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BERKELEY, INTERVIEWED BY LYNN HERSHMAN

T: Biologists of the late twentieth century, took a strong stand saying that once we get into the DNA and into cellular life and evolution of the…of the whole notion about individuals, we will see that race and racism are really purely social constructs. So, there was a really interesting movement in the Human Genome Project, to argue that since we're all so much alike regardless of race that anyone's DNA would do.

I was a member of the National Advisory Council to the Human Genome Project and those discusses we're rather clear. The idea was if you've got someone from an aboriginal culture in Australia, a Laplander, a Swede, sub Sahara African, it didn't matter because we have so much in common at the DNA level.

So that's one part of the story that the biology of this history or the history of this biology is anti-racist. That's the first part of it, there's a double edge coming though because once the Human Genome Project was finished at around 2002-2003, first draft in 2000, there was a famous press conference in which Tony Blair and Bill Clinton got together with Francis Collins, the other head of the Human Genome Project which was private sector, and the four of them said race is of no consequence in molecular biological research. We have established that. But that's part one.

Part two was the opposite because once they had established the Human Genome Project, they moved immediately to looking at differentiation, diversity inside of human variation. And the next project was called the Human Genetic Diversity Project. They went around the world, trying to get a sample from different cultures…different quote"kinds of people" to tell a story about their nature and character of evolution, evolutionary theory. But also to make an understanding about how differences in the molecular biological situation of different cultures would help explain either advanced those quote, "people" we're or how stunted they we're.

Here's why a lot of Native Americans in this country and Australia, aboriginals resisted giving their DNA to the project. They said, "this is just all about reincarnating this whole idea that there are higher and lower forms of human experience"….human biology you know, human DNA. So at the same time we have this development saying, race is of no consequence with the part one of the project.

But part two, the spin off into what was called micro satellite markers was all about delivering an analysis of human health differences and human electoral differences and human criminal gene differences, based upon the DNA. So that you see things…we're going in exactly the opposite direction.

By 2005, a body of literature had developed within molecular genetics which emphasized the differences between races. Now I don't want to put all the blame on anyone side. The government played a role here. At the end of the twentieth century, the NIH was looking for guidelines to produce research which explains why people from different races and ethnic groups have different outcomes. Cancer, heart disease. They required that we suddenly produce these data based upon these categories. So while they may have thought they we're simply doing neutral science, their requirement to report out their data based upon differences by race/ ethnicity was going to be an important development in reentry of race, into a molecular biology.

Here's an example, the United States, we know that prostate cancer among black males is twice the rate among white males. The other question is why and you can see why the government might say to some researcher, tell us what the rates are and…and of course underneath that, tell us why.

Well through molecular geneticists and you're looking at the DNA patterns of two different groups, blacks and whites and you see differences. Then it sort of files that you might conclude that the differences are explained based upon DNA and that's what began to happen. Whether it was diabetes or heart disease…

.We know for example that the Pima Indians have the highest rate of diabetes ever recorded. Extraordinary high rate. Sometimes as high as over fifty percent among certain age groups…among the Pima Indians. Now why would that be the case. Well if you're looking at the molecular genetics, you may conclude that these patterns that you see in the Pima and their DNA, would explain their diabetes rates. But if you go back to the beginnings of the anthropology research on Pima Indians to late nineteenth century, you'll see that what happened was that the Pima had a very healthy diet, late nineteenth/ early twentieth century. They had almost no recorded diabetes.

By the 1950s, everything is changed and by the 1980s, they had become the poster child for the problem of diabetes. Now again, if you're working in molecular genetics and you get a grant to look at the Pima Indians, you're going to look at their DNA. Now that the history of the dietary patterns…not at the nutritional issues…I don't want to go into any more detail. Here, there's a good literature on this but my point is that if you're only looking for the DNA level,

you're going to find differences. Why? Because any two people have at least three to six million points of difference in their DNA.

That the sub patterns of any two people are extraordinarily variable, So you're going to find differences, the question is what do you make of it. And here's where we get into the complexity of why the molecular geneticists have a hard time understanding the critique of their field because they see differences.

he Pima Indians are the best case I can think of. Which explains why you might find the rationalization or the ethnic interpretation at the DNA level of health differences because they do have these sharp differences in outcomes of diabetes from everybody else. So, when you go to do research on them and you're looking at their DNA, you find differences you might conclude, it must be the DNA. If you are an anthropologist or historian and you understand the history of nutrition among the Pima, you have the exact opposite interpretation that the Pima did not have high risk of diabetes. And now suddenly in the twenty first century, they are in a very high rate.

When the Human Genome Project ended, they had included, okay we're all alike at the DNA level. 99.9% was a famous figure. But at 99.9% is over three billion base pairs and that point 1% or point 0.1% to be more precise, contains three million points of difference. And originally the idea was that they we're going to go in and find out the patterns of differences in gene therapy.

They we're going to find a way to correct genetic mistakes. That turned out to be a brick wall. They could not find a way to do gene therapy and when they tried it, they had a series of disasters including a few deaths that happened. So, gene therapy by 2003 was off the turf of molecular genetics and what came into its place was the idea that we should deliver pharmaceuticals…drugs, different populations with different DNA patterns.

So, the drug industry picked this up quickly and now the question was rather than one single big Blockbuster drug, let's have drugs which are aligned towards certain populations. I was called in that early period personalized medicine but that's not what they meant. They didn't mean medicine for you individually, they meant what kinds of patterns in your DNA would explain why a particular drug was necessary. .So, the big push came from big Pharma to do DNA analysis of different groups in order to deliver different kinds of drugs. And this is a story that's been told but I'll tell it once again.

Heart disease in the U.S. is a big killer. So hyper tension studies have been going on for a long time and we've known that African Americans have again,

about one and a half higher rates of hyper tension than do whites. And my question was why?

Well, a drug company decided to make use of this and they did a study. And they showed that this particular drug and combination was called, Bidell, was more effective and African Americans than in whites. So they went to the FDA and they got an exception to go and look at only African Americans. They didn't compare whites and blacks. And they found that this was a very effective drug in reducing hyper tension among blacks. And the FDA approved for the first time in history in 2005, a drug which was explicitly intended for African Americans. It was the first time in history a drug company had marked it a drug based upon a racial category and the FDA approved it. Now that was extremely controversial as you can imagine.

The hearings we're hot and volatile and people took strong sides. And the American Medical Association was a little bit antsy on this one but the black cardiologist came up and said, we need this drug for black people. The NAACP chapter in New England said we need a drug for black people. So even though many of us had argued that the basis for racial categories in the administration of drugs is very problematic, when black cardiologists said this is a life saving drug and the NAACP came onboard, you can see the political force that was happening. And the FDA then approved it.

As we go back to the early conception of the stratification of cultures and how racial differences have been out there for a long time, justifying different treatment and different access to resources, whether it was the housing or the schools or to health. Any of those things, we can see the danger. That is, once you begin to say that races are really different biologically…that they have different needs for quote," medicine", then it's not a big step to say, then perhaps races are different with respect to access to…well let's say, difference is in terms of intelligence.

In the United States, the crime rate among African Americans and among Latinos is astronomically high especially compared to whites. So, once you head down the road of say ethnic and racial differences are biological, then why would you stop simply at hyper tension and prostate cancer? Why wouldn't you go to intelligence and that's where we have been in the last period? So many people have begun to raise the question, well let's look at brain research. There's a researcher named Robert Plomin and he's done work on IQ and DNA. And he's been saying for a long time, let's get at how intelligent people are based upon their DNA.

He's done studies in England and the United States of high IQ students and he compares them with low IQ students. And he finds not surprisingly, that there are differences in their DNA at certain levels. But he would have to find that, that is it's always going to be the case for three million step patterns with difference. You can find differences between any two people or any two groups. The question is, what do you make of it and does it explain IQ? Does it explain hyper tension? Does it explain diabetes? We're back to my example of Pima Indians. You can find differences but do those differences explain diabetes and hyper tension and IQ and crime? There's we're the danger is. Once you start down this road of saying a drug like Bidell is prepared because the DNA of black people is different from the DNA of white people, it's not a big leap to conclude that other things that you're saying whether its unemployment rates, access to education, you name it. Any of those things can now be on the table for an explanation in terms of biology, genetics, and DNA analysis.

We don't even know what it means for the one drop rule of American society has been going on for the last what, three centuries where any person who has a traceable ancestry of one quarter or one eighth African American becomes African American. So you can see the transparent fiction of the idea that one is quote, 'black or white"and a lot of people who are in this middle category beginning you know because of what happened during slavery.

So, that whole history makes it problematic to say, what would happen if white people took the drug because there are a lot of quote, "very, very white people" who are actually by this rule, African American and vice versa. Cystic fibrosis is relatively high risk for North Europeans…Scandinavians, North Germans. It's rare among African Americans. In the United States, sickle cell anemia is relatively high risk for African Americans. It's relatively rare among quote, whites. So what happens when in a hospital, someone tests for sickle cell anemia and they're white. What do you do if you're a medical professional. Do you say, this person must be black in some level or do you understand sickle cell anemia has to do whether or not you we're in an area of the world or your parents or grandparents where there was high rates of malaria. - because sickle cell trait is a protection against malaria.

If you go to East Africa, it's almost no sickle cell. South Africa, no sickle cell. It's not about race, it's about region. And yet in this country, we racialize these things and that's the increasing danger of what I call, the molecularization or the micro development around racial categories.

What's happen because of the United States position is that many other regions of the world have now began to move down the road on their own DNA analysis.

For example, there's a pan Asian consortium composed of twelve Asian nations and they've decided to look at the DNA of people from Japan, Korea, Vietnam, that whole region of the world. Why? Because they've said," why should we wait for big pharmaceutical companies and the European, North American domination to control this? We need to get our own drugs for our own people". So the pan Asian consortium is heading down the same road of racialization.

In India, there's a big consortium now with genomics to do an analysis of the Indian population because they don't want to be what they call the subject of bio-piracy. They want to do their own research on their quote,
' own people". Mexico has its own genome project now because they are saying the same thing. We don't want to be controlled by the North Americans or the Europeans, we want our own drugs. So we're getting a development now in the last I would say, six to seven years. The work of Benjamin is important here. He talks about national genomic sovereignty that different nations are now starting to say, we're not going to use the data coming out of the U.S. That's too parochial. We're going to look to our own genomics and that's what happened with big Pharma.

Pharmaceutical companies have said, yes that's a good idea. Let's go into those countries. So for example, Astra Zeneca which is a big pharmaceutical company, planned to do it late stage cancer drug globally. It was called Iressa, late stage cancer drug. And the big trial back in 2002-2003, failed. In a reinterpretation of the data, they saw that Asians lived about six to eight months longer than other groups. And so they quickly said, Iressa is an Asian drug and…and began to market their whole strategy towards Japan and China. So once again, that sort of helping to drive this notion that once you understand differences in patterns of health, we can now maybe move that into a market situation and sell these drugs to quote, "those people".

It has now become clear that personalized medicine is heavily about population groups. Doesn't always mean race or ethnicity but it means that they're looking for patterns in different populations that they can quote, sell drugs to. So that's the trajectory. I think in the next period, we're going to see much more of this development where Bidell was the first pin to drop but there will be others including Iressa, a late stage cancer drug.

I don't think racism is about understanding what's happening in science. I'll give you an example, it's somewhat amusing. Years ago, there was a study by some Israeli molecular geneticist looking at DNA patterns among Jews and Arabs in the Israeli…in that area and contrasting it with Welsh DNA. Now why was that the case? Well they happened to have some Welsh DNA. It was an opportunity sample. And they discovered that the DNA patterns among the Arabs and Jews

we're much more similar to each other than either we're to the Welsh. It didn't have any impact upon the conflict between them. They didn't say, oh brother after all these years we've discovered now that the DNA shows that we're much more like each other. Let's put down our arms. It's never been about that, it's always been about power. About economic and political domination.
And whether or not you've found the DNA, makes you more of a kin to someone who's on the other side….will have, I think no bearing on the political realities.

There's a group of African Americans who claimed for many years that they we're part of the lost tribe of the Jews and there was actually a PBS program that went into detail on this. And they found that this group of Africans…sub Sahara Africa, had these patterns that we're very much like Jewish people. They had Friday night, they just didn't have lights and then on Saturday they had a certain kind of a ritual. And a remarkable patterns. So they did DNA analysis on this group and they found that low and behold, there we're some interesting parallels between this group which is a Jewish group. This group then went to Israel .The Israelis said; "oh DNA says that you're very much like us you know. Welcome home". They found similar levels of discrimination as any other African group among the Israeli. So, it's clear to me that he similarity isn't going to reduce racism. Racism is all about privilege and power. It's about which groups get to control resources. That if you can have a DNA analysis which ratifies that, which makes that sound like it's a good thing but then so be it. But if you find that actually the Arabs and the Jews are more alike than the Welsh, I think that doesn't have any bearing upon the political realities of the Middle East.

You don't need racism for stratification of different groups. Different power like relationships whether it was the Hapsburg Empire, whether it was that the Swedes had total domination of Scandinavia. You don't need racism for stratification but once the world got into kind of a globalization beginning with Colonial and Imperial developments in the fifteenth and sixteenth centuries, then as I said at the very beginning, you had to justify that. You had to find a way of explaining why Europe was the dominate power. And that's where race and racism play an important historical role. If you go back to the fourteenth century, you don't find much racism but you still find cultural domination. You still find the power of the Aristocracy in Europe…. a futile Aristocracy, you find it in China, you find relatively homogenous in terms of what we now think of as quite, the Asian issues around DNA.

The Chinese still had ways of dominating inside their own culture. Now, once we moved into an international scene where there was a war where the Europeans we're dominating the Chinese, where they we're trying to dominate the Japanese then they failed for a period…that war between the Russians and the Japanese is a signal for the beginning of World War II by the way. My point is that racism is

a convenient explanation for the power of one group to control another. You don't need it if you have a homogenous group. That's the inside of Africa. Once whites became the power group in Africa…once they came in and took over the land and began to mine the minerals, racism played a powerful role in sustaining that power.

Okay, so the question was whether or not I believe they'll be any point in human history where we can actually have the technology to go into the human body, into the human brain let's say and find a way of interrupting racist thought or racist behavior. I don't think so and the reason is because it's never been about the individual and her or his thought pattern. Racism has always been about group privilege, You can find ways of perhaps erasing the memory of a particular person. But unless the group in power has found a way to reduce it's domination over another group, then the brain studies…the attempt to erase patterned memory will have I think, no impact.

Even in the sciences there's stratification. So, anthropology, sociology and economics would have a voice in such studies with the white coated scientists…

I'm generally in favor of research which is multi disciplinary. I think it's important for different disciplines to step back and raise new questions about what they're doing. And I think whether its anthropology or economics or molecular genetics, it's of some important use to get context and history and perspective on any particular project. The problem with that is the realm in the academy is a publication and publications tend to be down very narrow corridors of expertise.

The journals want very limited focused research on some problem and the wider the scope on the context, the harder it is to get a publication. So even though you may have cross disciplinary research coming out of different fields, different perspectives, it's hard to get published with a broad overview of your discipline. That's the first point I want to make. The second is that various fields have different creditability so that if you're working with white coated scientists in molecular genetics or the neurosciences. They have an edge when it comes to truth claims. Here's an example, I used the Pima Indians as an earlier on with diabetes, let's say I'm able to conclude that over the last fifty years that Pima's diabetes is best explained by a long history of the way in which their diet has shifted. However, if I'm a molecular geneticist and I conclude that there is this fragment of difference, even three/ four percent difference between Pima and non Pima based upon a chromosome and the particular net pattern there, that's not just a publication. That's a news story. What we've seen in the last decade is the news media emphasizing very small differences in groups and their DNA and concluding that these differences really explain why these groups had these health disparities. While anthropologists and sociologist historians and maybe

even economists, can say it's far more complicated as to why a group A or B has a higher rate of an illness than simply their DNA. The legitimacy of the science… the idea that the molecular geneticists have found this DNA pattern, is so compelling that it resinates with the editor or the publisher. And therefore ultimately that becomes a publication on the first page of a newspaper.,not that the Pima have a long history of nutritional problems.

I don't think that there's a conscience evil where people in positions of power and the food industry are out to use sugar as a basis of subjugation. I just think it's a matter of profits and it's such a big deal to change away from the way we manufacture and produce food goods. It's the power of fast foods and the power of industry to bring this to so many millions of people. I think it happens that way and that the reparations' are obviously on the health care system, where people say things like, well it's not the fault of the industry that people have diabetes. They just making a profit. They just want to sell these products because that's where the profit is.

The good part of this story about what's happened the last decade is that people are becoming increasingly clear that many of these studies which reduce these results about differences between ethnic and racial groups. In many of these studies are very limited in scope.

There's been a lot more of the critique coming down against the genetic interpretation of complex diseases. And now we're having something called epi-genetics. It's taken over. Ten years ago, more likely that people in tthose fields would say things like, let's see if we can find the gene for diabetes. There we're actually studies called the gene four…it's called the fatness gene or the gene for homosexuality or the gene for any number of things. Now in the last decade, that language has shifted completely. We're not talking about epi-genetics, and that means a combination of forces inside the body at the cellular level, are now seen as much more complex.

So, we're getting away from what I call the reductionist fallacy, they can go down into the body and find this thing called the gene. It's going to explain how smart or dumb or how criminal or how healthy you are. There's not much more complexity and that's the good news. I think this will happen even more so in the next ten to fifteen years. We're going to find more and more work, showing that there's a complex interaction for all these…they now call them, complex disorders. I also believe that we've seen more richly, textured analysis of race relations in the last twenty years.

That the old idea was you studied race, you studied people who we're either black or brown. Now what's happened in the last period is that race has become

a concept in which people who are white are also being the subject of investigation. So it's now race relations and once you shift that focus…once you take that lens and turn it towards relationships as opposed to those people, you've enlarged the whole scope of the discussion about race.

My grandmother of course faced a very complex problem but in some ways, there was more clarity because there was something called lynching and we don't have lynching now. It's more complicated. The whole notion that racism could be reduced to the fact that people would actually go out into the world and find the culprit for some problem and then lynch them like a mob. That's so dramatic but now we have this film PBS put on just two weeks ago, right. It was the Central Park Five and it looked like a nineteenth century lynching in some way. Here these five black kids in Central Park and there put in prison for ten years for a crime they didn't commit and even though the DNA showed that they we're not the criminals.

T: Ida B. Wells was my grandmother. She dealt with lynching in a very clear way. In ways that there's no way contemporary workers can do that. She would call them justice seekers. Patricia Williams was the Ida B. Wells of the Central Park Five. She said at that trial," this is wrong. The evidence is not clear and there's no way that evidence should put them in prison". She was called a hysterical, black feminist. My grandmother would have been a hysterical, black feminist . Something like I was saying earlier about the nineteenth century, that these people are just from a different culture that they're animals. They're primitives. Patricia Williams said," no no, wait a minute, the evidence is not here" and yet, they we're literally railroaded into prison. Now that's the parallel of a lynch mob. But it was inside of a court of law.