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Richard C. Lewontin

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Richard C. Lewontin
“Biological Determinism as a Social Weapon”
Portland State University
January 20, 1976

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This discussion includes a question-and-answer period with members of the audience, whose names are not identified. Some speakers are off-microphone during parts of the conversation and are partially unintelligible.

HOST: We are privileged this evening to have with us Dr. Richard Lewontin. Dr. Lewontin is presently Alexander Agassiz professor of zoology at Harvard University, a position he has held since 1973. He is, as some of you may have read already, a noted authority in population genetics. He is regarded as a pioneer in theoretical population biology, and, not incidentally, an outspoken advocate of social responsibility by the scientific community. He is also an outspoken critic of genetic engineering research, and of the current resurgence of social Darwinism, especially that presented by, among others, Dr. William Shockley and Arthur Jensen. By way of background, Dr. Lewontin did his undergraduate work at Harvard University, received his Ph.D. from Columbia University in 1954. He has previously taught at North Carolina State University, the University of Rochester, and the University of Chicago. At Chicago, he was professor of zoology and mathematics. In addition, he was associate dean of the biological sciences, and was, in 1967, named Louis Block professor of biological sciences at the University of Chicago. In 1967, Dr. Lewontin was elected to the prestigious National Academy of Arts and Sciences, and he submitted his formal resignation to that body in 1970, listing the degree to which the Academy participated in defense research, and the lack of social concern by the Academy as chief reasons for that resignation. This evening, Dr. Lewontin will talk about biological

determinism as a social weapon, and he has asked me to indicate that the honorarium he will receive for this lecture is being donated to a group known as Science for the People. And now, I'd like to introduce you to Dr. Richard Lewontin.

[*applause*]

LEWONTIN: Thanks a lot, Mike. I... [*chuckles*] after that introduction, I oughta warn you that part of the message of the talk tonight is not to believe anything that experts tell you, so... [*laughter*] I suppose that means you can't believe anything I tell you either, because one of the things I want to talk about is the considerable amount of dishonesty in science when it comes to political questions, and I guess if the only message I leave is that you should not believe what you read in the papers, that would be worthwhile.

I want to talk about a subject that unfortunately has become of increasing interest in the last five or six years, but one which has been with us a long time. It's really related to a more general problem that's dealt with in Bill Ryan's book called *Blaming the Victim*, a book which many of you may know. If you don't know it, you should know it. In that book, Ryan discusses the fact that a variety of dislocations in society and obvious inequalities of status, wealth, and power in society are constantly being explained by suggesting that people who don't have jobs have only themselves to blame; people who have not succeeded in getting the same power, wealth, and status that other people have must be inherently faulty.

To give an example of the way this idea is pushed, in the *New York Times* just two or three days ago, there was an editorial on the op-ed page written by a New York lawyer, which talked about the government housing programs and loans to lower-middle class and working-class people for buying their own homes, and saying that those programs had failed because the people who were in them had not taken care of the places, they'd gone to rack and ruin, they hadn't kept up their payments, they were generally poor risks, and the program was a total failure. And at the end of the article he says, "We will not understand why people act this way until we understand the way the brain functions and the way endocrine glands operate," [*laughter and exclamations from the audience*], "and if you really want..." and he called these people sick! And said that they were sick, and—because they didn't know how to take care of the things that were given to them—and that this was a problem for biology to discover what was wrong with their brains. [*chuckles from the audience*] If you... that is *not* an exaggeration of the editorial, it is precisely that. I suggest that you might look at the *New York Times*—I think it's three days ago or four days—sometime in the last week, at any rate. That's the kind of thing that Ryan was talking about when he talked about blaming the victim.

Now, I want to talk about it in some historical perspective, and also try to bring it up to date, and talk in general about biological determinism as a whole way of explanation about the world, in an attempt to convince people that their situation in life is unchangeable and that if they don't like it, it's tough luck and they just might as well relax. That really is the function of biological determinist arguments. We really have to go back, I think, to understand these arguments, back—I don't like to be academic about it, but I think we cannot understand it except in an historical context—we have to go back to the eighteenth century, in fact, to the American Revolution, which is being celebrated this year, and to the French Revolution to see what people were saying then about what they were supposed to be involved in. Every revolution has its ideologues, and the French and American Revolutions had their ideologues—people who created an ideology which was supposed to support the revolution that was going on—and the ideologues of the French and American Revolution said, “Look, the world is in a terrible state because there are people in the world who have power and wealth and status for artificial reasons.” That's the aristocracy. “We, the rising middle class...”—they didn't really mean working people or peasants but chiefly the middle classes—“we are just as good as they are. We can do what they can do. We can govern ourselves. We need freedom,” and freedom was a very important ideology of those revolutions, “...and what we want to do is to create a world in which artificial privilege is destroyed, in which every person can rise in the social scale, just as high as possible.” And so, what was said was, that those revolutions were destructions of artificial privilege and the replacement of societies of equality for all people.

Now, of course, they didn't really mean equality for everybody. They certainly didn't mean equality for women. They certainly didn't mean equality for Blacks or for slaves. The French were very careful about that in the Declaration of Rights of Man, because they had to cope with all those people in the West Indies who had slaves. The Americans were cert... certainly didn't mean total equality. They meant equality for people like *them*, is what they meant, and they meant that they were going to destroy all privilege. Well, that has become part of the ideology of America, and of France, and indeed of the whole Western world; the ideology that every person is born equal, that every person has an equal opportunity to get the goods of the world: the status, the power, the wealth, the governance, and so on. But of course, if you look around, you discover that's not the case. We do not live in a society in which there is equality of status, wealth, and power. It doesn't take any particular political viewpoint to agree, whether one is reactionary, conservative, liberal, or radical, that Western society is certainly marked by gross inequalities of status, wealth, and power.

The only thing at issue is how to explain it. The explanation offered in the face of that ideology of equality has been, in the 19th century and increasingly in the 20th century, that our form of politics and economic system has destroyed artificial barriers to equality, and therefore the

system is completely flexible and if there is any inequality that we see (and we do see it), that it must reside in individuals themselves. That is to say, what we now have is not the unnatural inequalities of the bad old days of the aristocracy, what we now have is *natural* inequality; each person in our society is free to rise to the extreme that that person could possibly rise, and the fact that some people haven't risen lies in a fault in their inner natures. And the result has been the growing of a theory of biological determinism which says that our society is marked by natural inequalities and natural filling of different positions in society.

As an example, perhaps one of the most gross and interesting examples of that, I would like to quote one of my own colleagues—Harvard has a marvelous stable of these people... [laughter] not accidentally, I should say—who wrote a book called *IQ in the Meritocracy*, a man named Herrnstein, who said, and you're going to have to think about what the meaning of this curious statement is. He says, "In the 18th century, there was no biological difference between the lower classes and the upper classes." This was the idea of the artificial differences between aristocracy, and therefore, he says, "revolutions could succeed," as indeed they did. The American Revolution succeeded and the French Revolution succeeded. He said, "But in the 20th century, differences between classes are biological in large part," that there is a biological difference between the working class and middle class, between the middle class and the upper class, "and therefore revolutions cannot succeed." Now, it's not entirely clear, you know, what the argument is.

I want to talk a little bit about the notion that there are biological differences between working-class people and middle-class people, but putting that aside, supposing for the moment that Mr. Herrnstein were correct, which he obviously isn't, but suppose he were [laughter] and there were indeed a biological difference between working-class people and middle-class people, why would it follow that a revolution could not succeed? The argument must be that if there's a *biological* superiority of the middle classes to the working classes, then that also endows them with a kind of stability and a proof against being overturned, which seems a very strange idea. That somehow their biological superiority will prevent revolution. Of course, the whole idea is not very well thought out, and the purpose of such statements is transparent, and I give it... to begin with, because that clearly is the purpose of the whole of the ideology of biological determinism: to convince people that the differences in society are biologically determined, in the genes, in fact; that therefore they're unchangeable (because what is biologically determined is unchangeable), and therefore social revolutions cannot succeed in the 20th century. It is a phenomenon of cooling out. It's a phenomenon of telling people that this is the best of all possible worlds—it might not be the best of all conceivable worlds, but it's the best of all possible worlds, so don't make trouble. And biological determinism over and over again has, as its message, "Don't make trouble, because it's no use. You'll just be beating your head

against a stone. Well, if any of you in this room are crazy to think that you can make a revolution, you should know you can't because your biology... the biological difference between classes prevent that." That's... [laughter] that's what the argument is.

Now, the forms of biological determinism have been very varied overtime. In the 19th century, it was morphology of individuals which was regarded as the key to their biological nature. We have phrenology, for example, where you could tell about people's character from the bumps on their head... a not ridiculous idea on the face of it in view of the fact that the *modern* neurobiologists, neurosurgeons, and so on still believe that different aspects of the personality are specifically located in different parts of the brain, and the whole of the phrenology is an outgrowth of that notion of topological localization. The modern form of it is, of course, if you don't like the personality, you cut out that part of the brain [laughter] and that's... that is indeed what psychosurgery is all about. It is cutting out those parts of the brain which give rise to offensive behavior. So, if you believe that and if you believe that, as people did in the 19th century, that the formation of the skull somehow revealed the underlying formation of the brain, then phrenology was not that unreasonable on that basis.

Morphology was very important and people constantly gave proofs of the inequalities of races, particularly, or nations on the base of their morphology. Professor Louis Agassiz, who was the father of the man who made enough money to endow the chair which I hold at Harvard, Alexander Agassiz, was a famous zoologist. He was, in fact, one of the leading zoologists of the 19th century, perhaps, the leading zoologist until he was foolish enough to oppose Darwin, and then people didn't take him too seriously after that, I guess. Now, Louis Agassiz said that the brain cases, or the skulls, of Blacks and whites closed up at different rates, so that the skull's sutures—which are, you know, open in babies, so the plates of a skull are not together in babies—but the skull's sutures in Blacks closed earlier than the skull sutures of whites, so if the skull hardened at a younger age in Blacks, and therefore it was very dangerous to teach Blacks too much, [laughter] because if you taught them too much their brains would swell, [laughter continues] and it would... they would swell against this enclosed case, and they would rupture. [laughter]

Now, I don't know whether Louis Agassiz *believed* that or not. You can't tell what people believe, but he said that. That is, of course, a piece of complete nonsense. I mean, first of all, the skull sutures of Blacks and whites close at the same rate, there's no difference; and secondly, of course, one's brain doesn't swell as one learns things, I mean... [laughter] so it's based on false morphology. It kind of... but that kind of racism was very common in the 19th

century, the kind of manifest racism which no one paid much attention to, and now, we laugh at it. But you won't laugh and you don't laugh at the same kinds of biological determinist arguments which sound more sophisticated because in place of morphology, people say it's about DNA. And DNA has replaced bones as the site of intrinsic biological worth in the modern form of that ideology.

Notions that different groups, in addition to races, different classes were biologically superior or inferior, or were common after the 19th century into the 20th century, and the most important events for people in this room, of interest, is the movement against immigration in the 1920s. I don't know how many of you know the history of the immigration movement in America. I can't give it in detail, but there is the Immigration Act of 1924 which was passed with only, as far as I know, one strong voice against it in Congress, Sol Bloom, who was then a freshman congressman; the Immigration Act of 1924 was passed. It was a first general exclusion act passed against immigrants to the United States after extensive congressional hearings, at which, large numbers of experts of one kind or another testified on the basis of IQ testing, which had then become very common in the teens and the 20's, especially after the First World War when IQ tests were used. The Army Alpha and Beta tests were used to classify all inductees. People testified that tests on Ellis Island—the chief point of influx for immigrants in the United States at least on the East Coast—and various other tests proved that—and now I give you numbers which differ only by 2%; I can't remember the actual numbers, I don't have them—but what I'm saying is so close to what the true numbers are there doesn't matter: 78% of Poles, 83% of Jews, 79% of Italians, 86% of Russians, and so on, were feeble-minded. That was asserted to a congressional hearing, and it was asserted that these were the people who were coming into the country and swapping out the better types who had come before.

It was also pointed out that there was a correlation between performance on these IQ tests and the number of years of residence in the United States. It was asserted, however, this could not be because the immigrants who have been here a long time had learned English. *[laughter]* because... it was asserted by the *leaders* of American psychology—please note these are not crackpots. I'm talking about Lewis Terman. I'm talking about Henry Goddard, [Robert] Yerkes; I mean, Presidents of the American Psychological Association, professors at Princeton, Harvard, Columbia, and so on. It was asserted by these gents that the testing procedure had been so refined that there was no linguistic component in it, that they could assure the people that knowledge of English was not an issue, this was just testing real intelligence, so when the question came up, when Carl Brigham was asked how come... that people who've lived in the United States longer do better on the test? He says, "Because if you look at the history of immigration, those immigrants who came 30 years ago came from Northern European stocks and therefore are more intelligent, whereas the recent immigrants come from Southern

European and Eastern European stocks and are therefore less intelligent, and that's why more recent immigrants do better on the test, not because they've been in the United States longer."

Now, this kind of testimony was responsible for the passage of the Immigration Act of 1924, and the Immigration Act of 1924 established national quotas; we had never had those before. We had an Oriental Exclusion Act which kept out Chinese and Japanese, but other than that there had been no exclusion which established quotas based on the American census. But not based on the American census of 1920, nor of 1910, nor of 1900, nor, I believe, of 1890, but if I remember correctly, of 1880—it may have been 1890—at a time when most of the foreign-born in the United States came from Northern Europe and England. That was a deliberate plan in order to restrict immigration from Southern Europe.

That is the kind of biological determinist nonsense. Now remember 83% of Italians were feeble-minded. I don't know what the ethnic composition of people in this room is; if I gave this lecture in Boston, it would mean that a very large fraction of the people in the room would have been... come from feeble-minded parents, *[laughter]* and that's certainly true in New York, I... *[laughter]* I don't really understand the history of the West Coast well enough to know what situation... perhaps you're all Northern Europeans. *[laughter]*

Now, American students, university students and, indeed, high school students have had the impression for some time that American academics are leading liberals in issues like this, and that this is the kind of rabble-rousing and ignorant racism which comes only from the depths of our society. That is a kind of view which has been put forward by American academics, partly to obfuscate their role in this kind of thing in the 1920s and early 1930s, and partly as part of the general elitism of American academics; namely that all good things come from above and all bad things come from below. You really have to watch them rather closely. The fact of the matter is that in 1930s and early 40s and even into the 50s, academics by and large *were* fairly liberal; that is to say, were not racist. Chiefly as a reaction against what the effects of racism in Europe were, namely that people were being gassed and burned up, and everybody was sort of taken aback by this phenomena.

So, the American academic community, which had been the leader in propagating the notion that people were biologically inferior in intelligence and behavior and ability to work, and so on, shut up about this and even began to produce high school texts and so on which said, "All races are equal," and "There's nothing to genetic difference between people," and "There are no pure races," and so on. But by the time the middle 50s rolled around, and especially the 60s, all of that business—that unfortunate business that went on in Europe—was forgotten. Indeed, whole new generations, even of academics, came into being, who had only been children

during that time, or had no experience of it. In addition, the United States was engaged in a race war in Southeast Asia, in which there was a certain advantage to indicating there really were biological differences... you know, "Those people in... Southeast Asia have no regard for human life, and they don't really... are not really emotional, and..." you know, all that.

The result is that American academic community, once again, has become—and increasingly so, I'm sorry to say—a manufacturing plant for this kind of ideological weaponry in what is the same old war between those who have and those who don't. And it is not, perhaps, surprising that in that struggle between those who possess and those who do not possess, that most American academics, at least in elite universities like the one I work in, do not produce ideologies which are particularly useful to the people who don't have. They tend to produce ideologies which are remarkably useful to people who do have. They are weapons... and I call them social weapons. They are social weapons in a social war. The war between the possessors and the dispossessed. I want to talk a little bit about the most recent forms of that. I can't talk about them all because they are so numerous that it would be difficult to do so in the remaining 40 minutes or so. I want to talk particularly about the IQ business and something about the notion of human nature.

We really begin with this kind of two-fold approach. There are two aspects to this ideology. One aspect of the ideology says that there are biological differences between individuals and between groups. Which biological differences are of great importance in determining differential abilities of those individuals. Some of us are born to be bankers, others are born to be professors, others are born to be janitors, others are born to be unemployed, and so on. *[laughter]* Now, that is not meant to be a joke, there are books by eminent professors which say that unemployment runs in the genes, so don't... *[laughter]* you know, don't laugh about it. It's a very serious matter. Now, this is, then, the ideology that differences in behavior, in socialization, in wealth, in status, in power, in occupation; that those differences are determined by our genes.

Alongside of that ideology goes another one which says that there are some things coded in our genes as human beings which are universal and which we all possess. Those are the things called human nature, and the ideology of human nature goes hand in hand with the ideology of genetic differences, because it takes both of them to sort of seal the argument. You see, if you believe that there are genetic differences between individuals and abilities, as many liberal people do, you can argue that, "Well, of course there are differences in abilities, I can't play the violin, and that's in my genes, and some people can be mathematicians, and that's in their genes, and some people really can't do a very good job at abstract thought and so they have to do manual labor, and that's in their genes, but, of course, there are some very skilled manual

laborers so they're the labor aristocracy, and others who can't even do that so they have to dig ditches," and so on. But they say, "That doesn't mean that our society has to be so constructed that people with different occupational abilities necessarily receive different rewards. We might build a society," they say, "in which ditch diggers, professors, janitors, mathematicians, violinists, all get the same status and wealth." Well, then along comes the human nature ideology to take care of that loophole, because the human nature ideology says, "Oh no, we can never have a society like that, because it's human nature to create hierarchies. It's human nature for there to be domination of some people by other people. Aggression is a part of human nature. Territoriality is part of human nature. Entrepreneurship is part of human nature. And it is, in fact, coded in the genes of the human species as a result of a long process of evolution and natural selection."

If that seems strange to you, I suggest you look at—please don't buy, but look at—[laughter] the most recent and powerful of such works, which is enjoying in immense vogue in biology in the present time as a result of a huge advertising campaign—also as a result of the fact that it appeals to this notion of human nature which I think everybody in this room probably believes in in one way or another. That's a book called *Sociobiology: The Modern Synthesis* by E.O. Wilson [*Sociobiology: The New Synthesis*], another Harvard professor, in which it is argued that entrepreneurial activity with a division of resources in short supply, such that the more entrepreneurial types get more goodies and so on, is part of human nature and coded in the genes of the human species as a result of natural selection for entrepreneurship over human history. And that's what that whole book is about. It's about how we got to be the way we are by natural selection, and it argues that territoriality, xenophobia—the hatred of foreigners—blind... [chuckles from the audience] blind faith... men would rather believe than know, says Professor Wilson... indoctrinability... men are exceedingly easy to indoctrinate, absurdly easy to indoctrinate, sorry, indeed they seek it... and so on, spins out this ideology as part of the genetics of the human species.

Now, you see what these two forms of biological determinism do when coupled. On the one hand, they say there are differences in abilities to get the goods of the world in a free scramble, and those differences in ability are genetic. And secondly, it says that the tendency for there to be a free scramble is built into the genes of the species. Therefore there will always be hierarchical societies—in fact, it explicitly argues, for example, that men will always dominate women in all societies at all times—and that therefore in these inherently unequal societies, and I'd say it doesn't matter whether it's socialism, capitalism, communism, anarchism, monarchism, they all are the same; they all have those who dominate others, and they necessarily must be that way, not because of historical events, not because that's where we are in human history, but because it's in the genes.

I want to say categorically, just to get rid of the sort of human nature side of the argument because I really cannot go into it in great detail, that needless to say there is no evidence at all. I mean, not one teeny iota of evidence that entrepreneurship, xenophobia, territoriality, male domination, and so on are built into human genes. We do not know any genes for aggression. We do not know any genes for xenophobia. We do not know any genes for competition. We don't know any genes for any of those things. They are manufactured out of the heads of the people who talk about this. There simply are no such genes, or if there are, nobody has found them. I can't say there are no such genes, I don't know. Nobody has ever presented any evidence. All that's done is to appeal to one's common sense everyday notions about human nature. And I repeat, I'm sure that everyone in this room, including me, has sometime in the last two or three months said, "Well, you know, that's only human nature." We all believe in some form of human nature because it's convenient to do so when our backs are to the wall. But there is no evidence for human nature, and I would like in the discussion, if we have a discussion, there are always five or ten people in the room who are not only believers in human nature but quite certain they know what it is. [laughter]

And I think it's worthwhile discussing that, because there are people here who said... who will say, perhaps correctly, "Well, don't you think that x is part of human nature?" And then we have to think about that. What do we mean? Do we mean that every person who is considered a normal functioning human being has that characteristic? If that's the case, you may be hard put to think of anything that's human nature. Now, of course, you can argue, as Wilson does, while it's true that everybody isn't aggressive, you know, A.J. Muste wasn't aggressive, but what he was doing was sublimating his aggression [*murmurs from the audience*] in the form of passive resistance. But in fact, passive resisters are really aggressors, but they're sublimat... that's a Freudian theory of sublimation. Indeed, it's what I call "Freud's ploy," [laughter] that you'll first assert that there is a universal aspect of human nature, and then if somebody doesn't manifest it you say, "Ah yes, but it's really a hidden manifestation." And don't forget that classical Freudian psychology had in it the theory of reversals, the theory of transferrals, the theories of sublimation: all of these meant to take care of the problem that people sometimes did the opposite of what you think they ought to do.

And that's the way human nature arguments work. Now, you can't beat that argument, and I think we should not allow such arguments. If somebody wants to say, "Aggression is universal," then *they* must demonstrate that everybody and all societies at all times act aggressively, in the sense that we all understand aggression, and it's no fair to say, "Well, the fact that they're so

good to everybody is really a special form of aggression," because... [laughter] because that simply destroys the whole thing.

What I want to do in the remaining time is to talk about the other half of the thing—the idea of genetic difference between individuals and ability—because that's a very live issue in high schools, colleges, universities, and indeed, in job problems and so on. That is the belief that there are innate differences in ability between individuals and that those innate differences are critical to an understanding of the structure of society. I don't know how much rope you've given me here. [laughter] Is that... I guess that's all I need, okay. The argument goes something like this. This is my reconstruction of the logic of the argument as I understand it.

The first assertion is that there are differences... [writing on a chalkboard] in status, wealth, and power, SWP, and everybody agrees to that. That is to say, there is no problem, I gather, in getting universal agreement that wealth is not equally divided in any society. Let's talk about America. Wealth is not equally divided among Americans, nor is power, nor is status. I don't have to spend, you know, a half hour demonstrating that to you. It's given in all economics textbooks. You, perhaps, know that income in particular is unequally distributed. Indeed, if we put percent of all people here [writing on chalkboard] and percent of all income here, then because most of the income is possessed by a very small minority of the people, the curve looks something like this. [drawing on chalkboard] That is to say that 25% of the people only... well, perhaps I didn't put that right. Sorry. [erasing chalkboard] Sorry, the way I've drawn it, it should look like that. Yes. That's usually the opposite of the way it's drawn in textbooks: that 25% of the people have 5% of the income, the low end. And at the high end, that 5% of the people have 25% of the income. That's the so-called Lorenz curve for the income distribution, and if everybody had equal incomes, it would look like that.

What you may not know is that if we take wealth, it looks like this. [drawing on chalkboard] [chuckle from audience] That is to say, by wealth we mean disposable wealth. I do not include the clothes on your back, the car which you share with the bank, [laughter] and the house which you may or may not own. Let's say, if I take away real property that you live in, and your clothes, and personal possessions, and talk only about investable wealth—I mean, real cash in the bank, so to speak—then nearly all the wealth is owned by practically nobody. And [laughter] I mean, that's the case. And most people don't own *any*. So that's obvious. That there are differences in status, wealth, and power and you should appreciate that those differences are really immense—much less in income, which is not so unequal, but *immense* in terms of wealth which means control. For example, I discovered the other day that 18% of the stock of Gulf Oil Company is owned by something like 10 Mellons, which... so, [chuckles from the audience] you know, that's a lot of concentration of wealth.

Now, it's asserted second that differences of status, wealth, and power result from differences in ability, [*writing on chalkboard*] and here is the first place where we really need to pause. What does it mean to say that differences status, wealth, and power represent differences in ability? If you mean something tautological, namely that if I have a lot of money, it must be because I was able to have a lot of money, then it's a kind of trivial statement, but that's not what is meant. What is meant, of course, is—and this is the standard explanation offered by economists of why there are these differences—is because to have status and wealth and power requires the ability to perform certain acts; to be an intelligent stock market investor, or to dominate other people, or to get good grades in school, or something like that, and that different people in the population have these abilities, are born with these abilities in different degrees. And that if everybody had the same ability then there would be no differences in status, wealth, and power.

Now, that's a curious idea, because it sort of gives rise to a kind of Gedanken experiment which is, for example, that if only bankers had children, then everybody would be bankers. [*laughter*] Which is, you know, absurd on the face of it. Clearly, ability as manifest in possession of knowledge has not changed the distribution of wealth and income in the United States in the last 75 years. In 1900, some very small proportion of the male population in the United States finished high school. I don't remember what it was, 5 or 10%. In 1975, nearly every male in the United States at risk does, in fact, go to and finish high school. And at any time you could have shown that people who finished high school had higher incomes of people who didn't. Nevertheless, the shift from nobody going to high school to everybody going to high school has not changed the Lorenz curve of inequality of income and distribution at all. Even though everybody goes to high school, there are still poor people and rich people. So apparently going to high school is not the way—evening out of education is not the way—to avoid this. Indeed, in 1900—in the year 1900—the unemployment percentage was, I think, 6.2. In 1976, it is 8.3 or 8.4 [percent], so 75 years of education has done nothing for unemployment, as indeed you don't expect it to do. The unemployment statistics are not a consequence of how much ability people have or how much knowledge they have, they are consequence of structural problems in the economy. So don't believe it—I'm sure you don't anyway, but if anybody here thinks so—don't believe that the way to cure unemployment is to train people. See, the argument is that the reason we have so much unemployment is 'cause all those people out there are unemployable. They don't have skills. If you go in and give them skills, they'll be employable. Well, 75 years of training people, giving them on an average 6 more years of education than they had then, has done nothing for the unemployment statistics. So you have to consider very carefully what it means to say that employment and unemployment—having and not having—results from the differential possession of skills.

This third point in the argument is that the differences in status, wealth, and power result from difference in ability, and differences in ability can be measured. [*writing on chalkboard*] Can be measured. [*mumbles*] Measured... by IQ tests. Because the ability being talked about is the ability, in theory, to do abstract thought, so-called cognitive ability. That is to say, the assertion is that people who have a lot of money, wealth, and power are the people who have it up here [*pointing to chalkboard*], not the people have it here, although, there are few people who have it here who make a lot of money and they're regarded as extravagances of our society. Thus people will sometimes say, "Well, isn't it terrible that scientists only get paid, you know, ten thousand, fifteen or twenty thousand, whereas a baseball player can get fifty or a hundred thousand dollars on contract," and that's supposed to raise my indignation, because the assertion is, you see, that a person who earns money by doing a manual or a body skill is intrinsically less worthy than a person who makes his money thinking, and therefore when we talk about ability, we mean mental ability. That's what the argument means.

And it says that most differences in mental ability can be measured by IQ test. By measured we mean predicted, of course. That is to say that even before the person has made all that money, you can tell they're going to make all that money by giving them an IQ test. Now, that's putting it in a rather gross way, but not very gross, because the assertion is that there's a high correlation between performance on IQ tests and social status. The correlation is, in fact, not very high. The gross correlation is only about 53%, which is not a very high correlation as correlations go, since it only accounts then for something like 25% of the variation. Nevertheless, that is the assertion, that IQ measures something called intelligence or cognitive ability, and the IQ test is asserted by some psychologists to be the greatest triumph of psychological science: the ability to measure intelligence. And, indeed, it may *be* the greatest triumph. [*writing on chalkboard*] [*laughter*] I hope not... but there is a real problem with IQ testing.

Some of you are psychologists and know what's on the Stanford-Binet, the Otis, the Wechsler, and so on. I find the people who have not seen an Otis or a Wechsler or Stanford-Binet in a long time sometimes are shocked by the items on those tests and how it can be that they actually measure intelligence, and we might have some discussion of the role of attitudinal questions, and the role of vocabulary questions, and the role of certain other kinds of questions in determining intelligence. At any rate, that is asserted. It is then asserted that IQ or performance on an IQ test is mostly inherited [*writing on chalkboard*] and I'm going to leave for a moment what is meant by "mostly inherited," ...and the figure 80% is often given, so that, for example, Jensen's article and Herrnstein's book and other people... articles in *Psychology Today* say that the heritability of IQ is 80%. Now, that's a technical notion—the heritability of IQ—but it leaves an impression with you. The impression it leaves with you is that most of your IQ is a result of

your genes and your environment didn't have much to do with it. I mean, that's some of the general notion that's given by that statement. I want to talk about that a little more.

And the fifth point in the argument is, then, therefore [*writing on chalkboard*] IQ and status, wealth, and power are... I won't say completely unchangeable, because everybody recognizes the existence of social mobility, but mostly unchangeable. [*writing*] Unchangeable. The argument is that status, wealth, and power come from inherited differences in ability; that because those differences are inherited, there isn't much you can do to change them. That appeals to one's everyday notion about inheritance: that if you inherit something you're stuck with it, right? You know, poor old Uncle Charlie, he inherited that terrible disease, whatever it was, and he's a hopeless case. And that's a very important point that I want to emphasize. The *feeling* which is played up to by this ideology that inherited equals fixed and unchangeable, because that's what the ideology is all about.

And then, from that, people take off in different directions. Namely, they decide which groups or individuals they want to talk about. For example, Professor Jensen says that the differences in IQ—mean differences in IQ performance between Black children and white children of some 15 points on the average over all school districts—that that must be inherited, because we know that IQ is mostly inherited; therefore the differences between Blacks and whites is mostly inherited, therefore... [*writing on chalkboard*] Blacks are genetically inferior, yes? And unchangeable... okay. So, according to them, it follows that because IQ is mostly inherited and the difference between Blacks and whites is mostly inherited, therefore there isn't anything you can do about it. In the other direction, you can be more cautious and say, "Well, I don't want to talk about Blacks and whites because that's too sticky an issue, and I may get my head handed to me..." [*chuckles from the audience*], "...if I do, so I'll pick on somebody else." And in this case, it's the working class. And so you go the route of Herrnstein and others and say that the differences in IQ performance between working-class children and middle-class children is mostly genetic, and therefore unchangeable—although there are people in the working class who can work their way up, but those are people who would have a high IQ. So it can be working class, if you like.

It doesn't really matter which of those routes you go, they come to the same thing; they come to the assertion that differences in manifest performance between different groups in society—either between races or between classes—are the result of genetic differences between those groups, and that therefore, those groups are doomed to their existence and nothing can be done about it. And this is that kind of anti-revolutionary ideology that I started with. It also has lots of consequences. For example, if you believe Jensen that Blacks are genetically inferior to whites, and therefore owe their lower IQs and lower status in society to their genes, then, of

course, all the nonsense about equal opportunity, and fair employment, and quotas in schools, and so on, is ridiculous, because we have an equal opportunity society and it's just that in an equal opportunity society, these people who are genetically inferior just don't make it. And that's not a problem of discrimination at all, so we should not waste money on busing or on putting more money into different schools, and so on. And I want to point out that this ideology, especially by Jensen, came at a time when the administration in Washington was looking for some ways of reduction of expenditures in federal education programs, when state governments were looking for ways of cutting back on the expenses of education there, and, as Pat Moynihan said, "The winds of Jensen-ism are blowing through Washington with gale-force." The Nixon Administration was very happy to hear this because it appealed to a whole variety of political ends which they had.

Now, I have said that we all agree with number one. I have said that number two seems obviously in severe doubt—it's clearly not the case that differences in status, wealth, and power result from differences in ability, because they are structural to the whole economic and social system in which we live. But putting that aside, let's talk about three, four, and five, namely differences in ability can be measured. Well, I guess I really shouldn't talk too much about that either, because I'm not an expert. I will leave it to the experts to talk more about whether IQ tests in fact measure intelligence. There is a great deal of disagreement in the psychological literature about what IQ tests do measure and what intelligence is, but at least one textbook of psychology defines intelligence as what IQ tests measure. [*laughter*] I guess if that's what intelligence is, then IQ tests certainly measure it! [*laughter*]

It is not the case, however, that IQ tests are very good predictors of status, wealth and power. As I said, the correlation—the gross correlation—between IQ and socioeconomic class is about 50%. You can vastly increase the accuracy of prediction of socioeconomic status by looking at the socioeconomic status of the parents and the years of schooling and, in fact, as Gintis and Bowles have shown, if you hold socioeconomic status of parents constant, IQ is a very poor predictor of socioeconomic status of children. That is to say, within a given social class, people with low IQs and high IQs tend to fall in the same social class as the next generation. So, for example, it almost didn't make any difference whether you had a high IQ or a low IQ; if you were in the Harvard class of 1936, you probably were making more than the average income by the time 1956 rolled around, and we wouldn't know any more about your income in 1956, knowing your IQ. All that mattered was that you were in the Harvard class of 1936.

On the contrary, if we hold IQ constant, social class is still a very good predictor of the social class of children. So most of this so-called prediction that IQ tests make of social class of offspring— eventual social class of offspring—is not a direct prediction at all, it's due to the fact

that persons of high socioeconomic status generally do better on IQ tests, and the question is: why? The argument of this ideology is they do better because people in high socioeconomic status have better genes. The other possibility is the IQ test is made up precisely in order to validate the already existing definitions of social class, *i.e.*, to give what Dick Sennett calls “badges of merit” to people so that they will know that they really are better than other people. And that's a problem which we have to deal with.

I want to talk a little bit about what it means to say that IQ is mostly inherited, and that therefore it's unchangeable. What do we mean when we say that something is mostly inherited? Well, is it sensible for me to say, for example, that of my 5 feet 11 [inches] (or my 5 feet 10 and a half [inches], however much I am), I got 5 foot 6 inches from my genes, and the other 5 and a half inches (or 4 and a half—whatever it is—4 inches) from my environment? It's not a sensible notion of the separation of environment and genes. It is not the case that your genes produce something on top of which the environment adds something else. That's not the way genes work. What happens is that you are a developing organism from the time of the fertilization of the egg, and the development of that organism which goes on throughout lifetime, both behavioral and morphologically, takes place in a series of environments, and that there is a unique interaction between genes and environment in giving rise to the organism. Then one cannot separate out the effect of the genes and the effect of the environment. The old business about nature and nurture is a false notion. You cannot ask the question; this question is not askable: how much of my IQ did I get from my genes, and how much did I get from my environment? I know that's a question that people like to ask, but I'm saying... you know after I give this lecture, people are going... somebody's gonna get up and say, “Well, but really, I mean, how much IQ is due to the genes and how much of IQ is due to the environment?” And what I'm trying to say is that the one thing we learn in genetics is that you cannot ask that question; it's a meaningless question.

What you can say is: if we took a lot of different individuals and gave them identical environments, how much difference would there be in their IQs? That, at least, is a sensible question. It's not a question you can answer, because you cannot take a lot of individuals with different genes and raise them in identical environments. It's not... you can do it for fruit flies, but you cannot do it for people. And it is *because* you cannot do it for people that you cannot, in practice, answer the question: how much variation between individuals can be ascribed to variation in their genes? Because you cannot take a group of people who are genetically different from one another and raise them in identical environments. Vice-versa, you could, at least in a sort of thought experiment, take a lot of individuals that were genetically identical and raise them in different environments. Is that what I said? Oh no. [*speaking quickly*] Take a lot of people who are genetically different and raise them... I can take a lot of persons who are

genetically identical and raise them in different environments. [*normal speed*] Well, you can't do that, because it's very hard to find people who are genetically identical, [laughter] ...and if you could find them, you couldn't sorta sort them out into environments at random.

However, there is something that comes near to that and which is responsible for a lot of the argument about the heritability of IQ, and that is studies of identical twins. Identical twins are genetically identical; they come from a single fertilized egg which has split early on in development, indeed after the first division, and given rise to two individuals who share all their genes identically. Therefore, human geneticists are very interested in studying identical twins, but if you want to understand inheritance, you just can't study individuals who are identical genetically, you have to ask what the effective environment is. After all, twins are not only genetically identical, they're brought up in the same family, they're exactly the same age, parents tend to treat them very much alike, so the very great similarity of twins is itself no indication of the importance of genes, because even if twins were not genetically identical, you'd expect them to be very similar to each other just because they have the same environment. The problem in human genetics is to separate the similarity of genes from the similarity of environment. Brothers and sisters are similar in their genes, but they're similar in their environments. Identical twins are more similar in their genes than brothers and sisters, but they're more similar in their environments as well.

The result of that has been a tremendous emphasis on cases of identical twins raised apart. So what you do is you look for a pair of identical twins separated at birth, like something out of a Gilbert and Sullivan operetta, and... [laughter] and one is brought up in one environment, one is brought up in another one, and then you say, "Well, they're identical genetically, so any differences we see between them must be due to environmental differences." And so people have made a kind of business out of comparing identical twins raised apart and identical twins raised together, on the theory that you can account for environmental differences by comparing those two groups. Now, the trouble is there aren't very many identical twins raised apart. You know, it's not something that happens every day of the week. There are something like, I guess by this time, maybe a hundred pairs of identical twins raised apart that have been studied. There have been four main studies which comprise about a hundred such pairs, and the statement that IQ is mostly inherited—namely 80%, *i.e.*, that 80% of the variation in IQ in populations is due to variation in genes, and only 20% of the variation is due to variation in environment—comes chiefly from these identical twin studies. And it's very illuminating to look at those identical twin studies, because they prove quite conclusively that you cannot trust experts and that people tell lies, especially when it's interesting to do so. [*chuckles from the audience*] The identical twin studies... well, I guess I can erase this argument; you've seen the argument now. Identical twin studies [*writing on chalkboard*] that we know of, of twins raised

apart and together, as I said, there are only four of them. The largest one is the set of studies by Sir Cyril Burt, [*writing on chalkboard*] who is often referred to as the pioneer of such studies and so on. Cyril Burt was—he died, I think; I don't remember now, 5 years ago, or something like that—he was a British psychologist, trial psychologist, clinical psychologist, who began to study the problem of nature and nurture as he saw it by studying identical twins raised apart and together. And, Sir Cyril Burt gave the data on which most of the estimates of the degree of inheritance of IQ are based; in fact, I have looked at all the estimates of so-called heritability of IQ, and they all use Cyril Burt's data very heavily, because of the fact that he had a lot of these twin pairs. He had something on the order of 60 of these twin pairs raised apart, and rather larger number of twin pairs raised together.

Now, it turns out that the data of Sir Cyril Burt are cooked. That is to say, they are not, in fact, scientific data. Let me illustrate that by two or three points. First of all, if you look in Sir Cyril Burt's papers for the details of the tests given, Sir Cyril Burt says, "See my previous paper." [*laughter*] And when you look at his previous paper, you can't find the tests. Sometimes he says that oral IQ tests were given. He'll say he interviewed the people—interviewed the twins—and sometimes he says that a written test was given, but we're never given the details of these tests and it is, in fact, impossible to find out what the tests given to the twins were. Secondly, he says—and here he says it straight out—that the statistics are not based on the actual [*writing on chalkboard*] IQ scores derived on these unspecified tests. They are based on what he calls "final assessments." What he did was to give the IQ tests to the children, and then to compare the IQ tests of the twins and if they weren't sufficiently similar, he adjusted them by his subjective opinion about the twins. And all of Sir Cyril Burt's data are based on these *subjective* final assessments. Sir Cyril Burt knew which of the identical twins raised apart and which of the twins raised together were when he went into the study, and he just says right out, "Well, twin pair W really didn't do comparably on the IQ tests, even though they're identical twins and they were raised together. It must be that the conditions of the testing were not good, or one of them had an off day, or something like that," so he adjusted the scores to make them more alike. Therefore, we don't *know* how similar the twins were.

Not content with that, however; not content with being able to juggle the data at will, he gave the most extraordinary statistics ever offered. I—those of you who are psychologists and statisticians— [*recording skips*] find these statistics very amusing. I'm going to give the correlation of identical twins raised apart and raised together. The identical twins raised apart had a correlation in their IQ of .771, and the identical twins raised together of [point] 944-- these are given to the third decimal place. This was given in in study number one, in which there was some... there were about 30... well, I think it's 26 twin pairs. Well, I mean, first of all, it's clear you can't give correlation to the third decimal based on 26 pairs, but that's really not...

you know, everybody does that. [laughter] I mean, it's... but it's fortunate that he did, because it reveals something about his data. He then published a paper number two, in which he added new twin pairs. He found—and these people are hard to find—he found new twin pairs raised apart, and the number went up to some... I don't remember, honestly, what the numbers are. I don't have them to hand. Say that he added another 13 or 14 twin pairs, and based on the new data the correlations between identical twins raised apart were .771 and raised together, .944. [laughter] I will... oh, it goes on! [laughter continues] Study number three was not done by Burt, but was done by his associate working in the same group, and it was not published under Burt's name. A few more twin pairs were added, I don't remember, say only a few more. Say he got up to 50 twin pairs. These data can be found—the actual numbers can be found—in a paper by Arthur Jensen on behavior and genetics, or in the book by Leo [Leon] Kamin which is an excellent book that says many of the things I'm saying now—in fact, much of what I say now I took out of that book—called *The Science and Politics of IQ*. It's well worth reading that and buying that book. [laughter] Here the figures changed. They—and now I don't remember what they were, I think there was [point] 773 and [point] 948—but you forgive me if those figures are incorrect, because I don't remember. Because the important point is that once Sir Cyril Burt wrote again, his fourth paper, which brought the full number of twins up to either of 58 or 63 twin pairs, roughly 60 twin pairs, the figures went back [laughter] to [point] 771, [point] 944.

Now, those are the data taken from Sir Cyril Burt. So, what we have, then, is a series of papers in which unspecified IQ tests are given, which after the tests are given, final assessments are made to adjust them if they were not sufficiently correct, and then some other unspecified final assessments were made in doing the statistics, so they came out identical to the third decimal place in three separate studies adding more and more twins. Now, everybody knows that the probability of that event is the same as the probability that this ashtray will jump up in the air. [laughter] Let's say it's the probability that all the molecules will decide to go in one direction at once. We can just... [writing on chalkboard] we can ignore, quite seriously ignore, the data of Sir Cyril Burt or any report that comes out of that group, not because all of it is wrong, but because we cannot, by the nature of the material, pick out from it what is true and what is false. There are lies told here, and you don't know which the lies are and which not. Moreover, the original data cannot be recovered, because after Burt's death, there was a fire in his office and all the papers were destroyed. Well, that's the truth; there was a fire and all the papers were destroyed [laughter] so we are obliged... look, and fires happen... [laughter] and that's, you know... the fact of the matter is that we have only Sir Cyril Burt's reporting on this.

Sir Cyril Burt is not the only culprit. Just... I mean, it's easy to pick on dead people [laughter] so... and that's unfortunate, I mean, that he is not here to defend himself; however, it seems hard to know what he could say in the light of these published figures. Let me try to pick on

somebody who can defend himself, and that is Art Jensen, who is professor of educational psychology at the University of California at Berkeley, who published the paper that started the whole recent uproar, called "How Much Can We Boost IQ in Scholastic Achievement?" And that... I wanna get to that last, I mean that question. And figure... six. I'm just gonna say figure six, and somebody will look and find it's figure four. It's either figure four or six of that paper. I'm sorry, I don't remember, because... the reason I don't remember is because it's copied from someplace else which was figure four of the thing he copied it from. Well, either figure four or figure six in this paper looks as follows: we put down here [*writing on chalkboard*] different degrees of relationship. Unrelated persons, people have no genetic relationship, full sibs. Dizygotic twins; that is to say, twins that come from two eggs—now, two-egg twins are no more genetically related than full sibs, they are just sibs—they're just brother or sister, or brother and brother, or sister and sister; they're not identical, but they were born simultaneously. And then monozygotic twins, that is to say, the identical twins that we're talking about; they do come from one egg and they're genetically identical. And here we put the correlation in IQ scores.

All right? For individuals raised apart, the figure looks as follows: [*writing on chalkboard*] ...there are four data points given for individuals raised together; the data points look like this, okay? And Jensen says, "Look at this figure. You see that for all degrees of relationship, the difference between being apart and together is about the same, so being raised apart does, in fact, introduce some..." [*writing on chalkboard*] this is apart and this is together—"...does, in fact, cause some change in IQ, but it's not much compared to the high correlation that we get anyway, and that this is some evidence"—he offers this as evidence, and I don't want to get into the argument, the argument is not important here—this is offered by him as one of the strongest pieces of evidence for the high genetic component in IQ. However, there's something very curious about this figure, because if you look through the literature, you cannot find any studies of dizygotic twins raised together and apart. Cyril Burt didn't do any. Jensen didn't do any. If you look at the various summaries by Sandy Jencks and so on, you cannot find them, and, indeed, there is one paper which discusses the use of dizygotic twins raised apart and together as a possible way of estimating how important genes are for IQ, and then there's a statement, "Unfortunately no one has ever done this experiment," and, indeed, no one ever has. So the question is: where did the data points come from? Well, at first, somebody thought they might have come out of Mr. Jensen's head, but they do not; he was asked about these point blank... oh, by the way, and it says—it gives a source of these data—it says, "These are collected from a publication by Erlenmeyer-Kimling," but if you look at the publication by Erlenmeyer-Kimling, the data are not there. It turns out, in fact, that Arthur Jensen copied this figure without giving the source from the work of a man named Heber, and indeed if you look in Heber's paper, there is the figure. It's actually in Rick Heber's paper, but Heber didn't do the

experiment either. *[laughter]* So what happened was that somewhere Heber invented or—whether he invented them, he doesn't tell us where he got them—Jensen copied them out of Heber without saying that he copied them out of Heber, he said it came from his collection of data from Erlenmeyer-Kimling and Jarvik, and the actual sources of the data are lost in the mists.

In fact, the experiments have never been done. The data simply don't exist, but they are given as data points. So, one could go on and on and on like this. Kamin's last chapter... no, it's the next-to-last chapter, called "The Accuracy of Secondary Sources," is filled with this stuff; I only give you a few examples. So you cannot believe any of the data which purport to claim, to show that IQ has a high heritability, because the data don't exist; indeed, they cannot exist because of very serious methodological difficulties. You cannot raise identical twins really apart at random. It turns out that when you look at the actual studies of identical twins raised apart from other studies, they're not raised apart at all. They're raised in the households next door to each other, in the same small towns. They are raised by aunts, sisters, grandmothers, and so on, because what really happens with identical twins is the following: the mother dies in childbirth and so the two children have to be separated; one is given to a sister and the other is given to an aunt. Or one is given to the best friend, or something like that. Or the father is dead, mother cannot afford to keep both children, so she keeps one and gives one to her sister. Indeed, every case of identical twins raised apart, they are raised apart only in a kind of legalistic way. They are not living in exactly the same household, but they are living in families very closely related, the same socioeconomic class, in the same places, and doing the same things, and most of them turned out to have played together as children, to have recognized their similarity, to have been considered by other people as twins, and so on. So all of that stuff is not worth anything.

Now, let me get to the last point, and that is: let us suppose that there were genes for IQ, and let us suppose that these genes were quite important in contributing some influence on IQ; not that they determine IQ, but the differences between individuals and their genes were important. This would have absolutely nothing to do with the question of whether IQ is changeable or not. It is not the case that what is inherited is unchangeable. Heritability has nothing to do with unchangeability. You can inherit something completely, in some ordinary sense, and it can be changed with a snap of the fingers. That's what human genetics, clinical genetics, is all about. It's finding ways to cure and treat inherited diseases.

Let me give you an example: Wilson's disease is something I discovered—I mean I didn't discover it, I found out about, learned about it—recently. It's a disease which is a very serious debilitating disease which causes death usually at the age of, oh, between 12 and 18. We know

a family that's lost three children from it. It's a single gene, a recessive gene; if you are homozygous for that gene, you die of Wilson's disease. Caused apparently by degeneration of the nervous system and of the liver and other tissues, and it used to be invariably fatal. Wilson's disease results from a single gene defect, and that gene causes you to kill yourself being poisoned with copper. You are unable to excrete the copper that you take in in your food. Now, copper is a very toxic material, and it's present in all food and everything you eat in very small amounts. Normal people can detoxify by taking the copper and excreting it. People with Wilson's disease have a biochemical defect that causes them to accumulate copper. Knowing that, it is now possible to treat Wilson's disease completely successfully by taking a pill, a thing called penicillamine—not penicillin, but penicillamine—a small molecule which grabs onto the copper and helps you to excrete it, and you don't have to die of this and you can live a perfectly normal life. So there is a completely inherited disorder which can be treated by the simplest of treatments.

I don't mean to imply that IQ is a disease. [laughter] What I'm trying to say is that heritability—the inheritance of something through the genes—does not tell us anything about whether a thing can be changed, and you really must get out of your mind this notion that somehow—I mean, if you have it in your mind—that what we inherit is fixed and unchangeable. Therefore, when Jensen asked the question in his paper: How much can we boost IQ and scholastic achievement? and gave the answer, “Not much... because it's mostly heritable,” he gave a false answer; false for two reasons. First of all, there is no evidence that IQ is mostly heritable, or whatever that means. And secondly, even if it were true, it would not be the case that we could not boost IQ and scholastic achievement by an arbitrary amount, because the fact that genes are involved is *not* the same as saying that a thing is not changeable. In fact, there's no relation between them at all.

Finally, what about the supposed difference between social classes and between Blacks and whites in IQ? It is asserted by these people that the high heritability of IQ makes it likely that the differences between Blacks and whites, which are seen on IQ tests, are mostly genetic. That is also a mistake; it is simply not true, because heritability of a characteristic within a group—the degree to which differences between individuals in a population may be the result of genetic differences—is no clue to the causes of differences between groups. Let me give you an example. If you looked at the heritability of skin color in New York among persons classified as “not Black”; exclude Black people in New York and look at skin color. There's a lot of variation in skin color. There are Puerto Ricans, and there are Italians, and there are Northern Europeans, and so on, and Southern Europeans, and there's a fair amount of difference in skin color, and a lot of that is due to difference in genes. I mean, genes do control skin color to a large extent. And it would have a high heritability. There would be a lot of genetic influence. Now, let's

compare the skin colors of New Yorkers who are in that economic condition that they're forced to stay in New York for the winter and work for a living, and those New Yorkers who go to Miami Beach for the winter and lie on the beach and get a suntan. And let's talk about their relatives, in fact, you know, the poor relations who stay in New York, and the rich relations who go to Miami Beach. If you compare those two groups, you'll find a big difference in skin color also. Lying on the beach really does something to one's skin color! Nevertheless, it is not the case that there is a genetic component to that difference. It's entirely environmental. So you can have a trait like skin color, which has a lot of genetic variation within a group, yet the difference between two groups, namely those people who stayed in New York and those people who went to Miami Beach, as entirely environmental. It's whether you lay in the sun or not. So you should not confuse the existence of genetic differences between individuals within groups with the cause of the differences between groups.

Let me give another example which we really don't know. I don't know how much musical ability is genetic; nobody knows. Nobody has any idea whether there are any genes at all for the ability to play the violin. The fact remains that there might be. So let's suppose that there is. Let's suppose the people who claim there's a genetic difference between groups, between individuals who have the ability to play the violin, are right. For many years classical fiddling was the—not *exclusive* property, but at least in large part—the property of Eastern European Jews. Most famous violinists of the last generation in the United States and Europe—not all, but most—were Eastern European Jews; and Japanese and Chinese were never seen on the concert stage playing the violin. In the last 10 years, that situation has been completely reversed. Now, if you go to any music—classical music—festival and you look at the string section of the orchestra, or you look at quartets, or you look at soloists, it's remarkable how suddenly the genes for musical ability have spread into the [*laughter*] Chinese and Japanese population.

The fact of the matter is that differences between groups arise because of large cultural differences which are historical and linguistic, and which are very malleable and change very quickly, and that has nothing whatsoever to do with genetic differences between them. As a matter of fact, we no longer have to speculate about genetic differences between Blacks and whites in IQ. The evidence is crystal clear and unambiguous that there are *no* genetic differences between American Blacks and American whites in their IQ. Let me give you just two or three of the pieces of data which exist, and there's no question about it. A comparison between the IQs [*writing on chalkboard*] of Black children—children classified as Black—in Germany, who are the offspring of American soldiers in the Second World War—Black American soldiers, Second World War—with white German mothers, and the IQs of white offspring of white German mothers with American soldiers show no differences in IQ whatsoever. That is to say, it doesn't make any difference whether you're Black or white. The

offspring of American soldiers and German mothers have the same IQs. They're brought up in the same environment. I find that remarkable, because it says something about the environments of Black and white children in Germany which I would never have suspected to be true, but there it is.

There is no correlation at all between the amount of white ancestry that Black children have and their IQs: no correlation. We have ways of determining, by gene frequencies and also by family histories and genealogies, white ancestry. As you know, American Blacks are, on the average, about 25% European in ancestry. We don't know what the percentage of Black ancestry is in American persons classified as white, because to be classified as white, you have to have no detectable Black ancestors, so it's an asymmetrical proposition. There is *no* correlation at all. There is no excess of high IQ children—Black children—among those who have white ancestors and those who don't. The study of Barbara Tizard on English orphanage children, Black, white, and mixed parentage, shows that when the children are brought into the orphanage at the age of 6 months, that there is no difference—no statistically significant difference—in IQ performance on three different forms of IQ test, between Black, white, and mixed children in the orphanage. There is a difference in IQ. Black children do consistently better than white children, but not much better, and not statistically significantly better, so you can relax. *[laughter]*

However, when the children are fostered out to middle-class homes—Black, white, or mixed parentage—their IQs go up 12 points, on the average. When they are fostered back to their own mother—not fostered now, when they're sent from the orphanage back to their own mothers—their IQs either do not change, or they go down very slightly. These are some of the evidences—there are other evidences. These evidences are summarized in the most recent book on this issue called *Race Differences in Intelligence* by Loehlin, Lindzey, and Spuhler, a book which I also do not advise you to buy, because although the evidence summarized by them is all of the nature I have just given you, there is no contrary evidence. They conclude that differences between Blacks and whites are probably partly due to genes and partly due to environment. You have to ask yourself how come these people, after marshalling all this evidence—which is identical to the evidence I just gave you, and for which there is no contrary evidence—nevertheless can come to the conclusion that there's probably some genetic difference in IQ between Blacks and whites. You know, I just can only leave that to your imaginations. The fact of the matter is that there is none, and that in those cases where Black and white children are brought up both under orphanage conditions, or both under foster conditions in a foreign country, or were you can correlate degree of white ancestry with IQ and so on, there are no differences in IQ relative to ancestry, despite the fact that Mr. Shockley is

running around all over the country saying he's sure that for every point percentage of white ancestry, there will be a 1% increase in IQ. It's just nonsense.

Now, what have we to conclude from this? What we have to conclude, I think is that the argument that differences between individuals is genetic and that differences between groups—between working-class people and middle-class people, or between Blacks and whites is genetic—a) there is no evidence in favor of it; b) there's lots of evidence against it; c) the concepts are wrong because the notion that what is genetic is fixed and unchangeable is incorrect; d) one cannot talk about, in a sensible way, the fact that genes are responsible *mostly* for something, we have to talk about the amount of genetic variation in a population; and finally that, in respect of this question, very large numbers of things have been asserted to be true which are not only not known to be true but which are known to be false, and these assertions have been made, not by racist crackpots who are writing tracts in basements in Texas somewhere, [*laughter*] but by, you know, by respectable academics holding down positions in the most prestigious universities in America; who are writing popular articles, popular books, going on television, appearing in the *New York Times*, in *Psychology Today*, making a lot of money at it, becoming famous at it, telling us things which are simply false.

And one has to ask why they're doing this? And the only conclusion I can come to is that there's something in it for them. That what they are doing, as I return to my original metaphor, is that they are forging weapons in a warfare between those who have and those who do not. That they are the weapons producers, and that they are, after all, part and parcel of the group that has. Professors are not among the lowest groups in our society. Even professors in Portland State, which is not, after all, one of those elite universities with the highest salaries, and so on and so forth. By and large, the academics of the United States have a better control over their own conditions of work, and a better kind of life than the vast majority of Americans—although, as I say, there are gradations certainly within academia—but those very academics who are producing this biological determinist argument that differences between individuals are genetic and unchangeable, and those who are on top are there because it's in their genes and they cannot be deposed, and those are down at the bottom are there because it's in their genes and they cannot raise themselves, are people in the leading positions in the most elite universities with the highest salaries, with the greatest control of their own conditions of appointment and employment, and you can expect them to say that because it's in their best interest. But you're crazy if you believe them. [*laughter*] Well, that's all I have to say on the subject.

[*applause*] [*inaudible conversation off microphone*]

LEWONTIN: I know people want to go home... but we could have some questions and discussion if anybody wants to stay. *[to audience member]* Yes.

AUDIENCE 1: *[quietly; partially inaudible]* [...] at work about infant malnutrition.

LEWONTIN: Yeah, that's a very interesting problem. It has been asserted that some of the difference between IQs of children is the result of severe malnutrition, either prenatally or just postnatally. There's a good deal of disagreement about that. There is the famous Dutch experience during the war, in which for one period, virtually every Dutch child was severely malnourished for protein because of the war conditions—irrespective of social class—and that was found to have no effect whatsoever on performance in school and IQ.

AUDIENCE 1: *[quietly]* Wasn't that a very brief period...

LEWONTIN: ...but it was a fairly brief period. There is evidence reviewed in Kamin's book, in the last chapter of Kamin's book, on prenatal malnutrition. I must confess not to be... to have examined all that literature with a careful eye. My impression—and if you know more about it, I wish you would say something about it—my impression is that the evidence is really quite equivocal on this issue. That unless there has been very severe protein deficiency, not just caloric deficiency but protein deficiency, that there is no clear effect on mental performance. But if somebody knows that to be wrong, I would like to hear about it.

AUDIENCE 2: *[off microphone, in background]* Well, what about the differentiation according to age of these kids? Is that...

LEWONTIN: I'm sorry. I really can't say anything intelligent about it. If there is somebody here who can contribute more to that than I can, I wish they would speak up. It's certainly a possibility, but that's all I... I'm sorry. *[to audience member]* Yes.

AUDIENCE 2: *[off microphone]* Well, I feel the... there should be a distinction, and it seems they're put together the view that intelligence and intellect and intelligence are the same thing. That intellect [...] used in limited periods of space and time, [...] but intelligence is a entirely different activity of human beings...

LEWONTIN: Well, I mean, we've kind of always foundered on that problem, naming what is intelligence and what is intellect. I have tried, in a sense, to steer clear of a definition of intelligence and intellect and talked only about what these people talk about, which is performance on a particular test. I guess, I don't know what intellect and intelligence are; I

mean, I know what it means to be given a problem and to solve it, but I also know that no problem I have ever been given to solve [*static blocks audio for about one minute fifteen seconds*] ...so the Wexler scale, you will discover that more credit is given if an answer is given an abstract form than if it's given in a concrete form. For example, a picture of a wheel and a ball are given. If the student says, "They both roll," you get less credit than if you say, "They are both round." In the French version of the test, you're asked, "What is a door?"; if you say, "Something that opens and closes," you get less credit than if you say, "It's an opening." So there's a strong bias in the tests for giving abstract answers rather than concrete answers. Now the problem... for problem solving, the same problem arises. If one is given a concrete problem in terms of objects which have to be manipulated to solve a problem, you're really doing a different kind of problem solving than if you're given abstract things. So I guess I have to ask what *you* mean by intellect, and what you mean by intelligence, and how am I to relate those things to the problems of socioeconomic status. I think that's a really interesting issue. My guess would be that because intelligence has been defined by persons who, by and large, have high socioeconomic status, they have defined intelligence to be those things that they are doing all the time, namely adding and subtracting, multiplying, dividing, spelling, writing; in other words, abstract things rather than concrete things. I mean, it's a whole issue of why it is that so-called cognitive reasoning has been raised to this pinnacle of desirability. It is *not* true, as is claimed, that those abilities are increasingly necessary for occupational success, because of... in fact, the very reverse is true; I mean the whole emphasis of industrialization, assembly line, automation, and so on, has been to make it possible to produce with less and less choice and thought on the part of the operator. I mean, now you only have to do is to press a button, so to speak.

So I guess this is a very long-winded way of saying that I don't really think that the concepts of intelligence and intellect have much place in an explanatory system of what we're trying to explain. They have all kinds of usefulness in humane discourse, and, you know, I mean, we use notions... we say, "Oh, that's a very intelligent idea," or, you know, all those things for expressing some feeling we have. But to try to reduce intelligence to a measurable... an explanatory variable in socioeconomic success, seems to me a misplaced concreteness. I mean, I think it's the error of misplaced concreteness, but I would entertain any discussion on this point. [*speaking to audience member*] Yes.

AUDIENCE 3: [*only barely audible*] [...] Western Oregon or Western U.S. wanted to demonstrate an [...] all... either all or, at any rate, unjustified statements [...] more differences than there are about [...] making positive statements about the [...] but you didn't say whether or not you believed at all [...] more differences [...] with the exception of [...] demonstrated that we know more than ever research [...] race [...]

LEWONTIN: That's right, and the reason I didn't make any positive statement in the case of differences between individuals in this room, for example, is I don't know.

AUDIENCE 3: [...] So the question I would like to ask you is, do you think it might be worth pointing out the difficulty in investigating these questions; do you believe these difficulties are so great as to make it not worthwhile to even attempt to investigate these questions? That's the first question I'd like to ask. The second is, if the answer is "No," do you think that there is some other, say, moral, social reason of why [...] one not [...]?

LEWONTIN: One can—and I have, in fact—write out protocols for experiments which would make it possible to estimate what is called the heritability of any trait in a human population. Protocols would be difficult, perhaps even practically nearly impossible, but not entirely. For example, the heritability of schizophrenia I think has been successfully determined in a Danish study which adheres to these protocols very nicely. I mean not because I wrote them out. They happen to be those protocols. They do involve random adoptions, and so on. The whole adoption business is very critical.

So my answer is no, it is not *impossible* to design experiments to answer the question: what is the proportion of total variation in the population which is due to variation in genes, and what is proportion due to environment? My answer to the question also is: no, I am not opposed to doing that for any moral scruple. I'm opposed to doing it 'cause it's a waste of money and a waste of time, because if god appeared to me in a dream and told me the answer to the question, I wouldn't know what to do with the answer. That is to say, the interest in determining the heritability of IQ does not lie in the use to which the information could be put, because as I said, knowing the heritability of IQ does not tell me either how much it can be changed or how to change it. In fact, the heritability of IQ doesn't tell me anything. Heritability is, let's say, determining the proportion of the variation in a population, which is all you can do for a quantitative trait... for a trait is information which is totally and completely valueless. I have argued that—if you're interested in sort of the details of that—with Marc Feldman in *Science Magazine* either last week or the week before, in a lead article called "The Heritability Hang-up," in which we try to show that it's nothing but a hang-up; that *knowing* the information is useless. So knowing the information is useless and therefore... well, okay...

AUDIENCE 4: [*only barely audible*] [...] introduce the notion of [...] difference in ability [...] high sound [...] they've got something [...] and the question I want is whether you think that whole thing [...] anything [...] [LEWONTIN *breaks in*]

LEWONTIN: Oh! No, the answer is there's no way to ascertain that, no. All we can do with the present knowledge of biology would be to estimate the so-called heritability of the trait. There is no way at the present time, or in the foreseeable future, of isolating in an analytic way genes in the human genome which are the genes that make you fiddle better or play the flute or anything like that, no. The answer is no.

AUDIENCE 4: [...] I want to ask a moral question regarding that [...] ascertain for sure, whether or not who is better—if anybody is better—at what that anybody else [...]

LEWONTIN: ...I'd like to reframe the question in a more correct way, in a sense... in a more biological way. It's not who is better than somebody else because... [AUDIENCE 4 *speaks in background*] Precisely, because... the whole question of our performance is the interaction between our genes and environment. Yes, indeed, I would like to know if it were possible to know the human developmental etiology—I don't care whether it's genes or anything else—of different things that people can do, because if I knew that—if anybody knew that—then we would know how to make people do those things better and people would be happier. For example, I think I would be much happier if I could play a musical instrument much better than I do and... I mean, that's a trivial example... and if psychology could discover what neural... if there were neural connections which would enable me to do that, how to make those neural connections, it would be... you know, I would love them to do that. If there are ways of hooking up neurons which are under the control of genes or not, as the case may be, which would enable people to be more manually dexterous so that they could manipulate the objects of the world in a way that's pleasing to them, I would be all in favor of knowing how to do that. But I don't care whether it's in the genes or not; that's irrelevant.

AUDIENCE 5: [...] most people who argue who go on to investigate these matters because they say, for instance, "there's a danger. We found out that, you know..." [...]

LEWONTIN: There is a danger. The danger is that you concentrate on false issues, and the concentration on false issues itself is a political act. The danger in investigating these things is by investigating that you assert it's worthwhile investigating them... and to assert that it is worthwhile investigating them is to assert that knowing the genetic basis, if there is any, has potent political and social implications, when it doesn't. So yes, it is dangerous only in that peculiar sense, but in that very powerful, important sense. And so, I would say that the correct thing for us to say is not that if god appeared to us in a dream and told us the answer that that would be dangerous, because it would be irrelevant and trivial. It's asserting that society ought to spend money and time and energy finding out these things is itself a political assertion about what it is that makes the world go 'round, and that has, as its purpose, diverting our attention

from what really makes the world go 'round. That's... so that's my answer to that question, and therefore I wouldn't give a penny for it. [*chuckles from the audience*] Yes.

AUDIENCE 6: I was wondering if you're familiar with [...] I don't know the broadcaster's name but it was a couple years ago [...] many years ago [...]. The title was "Mr. S," and it was on in February. I remember [...] gene [...] ability, they would say you would have a better [...] chance of remembering and therefore could be seen as more intelligent.

RCL: Well, I don't know the case of Mr. S. I know that in the Soviet Union there has been a lot of fooling around with things of this kind. I can only say what I know from the sort of international literature of behavior genetics. There is no such gene known. If the Russians have found it, they haven't made it apparent to anybody else, so I mean, I have to confess I haven't read that thing, but it's certainly not part of the sort of accepted scientific knowledge. That's all I can say, and it sounds very unlikely to me, if I may say so. Yes.

AUDIENCE 7: Do you think any kind of control should be put on research... key research that is used or is being done [...] or research that could possibly be used for racist ends from-- from [...] who should... who should enforce these... [...]

RCL: Sure-- The question raised, if you didn't hear in the back of the room, was: should there be some control over what research is done to prevent, say, racist research from being done, and if there should be, who should control it? "Should" questions are difficult because I think... they're difficult for me because they're apolitical questions. I mean, I'm trying to answer your question without running into, I think, an impossible situation. I'm certainly not going to say that I think that the Congress of the United States should oversee what research should be done, not because I think scientists should be protected from the Congress. I certainly don't think that scientists should be self-policing. You cannot trust anybody to be self-policing, certainly not scientists. You don't... they are self-policing at the present time. There's a myth in American society, for example, that stockbrokers are not self-policing, because there's a Securities and Exchange Commission that polices them, but of course the Securities and Exchange Commission is a tool of the stockbrokers, so in fact, they are self-policing. Most powerful groups in American society are self-policing. There has been a creation of a kind of myth of external policing, and scientists are no exception. And scientists are screaming bloody murder that politicians are trying to interfere and they should leave it to the scientists, 'cause we know best. Now, I don't think that's right. At the same time, I don't think it helps to have the kinds of political forces that operate normally to police them either. I think what has to be done is the kind of pressure that is put on them... the way it's done now. For example, by the people who are the victims of their experiments. The fact of the matter is that most medical

experimentation is done either on prisoners or poor people, because nobody who had control over his own conditions of life, and had enough money to eat, and so on, could be crazy enough to subject himself to a medical experiment if he could possibly avoid it. The people who subject themselves to medical experiments are people in prisons were given... bribed with early release or something like that, or people who are indigent and are offered small amounts of money, and for whom those small amounts of money are worth something. And the people who have to fight against that are the victims of it. That is to say, welfare rights organizations, Black organizations, ex-prisoners' organizations, organizations of prisoners within prisons; these are the people who have to rise up and say, "Leave me alone." It's very difficult for people to do that, because they're not free agents, but they cannot depend on congressmen to do that.

Also, to some extent, muckrakers are useful people. They're not always useful, but they can be useful. For example, the publicity about the syphilis experiment done on Blacks in the South. Does everybody know about that experiment? Where treatment for syphilis was deliberately withheld from syphilis patients to do a controlled experiment, even though they knew that these people needed the treatment. Now, that was showing up in the newspapers, and a big fuss was made about it, and you know, it died down, but at least it made people aware that these things are done.

You ask a very difficult question. You ask: in a society which is constructed on the basis of the domination of some people by other people, how do you arrange for a diminution in power of those who dominate? And the answer is it's not very easy. I mean, you cannot invent simple institutions to take away from scientists the powers that they now have, because the only people have enough power to take away that power themselves cannot be trusted to use that power. Now, I mean, that's a very serious contradiction which we have to face, so I don't have an easy answer to your question. Sure, I think scientists should be policed, but I can't think of anybody who's got the power to do the policing that I would put the power to do the policing in their hands. That's... you know? It's six of one and half a dozen of the other. The answer to the excesses of scientific experiment is the same as the answers to the excesses of all kinds of power relations in society. The power relations have to be changed. And until they're changed, those excesses will exist. Oh, there'll be muckraking, there'll be... the worst scandals will be demonstrated; I mean we have to encourage that. I think that we have to do everything we can to tell the truth about these things, but you don't make any fundamental changes by that. People just go underground; they do things in a sneakier way than they used to.

AUDIENCE 8: When you're assessing this power of the scientists, how would you say the distortion of power of that enhancement [...]

LEWONTIN: I think that's a very good question. What is... from whence does the power of science in the United States arise? I think it arises from a diversity of sources. First of all, most scientific research United States is done in academic institutions—not all, but—but about 65% of the money spent is spent in academic institutions. So part of the power of science arises from the power of higher education, which is a very powerful institution in American society, and the sources of that power, it seems to me, arise from what it is that higher education offers as a way of socialization, as a way of social certification, as a way of producing people with certain skills which are useful, and so on. So partly scientists ride on the coattails of the whole scientific enterprise, the whole academic enterprise.

Partly, of course, the power science resides in the promise that science itself makes: namely that they're going to keep you from dying of cancer. That is a very important power, and to the extent that biological science, at least, has had certain successes in that respect, that reinforces that power. Remember that most of the money for biological research in the United States at the present time is put into research on heart disease, cancer, and stroke, the three chief sources... causes of death of congressmen and senators. *[laughter]* That's not a trivial issue! It's not a trivial issue. Very little is put into... you know, questions of primary health care and so on.

AUDIENCE 9: *[inaudible]* [...] the institutions [...]

LEWONTIN: Well, no, because it doesn't, you see. The way... what's done is that the money is given to the institutions to spend more or less as they please. Look, I came here not from Boston but from Washington, where I spent three days giving away *your* money to other scientists to do scientific research by the so-called peer-review system. I sat in a room with a dozen other biologists of my general ilk, giving away some millions of dollars of tax money to do particular kinds of generic research and nobody... and there's great indignation in that group if it's suggested that people ought to sit in on those meetings, like you or you or... some taxi driver or anybody, should come in and sit in on those meetings and hear what's done, because the argument is: these should be private; we don't want ignorant laymen coming into the room, and making trouble. We know what we're doing because we're trustworthy, and we're scientists, and so on. So there's really very little direct control.

The control comes at a much higher level, namely when the National Science Foundation and the directors of the National Institutes of Health go to Congress at appropriations time and say, "We need money for this, that, and the other thing," then that determines the size of the budget. The fact of the matter is that the NIH budget has never been cut by the Senate and, in fact, has always been increased; NSF's, the National Science Foundation budget has been cut, but not by very much. Scientists... the scientific establishment in the United States is getting

everything that their representatives are asking for in Congress, just about. They bellyache... I mean, you know, say it's terrible, there isn't enough money, and so on, but NIH always gets what it asked for. So no, I don't think Congress is performing much oversight, and to the extent they do perform oversight, they have a community of interest for the scientists anyways, so I don't... you know, I don't think that's much of a policing job. Yes.

AUDIENCE 10: Does the theory of biological [...] have any relevance to what [...]

LEWONTIN: I don't understand the theory of biological [...] [AUDIENCE 10 responds] Well, no... [chuckle from the audience] ...honestly I don't, and so I can't answer the question. I realize that people are referring to it more and more now as a kind of reaction against this, but I cannot offer you any intelligent... [audio cuts out for a few seconds] Kind of a general theory of development of personality... behavioral personality development which has become very popular now, as I say, partly as a reaction to the kind of genetic determinism. I have never read any of his works and I really... I'm very sorry. I'm really out of it. If you could enlighten us, that would be fine.

AUDIENCE 10: If [...] is here, have him do it, he is much more learned about it than any of us.

LEWONTIN: Okay. I'm sorry I can't answer the question. Somebody else who hasn't asked a question before we get back to you. Yes.

AUDIENCE 11: [inaudible]

LEWONTIN: Oh, by standard IQ tests and... the Germans use the same IQ tests that we do.

AUDIENCE 11: [...] that there is a difference between the two, is based on two assumptions that you... [inaudible]

LEWONTIN: Well, I'm sorry. There's a slight confusion which I'm guilty of, and that is that I tend to use the word intelligence when I mean performance on an IQ test, okay? Because that's what all the data are. So, first of all, just let me say that there is no difference in performance on IQ tests between the Black and the white children, whereas there is a 15-point average difference in performance between Black and white children in the United States, and that difference is what is asserted to be genetic, okay? Now, what I'm saying is that the assertion that that difference is genetic would imply that the... in the German case, the Black children should do worse than white children, but since they don't, then that is evidence that there is no genetic difference between them.

AUDIENCE 11: [inaudible]

LEWONTIN: Well, okay, if you talk about intelligence—whatever the hell that is—I agree with you. So I really am talking about performance on IQ tests, and we can't talk about refining that because it's an object, I mean, it's a performance measure, and there it is, and it has a fair repeatability from time to time, although the correlation goes down with age fairly considerably. That's all I can say, because all the arguments given are arguments about performance on a test situation, and all I'm trying to say is that there is no genetic difference between Blacks and whites in their ability to perform this test. Whether there's a genetic difference between Blacks and whites in something—there certainly is a genetic difference in skin color, that's how we recognize them—or whether there's a genetic difference in something else, I don't... I agree, I don't know. I don't even know what to talk about, so I really am talking about performance on a test.

AUDIENCE 12: If the changes have to come from prisoner groups or... [...] they look sort of like miserable situations, but you're already placing [...] What kind of pressures are on you to... change your... [...]

LEWONTIN: Pressures on me? Well...

AUDIENCE 12: Are there any?

RCL: I guess I'm not... I'm not quite sure what you're asking me, 'cause I don't align myself with the people I was talking about. [*laughter*]

AUDIENCE 12: But you are paid by Harvard.

RCL: Oh yeah, sure. [*chuckles from the audience*] But they don't tell me what to say.

AUDIENCE 12: But a prisoner would be... would have a consequence if he were to say... "I don't want to be a guinea pig."

LEWONTIN: I guess I...

AUDIENCE 12: And you say *these* people are not their own, and you are. I'm just wondering if there are any society... if society is putting any pressures on you or... as an academic elite.

LEWONTIN: Well, it puts subtle pressures on me, but they're not very powerful ones. I mean, it offers rewards for good behavior which [laughter] which... no, I mean, it really does... which are not particularly tempting to me, but are tempting to other people. I mean, I... you know, if you want sorts of medals and awards you earn them by behaving right. I don't know how else to put it. But there's not much pressure.

AUDIENCE 12: So other academics could do what you're doing.

LEWONTIN: Oh yeah, sure. Sure they could. If they have tenure. [laughter] Well, that's pretty important. [applause] That's pretty important, if you're an academic and you don't have a permanent job, you've gotta watch your step very closely. You can get canned. Yeah, sure. Yeah, so the only people who are really free are those people have permanent protected jobs, and even they have to watch their step because there are always sufficient reasons for which you can be dismissed from even a tenured position. So, it depends on where you work and so on. I happen to be extremely fortunate that I have a tenured position in an elite university which would require itself to be really pushed to the wall before it would try to fire me, and it seems to be extremely unlikely that anything I could do would push them to the wall; but there are lots of my friends who don't work in such protected positions, and who work in universities where they're much more exposed. And universities have deprived tenured faculty members of their jobs for political reasons, absolutely.

AUDIENCE 13: You must have a certain idea about methods [...] status, wealth, and power. Are they any different than the people who work around the sciences [...]

LEWONTIN: I don't know. You know, the truth of the matter is I don't know what the ideas of people work... [...] what people are for... what their political line is, because Science for the People in particular is extremely heterogeneous organization which has never enforced any political line and which has a very, very great diversity. They're all on the left, but within that very, very vague definition there are anarchists, and there are industrial democrats, and there are various kinds of socialists. Presumably there are no members of the Progressive Labor Party and there are no members of the Socialist Workers Party, but you know, I really don't know what Science for the People's line is. They've been trying to make one, but they haven't succeeded because the whole attraction of people to associate themselves with that particular group is precisely the anarchic nature of the politics of the group, and the moment that group gets itself firmly together on some political line, it'll lose 3/4 of the members. [laughter] I mean, it'll become just another, what a friend of mine calls, groupuscule. [laughter] So... I mean, I just can't say; I can't identify anything. If you mean is it sort of generally revolutionary, the answer is yes. I mean, the attitude of the people in Science for the People is that a major overturn in

social structures would have to occur. If you ask them how they think that's to be done, you'd get a hundred different answers. I think that's probably all I could say... unless there's some other member of Science for the People here who'd like to speak for the non-organization. [laughter] But it's a generally left, semi-pseudo-revolutionary ideology. You know, that's really all I can say about it. Yeah.

AUDIENCE 14: [inaudible]

LEWONTIN: It's almost entirely made up of either working scientists or students or ex-students or non-working scientists... [laughter] unemployed scientists. Yeah, it's pretty much a group of people who have been engaged in one way or another in either being trained in science or doing science, who are pretty much against the scientific establishment and trying to work out some kinds of alternative ideas. But like all such organizations in the United States, it's very difficult for it to have... it is involved actually in trying to reveal the sort of dirt that goes on and in trying to prevent the excesses, and in trying to help people build some kind of an alternative work style, and it's successful in that. That is to say that many people who associate with Science for the People try to organize their own working place in a different way than is common in academic life. They're by and large much less oppressive to students. They try to organize their working places as cooperatively as possible, with decision-making being made as much as possible by everybody, with money being sort of spread as evenly as possible; things like that. Nothing very profound. They try to avoid getting involved in grading systems and testing people, and stuff like that. That's about all I can say. Again, Science for the People is barely an organization. It's a... I mean, we could form a Science of the People group right here. I mean, any five of us could get together and declare ourselves as a chapter of Science of the People. And... it's more an expression of discontent with science as it's done and seen by American society than anything else. It has a magazine which has articles that analyze various aspects of science and politics. I guess if I could say anything, the chief purpose of Science for the People is to convince scientists and other people—but perhaps even chiefly scientists—that the doing of science itself is a political act. That there is no such thing as *non*-political science. That every decision that's made has political implications, and we should recognize that and bring it out in the open. So it's a kind of truth-telling proposition, so to speak. Whether bringing that political aspect of science out in the open itself will have any revolutionizing effect on the way science is done is an open question. For me it's an open question. Yeah.

AUDIENCE 15: Okay, my question is...

LEWONTIN: Perhaps we're gonna make it the last question.

AUDIENCE 15: [...] question you've already answered [...] talking about the power of science in general, [...] but if I'm not mistaken, with someone more specific [...], whether or not you believe that there ought to be controls on research in order to prevent it from being used by racists. Now, I accept that sort of thinking, that's what I was trying to get at in the final part of the question that I asked you earlier, and you answered affirmatively, but in much more general terms, acknowledging that [...] So the answer to my question was [...] no, you didn't think there was any research in itself that found that to occur, that is, you don't think there are any facts that we don't want to know... [...]

LEWONTIN: Well, first of all, I didn't say I didn't think there was any research that ought not to be done. I think it's...

AUDIENCE 15: [...] ...on this particular question of whether or not...

RCL: Oh no, I said specifically that I wouldn't give a penny to do this research. I think it ought not to be done, but not because I'm worried about the outcome of it.

AUDIENCE 15: ...or not because there [...] any facts there that we don't want to know.

LEWONTIN: No, that... and I said no. There are no facts that I don't... there are no facts in the world I do not want to know. [AUDIENCE 15 *in background*: So, then...] There are lots of facts, however, whose... the search for which is in itself a political act, and those I do not want to participate in. That's a different... And now if you ask me should there... is there research that ought not to be done in that sense, the answer is yes. But if you then push me further and ask me, as the woman in the front did, how could that be... how could those controls be instituted, my answer is I don't know... 'cause I don't know who would do the controlling.

AUDIENCE: But, specifically a reason for the controlling [...] would never be that we didn't want to know...

LEWONTIN: There are no facts which I think I don't want to know. There are only facts that I don't want to gather. [*laughter*] No, no! That's a very important difference! There are no... I'm not afraid of the facts; I'm afraid of the act of gathering them. You have to see the distinction, because the act of gathering them is a political act.

AUDIENCE 15: Well, the act may be wasteful, to attempt to gather them is itself [...]

LEWONTIN: No, no! The act of gathering them says it's important to know them.

AUDIENCE 15: [inaudible]

LEWONTIN: Oh, sure. In a world of finite resource, if I undertake the act to gather certain facts, I am making an assertion about the importance of knowing them.

[background voices increasing as lecture comes to a close]

LEWONTIN: *[responding to final comment from AUDIENCE 15]* Yeah. Sure, sure.

[audience talking]

HOST: Gee, I wish you could be here all...

[static on tape for final minute; program ends]