Intelligence is highly relevant for many roles in society, but it is not an index of moral worth. And in an increasingly egalitarian yet highly differentiated society it becomes increasingly important to recognize and reward the different gifts that different members possess.

These are clearly not the last of the social contributions of genetics. We can expect the field to continue, in the future, to enlarge the factual base that underlies our social value judgments. This prospect is highlighted by the recent fusion of several branches of biology to create the new field of socio-

biology. For this field has steered biology diametrically away from the narrow perspective of Social Darwinism, with its exclusive emphasis on competition: the emphasis is now on understanding cooperative tendencies in social species, in terms of both the evolutionary mechanisms that select for them and the cultural factors that promote their expression. The resulting insights should help us with the eternal social problem of reconciling our conflicting drives of competition and cooperation. Moreover, in its initial philosophical impact evolutionary biology may even have exacerbated this problem by undermining the earlier transcendental foundation for a moral code, for the only logical alternative then seemed, for many, to be unlimited moral relativism. But any society needs a general moral consensus and a shared sense of purpose; and sociobiology can surely help us in our desperate quest for a foundation for such beliefs, even though it cannot give us a prescription for a specific ethical or political system. Finally, we should recognize that behavioral genetics, in seeking to analyze differences in the responses of different genotypes, does not aim simply at identifying individual limits. It also seeks to identify the specific environmental inputs that will optimize the development of each individual -- for example, by tailoring education to individual patterns of response.

It thus seems difficult to justify a negative public image of behavioral genetics. Nevertheless, the stereotype of this field as a reactionary force has generated an intense emotional reaction, and the putative dependence of social equality on genetic equality has increased its intensity. Accordingly, the results of empirical studies in this area have been subjected to demands for perfection that are unprecedented in the behavioral and the social sciences. Moreover, this perfection is unattainable: the methodology of human behavioral genetics cannot provide a precise answer on the heritability of individual differences, nor can it provide a rigorous answer on group differences.

I would suggest that the issues have become distorted, as is inevitable when intense emotions are aroused. For the demand for perfection, from one side, ignores the fact that science deals with probabilities and not with absolute certainties. But a more specific problem, involving both sides, is that in arguing over the numerical value of the heritability of IQ we have been asking the wrong question for social purposes, however interesting the answer may be for scientific purposes. For even if we could determine a precise and reliable heritability value for our population, whether for individual or for group differences, that number would not be useful as a basis for policy. The real question, rather, is this: can we safely assume a value of zero for heritability, or should we build on the possibility that genetic differences may be significant? If we fail to face this

question honestly and dispassionately we may find ourselves on the dangerous course of building on illusion.

When the question is posed in these terms evolutionary principles can provide an answer; and while it is not quantitative, it is more reliable than the answer provided by empirical studies. With respect to individual differences the evolutionary argument is very simple. First, the rate of genetic change (evolution) in a population, in response to a given selection pressure, is known to be proportional to the amount of hereditary variation that is present in that population. Second, man has evolved exceptionally fast with respect to complex mental operations, tripling his brain size in 3 million years. It therefore follows that we almost certainly possess wide diversity in "behavioral" genes (i.e., those that affect the structural development and the function of the brain), even though this diversity cannot be as directly demonstrated as that for genes for physical and biochemical traits.

Alternatively, it could be argued <sup>that</sup> our species formerly enjoyed this diversity but may have now reached uniformity. But our knowledge of the tempo of evolution makes this possibility very remote. As another alternative, it has been suggested that our evolution of great behavioral plasticity has reduced the effect of genetic differences to insignificance. But this is pure wishful thinking on the part of extreme environmentalists. For while our unique degree of responsiveness to learning and to other social influences has indeed greatly reduced the fraction of our behavior that is directly coded by our genes, it has also increased our sensitivity to fine differences in behavioral patterns. If we could set up an intelligence scale for all higher primates we would surely find all normal humans in the 99th percentile; but within our 1% fraction of the range the differences among us have great social importance, and there is no doubt that genes contribute to them.

The question of group differences can also be illuminated by evolutionary considerations. The accumulation of statistical genetic differences between groups, after long separation, is just as inevitable for behavioral as for physical and biochemical traits. At the same time, evolution does not predict the size (or even the direction) of the behavioral genetic differences between any two groups. We are therefore led to an agnostic conclusion: we do not know that any two separated groups will have significant differences in their pool of behavioral genes -- but we also cannot assume that they will not. We can further expect that the selection pressures in one environment will yield a population with a high average level of some potentials, while another environment will favor others. Again biology replaces a typological concept by a populational one: there is no single ideal set of traits, either for biological or for social purposes; and there is no master race.

How do these considerations bear on public policy? I would suggest that they cannot prescribe policy, but they do relate to the underlying assumptions and expectations. Thus the aim of social equality will be vague and abstract unless it takes into account the existence of wide individual genetic diversity. Similarly, <sup>the</sup> use of quotas to promote equal opportunity for disadvantaged groups involves an assumption about the distribution of potentials. Since all the identifiable groups in our society overlap extensively in these distributions, it follows that for most jobs fully equal opportunity (including efforts to correct the effects of early disadvantages) would yield much the same result as a quota system. However, for jobs that demand exceptional capacities -- say for abstract thought, artistic creativity, or motor coordination -- we cannot predict how the chips might fall. Hence, for such highly competitive jobs the elimination of discrimination will markedly increase the representation of the groups that have been held down in the past -- but it may or may not result in parity.

These considerations are pertinent to the current widespread attention to the numbers of members of various groups in various positions. For while inequality of opportunity has clearly been responsible, on a large scale, for disparities in achievement, it should also be clear that the converse does not follow. In other words, the presence of a residual numerical disparity, following an effort to provide equal opportunity, does not prove that the effort has failed and the opportunities are still unequal. On the contrary, numerical outcomes can provide a basis <sup>only</sup> for suspecting unequal opportunity; to demonstrate it we must look closely at the mechanisms of appointment and the criteria for evaluating qualifications.

The question of genetic diversity thus has a great deal of social relevance. Yet there are strong arguments against focusing attention on it in an era when racial justice is an immediate, crucial issue for our society. For example, until we have removed the cultural scars of centuries of disadvantage our assessments of behavioral genetic differences will not be accurate, and meanwhile early, inaccurate assessments might provide fuel for racists. In addition, we must recognize that faith, hope, and even myths are often needed to move society to action; and a critical assessment of reality, though intended only to prevent mistakes, may have a chilling effect on efforts to eliminate inequalities. It may also lower the self-esteem of the victims. Finally, at a time of wide public disaffection scientists may further mar the image of science by spelling out a painful and unpopular message, however true it may be.

Given these dangers, it is tempting to conclude that virtue requires us to ignore genetic diversity at this time. Yet a rational person must first consider

what the consequences of such a course of action may be. I would suggest that the tacit assumption of equal distribution of genotypic potentials underlies much of the support of liberals for the major change that has occurred in the meaning of affirmative action, starting as intensive recruitment and remedial programs but evolving into enforcement of quotas in the distribution of jobs and admissions. For quotas have been widely viewed as only a temporary device, used to accelerate the same distribution that would eventually be reached with equal opportunity. But if, in fact, genotypic potentials are not evenly distributed the device will turn out to be a protracted policy. Reverse discrimination would then have to be recognized as a shift of ends and not of means.

Biological considerations therefore fortify the sociological and political reasons for trying to balance the costs and the benefits of abandoning equal opportunity and meritocratic appointment in favor of reverse discrimination. As a biologist I have no authoritative basis for appraising these costs, but I would briefly note the following. (1) We will suffer a decline in quality and efficiency of performance, in the broadest sense -- including not only a decrease in economic productivity but also a downgrading of excellence and individual creativity as general social goals, and even costs in human lives when we lower standards excessively in awarding medical degrees. (2) We will damage our educational systems if we prevent them from adapting to individual potentials and needs, and if we set unattainable goals of equal performance and then condemn the systems for failing to reach these goals. (3) By systematically bypassing more qualified candidates for jobs or admissions, and favoring less qualified ones, we will also create a new pattern of injustice, and the resulting resentment will jeopardize the whole program. (4) If various groups are promised equality of achievement, and if they should actually differ significantly in their potentials, that promise could not be fulfilled. The resulting failure would lead to continued frustration and to a search for scapegoats. (5) Finally, the goal of social equality arises from a priori moral principles, and if we rest it on potentially disprovable assumptions of fact we make it vulnerable to disillusion and backlash.

Faced with substantial costs on both sides, and recognizing that equality of opportunity and equality of representation are not necessarily congruent, our society seems to be faced with a choice of one or the other. The first has been our traditional goal, however imperfectly attained. Today there is considerable pressure <sup>the second: for a</sup> for a conception of justice that would regard unequal ethnic representation in high-status jobs as inherently unfair, regardless of

the reasons. Equal representations in all jobs would then become our primary goal. In its extreme form this version of egalitarianism would consider the very existence of inborn differences in potentials as unfair, and would assign society the task of compensating for these differences in order to attain equal achievement.

I would suggest, however, that the apparent choice between equal opportunity and equal representation is oversimplified, for it deals with jobs as an end in themselves rather than as a means to rewards and status. In fact, we have a third option: we could increase equality of status by making the rewards for different jobs more nearly equal, while apportioning the jobs meritocratically. We would thereby reduce much of the resentment over unequal group representations without sacrificing the valuable ideal of matching individual responsibilities with abilities. Moreover, this approach would not only respond to the problem of inequalities between groups: it would also respond to the broader question of whether our traditional approach to incentives has not resulted in excessively large differentials in our reward system within our whole population.

For the past century the radical movement, recognizing the inevitability of a division of labor in a complex society, has pressed for greater equality in the distribution of rewards. Yet, curiously, the current emphasis on ethnicity and on group representation is serving as a diversion, at a time when the deep ills of our social structure and our international relations raise increasingly insistent questions about the problems of a capitalist economy. Moreover, radicals are being extraordinarily conservative when they insist on building social policy exclusively on the traditional base of intuitive political and educational theory, rather than welcoming knowledge in behavioral genetics: for this field aims not at justifying the status quo but at making our environmental interventions more specifically adapted to individual needs and patterns of reaction.

To sum up: our species possesses wide genetic diversity among individuals. Moreover, after long separation groups exhibit statistical, but not typological, differences in the genes for most traits; and since we cannot measure reliably these group differences for behavioral genes, we must be agnostic about their significance. Finally, scientists can help the public to recognize certain social implications of these findings: that social equality (a normative matter) must be distinguished from biological equality (an empirical matter); that our genetic diversity is a rich biological and cultural resource, rather than something to be deprecated and ignored; and that social justice can and must be built around <sup>the</sup> realities of that diversity.

Having considered some implications of behavioral genetics and sociobiology, I would like to close with a brief comment on the nature of some recent attacks

on these fields. The newer implications of evolution, regarding diversity, have inevitably met with intense resistance, just as did the earlier implications, regarding man's origin, in the 19th century: both seemed to threaten the foundations of public morality. But we will not solve the problem of reconciling social equality with biological diversity if we allow a conformist ideology, whether religious or secular, to corrupt science and to replace open inquiry by assertions based on noble intentions and on faith. We see around us the germs of such an American Neo-Lysenkoism, with wide appeal for a public that is all too eager to blame science for our many present ills. Success for this enterprise would not only impede the advance of science: it would also narrow our perspective on the human condition. For we must accept genetic diversity, like death, as an inevitable and creative product of evolution: on the one hand both generate social problems, but on the other they also make it possible for the lottery of sexual reproduction to yield an infinite variety of unique individuals, and thus to advance our cultural evolution.

Pressure for equality alone, divorced from respect for individuality, will move us toward a totalitarian state rather than toward a more profound democracy. Those who righteously insist on minimizing the importance of genetic differences do not have a monopoly on concern for social justice, and they are imperiling the very cause they presume to advance.