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Racial Studies: Academy States Position on Call for New Research

William Shockley of Stanford, who won the Nobel prize for work on transistors, has lately been arguing for an expansion of research to evaluate the relative effects of heredity and environment on human intelligence and performance. Implicit in his proposals is at least the speculation that inferior genetic inheritance, rather than inferior environment, accounts for the relatively poor performance of some Negroes in various competitive situations. Specifically, Shockley has been calling for a study of "disadvantaged children" who have been adopted from "improvident backgrounds." As he put it in a talk last spring to the National Academy of Sciences, the object of the study would be to answer the question, "can improved environment remedy the obviously enormous social disadvantages afflicting the illegitimate 25 percent of Negro babies? Or will genetic inheritance produce such a low 'social capacity index' that most will perform at frustratingly low social levels?"

Shockley's vigorous advocacy has been a matter of some discomfort to the Academy, which finds itself situated between its traditional belief in free inquiry and its realization that the formulation of heredity versus environment adds up to a loaded question that might be destructively exploited by racists if the Academy even ratified it as the right question. At the Academy's fall meeting on 23 October, in Ann Arbor, President Frederick Seitz presented the NAS's Council's response to Shockley's proposals, though, in fact, the statement made no direct reference to Shockley himself. The Academy statement, which was prepared with the assistance of several geneticists (James F. Crow, Wisconsin; James V. Neel, Michigan; and Curt Stern, University of California, Berkeley) follows:

The Academy has been urged to take strong measures to reduce the present uncertainty about the relative importance of heredity and environment as causes of human social problems and as causes of racial differences in behavioral traits. It is asked to promote actively the seeking of answers to such questions as: To what extent are urban slums the result of poor heredity? Is the genetic quality of the human population being seriously eroded by economic and medical advances that have dramatically decreased the death rate, and by differential birth rates in various social, economic, and educational groups? Are genetic factors responsible for a significant part of racial differences in educational and economic achievements? Could a eugenic program materially reduce our major social problems? By concentrating on environmental approaches, is society neglecting promising genetic possibilities?

The question has been raised as to whether research in these areas is being carried out as vigorously and intelligently as it should be.

Do anthropologists and geneticists have an environmentalist bias that discourages research into the hereditary bases of individual and racial differences in intelligence and ability to adapt to our society? Is this research being seriously impeded by investigators' fears that the results might be unfavorable to some ethnic minorities?

How urgent is it that such questions be answered?

We certainly need to know more about human genetics; as to the desirability of further research there can be no serious question. Researchers in experimental and human genetics have brought deep insights concerning ourselves and our past. The detailed understanding of the molecular basis of heredity is one of the intellectual triumphs of the twentieth century. New genetic knowledge is already bringing practical benefits in the understanding, prevention, and treatment of genetic diseases. We can expect continued rapid progress in this area.

With complex traits like intelligence the generalities are understood, but the specifics are not. There is general agreement that both hereditary and environmental factors are influential; but there are strong disagreements as to their relative magnitudes—which is another way of saying that the evidence is not conclusive. Furthermore, it is not obvious that really substantial increases in this knowledge will come soon, even if the amount of research were greatly increased. The problem of disentangling hereditary and environmental factors for complex intellectual and emotional traits where many genes may participate, where measurements are often not reproducible, where it is not certain what is being measured, and where subtle environmental factors are involved is extremely difficult. It is unrealistic to expect much progress unless new methods appear.

Even greater difficulties are encountered in any attempt to assess the relative role of heredity and environment in determining racial differences in intellectual and emotional traits. Despite the great number of tests that have been performed on Negro and white populations, it is still not clear whether any differences found are primarily genetic or environmental. For

example, there is no scientific basis for a statement that there are or that there are not substantial hereditary differences in intelligence between Negro and white populations. In the absence of some now-unforeseen way of equalizing all aspects of the environment, answers to this question can hardly be more than reasonable guesses. Such guesses can easily be biased, consciously or unconsciously, by political and social views.

It is indeed possible that some studies have not been carried out for fear that the results might not be acceptable to some groups. Many researchers prefer to work in noncontroversial areas where public feelings are not involved and where they can work undisturbed. There is, however, a more valid reason that might keep scientists from working in such areas as the separation of hereditary and environmental contributions to complex human behavioral traits and to racial differences in these traits. This is the conviction that none of the current methods can produce unambiguous results. To shy away from seeking the truth is one thing; to refrain from collecting still more data that would be of uncertain meaning but would invite misuse is another.

Yet, it is not proper to say that we know nothing about the inheritance of complex traits, or that the consequences of a genetic program are not at all predictable. Animal experiments have shown that almost any trait can be changed by selection. The immensely successful history of animal and plant breeding, for a long time based on no more complicated principle than that "like begets like," shows this. A selection program to increase human intelligence (or whatever is measured by various kinds of "intelligence" tests) would almost certainly be successful in some measure. The same is probably true for other behavioral traits. The *rate* of increase would be somewhat unpredictable, but there is little doubt that there would be progress.

On the other hand, it is contrary to all evidence that social problems such as poverty, slums, school dropouts, and crime are *entirely* genetic. There is surely a substantial and perhaps overriding environmental and social component. Therefore, society need not wait for future heredity-environment research in order to attempt environmental improvements, nor will it do so. We can be sure that no amount of genetic research will demonstrate the futility of *all* attempts at environmental improvements. It should be emphasized that the existence of even a strong hereditary component in any condition, individual or social, does not imply that the condition cannot be cured or ameliorated.

There are two aspects of eugenics that, although not entirely different, are sufficiently distinct to be considered separately. They are:

1) *The reduction of the incidence of known inherited diseases.* This involves the discovery by medical, chemical, or cytological techniques of persons with a high risk of having children with gross abnormalities, or with severe physical or mental disease. A great deal of human misery, both of parents and of children, can be prevented through genetic counseling. The decisions can be made by the individuals involved; social decisions are ordinarily not needed.

2) *Attempts to alter the population genetically for intellectual and emotional traits that vary continuously, or to reverse possibly undesirable effects of differential fertility.* To bring about any substantial change in the next generation would require a large change in reproductive patterns. To do this by education, by persuasion, by economic incentives, or by stronger measures would require social decisions that are not lightly made.

It is clear that for many important and complex traits the population could be changed by either genetic or environmental means. They are not mutually exclusive; more likely they are mutually reinforcing.

Heredity-environment uncertainty is not the main reason for avoiding drastic selection measures. The major impediment to eugenic action is not genetic ignorance but rather Society's uncertainty about its aims and about the acceptability of the means for attaining them. Even if it were known beyond doubt that the heritability of social maladjustment is very high, would we choose to remedy the situation by eugenic means?

For one thing, our society still severely restricts even the voluntary individual application of some available techniques. Birth control is only gradually becoming legally accepted, especially among the unmarried, long after it has become widely practiced among well-to-do and educated people. Therapeutic abortion is very safe when done under proper medical conditions, but is forced underground or to other countries, with the consequence that it is available safely only to the privileged. Artificial insemination, although widely practiced, is in such a questionable legal position that no accurate records, even of its frequency, are available. Any program of genetic improvement, even if entirely voluntary, would be seriously impeded by inability to make full use of techniques now known.

Moreover, regardless of the acceptability of the methods and regardless of the success of research in disentangling the role of heredity and environment in complex social traits, society is far from ready to interfere to any significant extent with the reproductive preferences of this generation in order to change the gene pool of the next. On the other hand environmental measures have wide and immediate social acceptability.

Genetic changes are measured in generations. Whatever genetic deterioration is occurring as a result of decreased natural selection or by differential birth rates is slow relative to many environmental changes, particularly those associated with technological innovations. Likewise, genetic improvement by any eugenic program that is likely to be accepted in the near future by our society would also be slow.

For these reasons, we question the *social* urgency of a greatly enhanced program to measure the heritability of complex intellectual and emotional factors. This is not to say that such work should not be done. But we would not, for example, urge that work in other parts of genetics be reduced in order to supply trained personnel to study this area more intensively.

Likewise, we question the social urgency of a crash program to measure genetic differences in intellectual and emotional traits between racial groups. In the first place, if the traits are at all complex, the results of such research are almost certain to be inconclusive. In the second place, it is not clear that major social decisions depend on such information; we would hope that persons would be considered as individuals and not as members of groups.

On the other hand, no promising new approach to answering these questions should be discouraged. While existing methods offer little hope for unambiguous answers, there is always the possibility that new insights will come from an unexpected direction. The history of scientific discovery suggests that the best strategy would be the support of basic research from which such insights may arise.