PROFESSOR: Maybe a few of you were expecting a quiz today. But I actually said in class on Friday that I wouldn't give the quiz this week. So sticking with that, I'm not giving it. It was to be on the Wilson notes. Well, if we can fit it in later, we might.

But I want you to focus on your projects, because the reading is not very heavy this week. First is his chapter on cultural determinism. So we'll talk about that today, and then the remaining matters on Friday and Monday.

Sorry, that left projector-- the bulb won't come on, at least not from here.

This is how Alcock starts this chapter on cultural determinism. He quotes this sociology book. "Human biology does nothing to structure human society." And that's common belief among sociologists and cultural anthropologist, as we shall see.

They don't like sociobiology. And some of that is still true. The arguments, I think, are more against biology in general, when it concerns evolution applied to human beings.

Dennett in '95 called it "Darwin's dangerous idea." [CHUCKLING] It's not just due to interpretations that are common among followers of religions. It's also found in academia, in these groups I mentioned, and educators as well. But there are certain errors that are repeated in their statements. And one is, you could say, the Arab false dichotomy.

So what is the dichotomy? They're saying they favor one side, not the other side. It's either culture or biology. Either learned or innate. Either nature or nurture. We've talked about this before. It's actually always both. The same is true for culture, evolutionary influences, and cultural influences on human behavior. It's just a nature-nurture issue.

They also confuse proximate and evolutionary or ultimate hypotheses. That's also very common in their statements.

Alcock tells the story of Frank Boas and his students. Boas was very well known. He calls him the first modern cultural anthropologist of note. And he asserted his belief in the autonomy of culture from biology, thereby, according to Alcock, freeing the study of human behavior from evolutionary biology, which had become admittedly tainted by many people who associated it with racism, social Darwinism, and eugenics. They were, as you know from reading earlier in the book, used by critics of sociobiology.

So Boas, at least according to his students, promoted this idea that the cultural practices are limitless and essentially arbitrary in nature. And one of those students became very well known-- Margaret Mead.

I remember meeting a friend of mine in high school-- a girl who had mapped out her career based on the career of Margaret Mead. She was going to become a cultural anthropologist. She was going to travel, give lectures, get paid for them, and so on and so forth-- just like Margaret Mead. I don't know how that turned out. [LAUGHTER]

Anyway, this was the book. Margaret Mead wrote this book entitled,*Coming of Age in Samoa.* It was written '28, or published in '28. It was very widely quoted. It certainly was well known up to about 1975. And I think it's declined somewhat since then. And there are good reasons for that.

So let's look at why would people be interested in Samoa? Because she claimed that the society there was very different from American society. She said they were sexually free. There was no conflict between kids and parents. They were allowed to do whatever they wanted. There was no rape, and so on so forth. One of these idyllic societies.

Well, she was only there for 12 weeks, and interviewed a group of young women there. She quickly learned enough of the language. She could communicate with them, but that was the extent of her actual study.

Well, Derek Freeman went there much later. And it led to a book in 1983. He spent-- I don't remember how long, but it was a couple of years, I think. And he wrote a book in 1983, very critical of Mead.

So let's just go through Margaret Mead's claims that turned out to be much too extreme. So we want to know, how did she come to believe those claims? Why did she make errors? And we've already talked about Frank Boas and what he believed. And she was his student and she promoted those ideas in this book.

She claimed that Samoan society is very different from our society, having very relaxed attitudes towards premarital sex by young women. And that used to be much stricter at the time she wrote that book-- far stricter than it is now in modern American society. She also claimed an absence of rape, freedom from emotional turbulence during adolescence. And remember, these were adolescent girls she was interviewing.

So this is what she had done. At age 23, because of being told by other cultural anthropologists about Samoan society, she wanted to verify what they were believing. So she based the study on interviewing 25 young women.

Now those 25 women, many of them-- most of them-- were still alive when Derek Freeman went there. So he talked to the very same women when they were much older.

And as Freeman described, she didn't stay in Samoa for really extensive observations. She just believed what the girls told her. And they were often kidding her. [CHUCKLING] She heard what she wanted to hear. She wasn't critical in her method. And this belief of Boas is what she wanted to promote.

There's certainly the same issues faced by sociobiologists since then, when they have applied the ideas and methods to humans. That's what got E.O. Wilson, we say, in such trouble. He was in trouble because he put a chapter on human society-- the very last chapter of the book-- applying sociobiology ideas to humans. I mean, the bulk of the book is about animal behavior-- animal social behavior in particular.

So this is how I would summarize it all. She tried to do a scientific study. She was young, inexperienced, 23 years old. She made big mistakes. But her book became very popular and had a wide influence despite those errors. And the errors didn't really become well known until-- and I don't think they're well known now except among academics. And that took many years.

So they obviously-- these cultural anthropologists-- had a blank-slate view of human nature. And we have talked about how that conflicts with sociobiological views. But what do blank-slate views of human nature actually predict about social structure and practices? And as we summarize that, just note that it's easy to make these ideas believable about humans, but not for animals. It's much more hard to make these predictions about animals.

There's two new things here about this whole discussion. One is Gould's claim that-- he was criticized by sociobiologists for talking so much about biological determinism that he changed it to biological potentiality. So he claimed that a human has a brain capable of a full range of human behaviors and predisposed towards none. He was a biologist-- an evolutionary biologist-- writing regularly in the magazine *Natural History.* And he was very well known. And he sort of becomes a whipping boy in Alcock's book.

The problem is, there was a lack of rigorous tests of the predictions of cultural determinism. And Alcock tries to suggest some predictions that the critic should be testing. And giving you where he does that, he basically says human behavior should differ greatly and arbitrarily from society to society. And he gives examples of that.

Do you think that's true? Should societies differ arbitrarily? Well, there's got to be some constraints, right? But they claim there's no inheritance of behavior in humans, only in animals. Or at least not-- you know, when you start thinking about it, does that mean they don't believe that we inherit the ability to walk? I don't think so. But actually, most of them do believe we have to learn to walk, as I pointed out a number of times-- even though it's actually a fixed-action pattern, as many other things are in human, as well as in animal, behavior.

So Alcock tries to apply that. And I think it's pretty interesting when you actually make the predictions and you look from society to society. And we find out that there are wide differences. But they're not arbitrary, random differences at all. So read that, and you will see exactly what I'm talking about.

I'm not going to go over them now. It's very clear in Alcock's book. And you should be familiar with how difficult those predictions are to test. I'm sorry-- they're not difficult to test, they're difficult to verify, any of them. OK. We might not want to say that it's completely arbitrary. I don't know if any of them would claim that. But the way they talk-- maybe it's partly in the strength -- the vehemence-- of their opposition to sociobiology that they make these strong claims.

All right. Let's talk about male-female attraction, because this is something that sociobiologists have dealt with. And they have dealt with it, as you know, in many animals. We talked about sexual selection. We've shown examples of it from, especially, bird behavior. There's a whole program on WGBH on love and animals, and many, many examples, not just from birds, about things males will do to be chosen by females-- a little bit on the other side, although often it's more on that than on the male mate choice.

I just want you to note that when we go over this, it's not what's fashionable that matches what men actually prefer in a mate. And yet, what men actually prefer is the only thing of real interest to sociobiologists-- not what they say, not what modern fashion dictates, and so forth.

There's a very easy example of that. Look at the difference between women that are pictured in fashion magazines and women that are pictured in the male pinup magazines, or whatever you want to call them. Big differences. OK.

Also, we should note that there are societal differences. For example, in the poorer societies, women that are heavier-- that is, a higher body mass index, and we'll talk about that in a minute, may indicate greater wealth, and therefore be attractive.

When I first went to India, I realized that it doesn't apply so much to the very wealthy in India. But if you deal with the bulk of the people, women that are heavier are often preferred, because it indicates that they must have more resources. You think that would apply even more to men-- men being heavier. But they always talk about the women. All right.

In Alcock, and we'll take a look at-- I didn't actually copy the table for the slides. But many of you have looked at it. You've read this chapter. Table 7-1. It's on page 138.

He goes through attributes in women that men find attractive. And what is their meaning? What is their signal value? What is that property of a woman's body signal? And he says all the attributes listed indicate health, fertility, sexual maturity, and youth? OK? They're all, together, predictors of lifetime reproductive potential. And you must keep in mind when you look at these things, that there's always a range. There's always exceptions to the general rule. Sociobiological hypotheses are not about "always," and they're not disproved by "sometimes."

So this first attribute is smooth, unblemished skin, indicates youthfulness and good health. And he lists-- he gives references for studies of that, that have been done. Symmetrical faces and limbs. Indicates developmental stability, good genes, good nutritional experience during development . Then one he calls facial averageness. Indicates optimum normal development and resistance to parasites.

[LAUGHTER]

Prominent-- you know, you don't think much if you don't have that much trouble with parasites. But it's big problems for many groups, and certainly was in our evolution.

Prominent cheekbones. Indicates sexual maturity. Cheekbones of mature women are quite different than when they were younger. Small chin, small nose, large eyes, full lips. Indicates high estrogen levels during development and youthfulness. Waste-to-hip ratio of 0.7. Indicates current high estrogen levels, ample fat reserves, in good health, higher probability of becoming pregnant, lower probability of early mortality.

There have been many studies of that and arguments about it. But the average in what men prefer always comes out to be above 0.7. I remember reading one of the very early studies of that. It was done by a woman from India-- very nice study, where she made this whole science into a quantitative science.

Large, firm, symmetrical breasts indicates developmental stability, youthfulness, and immune system competence. And a body mass index-- in this table he says 20 to 24, the preferred range is actually 17 to 24. Indicates high fertility and low mortality rates. And you notice, that is a big range-- 17 to 24.

We'll talk a little more about this body mass index. But right here-- I pulled a table out of Wikipedia. I'd point out here at the top, there's variability in measures of the relative importance of different factors, especially in these two-- body mass index and the waist-to-hip ratio.

So we'll talk a little more about that. But these are the usual classifications-- from severely underweight, and underweight to normal, and then over. And notice the normal range is pretty big-- 18 and 1/2 to 25. How do you compute your body mass index? You might all be curious what your body mass index is.

Well, notice it's in kilograms per meter squared-- meter of height. OK. So you have to convert your weight in pounds to kilograms to get this measure. And you convert your height to meters. And then you come out with these numbers. And most of you, I'm sure, will fall in this range. You can have to 25. And yes, I'm not underweight. I'm actually in this range. I'm at the low end.

[LAUGHTER]

OK. And then, notice all these categories for being overweight. Overweight, obese class one, obese class two, severely obese, morbidly obese, super obese, and hyper obese.

And notice, these are the weights. Someone that's 5' 11", 1.8 meters. OK, so if they're 5' 11"-- very tall woman, average man-- these are the weights they have to be to have that body mass index. And the males always prefer, as I pointed out before, 17 to 24. So they prefer women to be from at the top end of the underweight range to near the top of normal.

So then he cites this British study, 1998, of preferences shown by British male undergraduates. This is the title. Optimum Body Mass Index and Maximum Sexual Attractiveness.

And they claim-- and this shows you the controversy-- because there have been many studies of waist-to-hip ratio as the big factor for attractiveness. They found that the BMI was a much better predictor than the waist-to-hip ratio, even though other studies haven't shown such a difference.

In fact, the ratio has often been reported to be the most important. So I'm going to go through one of those interesting studies next. I think there's plenty of evidence that both factors are important. But in their study, the range was 17 to 24. And I point out the numbers there for both those type of values.

But there are exceptions. And one is the group of Yomibato, South American tribe. It was found that they tend to prefer females with a figure that's heavier-- with a larger waist-to-hip ratio than what is preferred by most men in what we call advanced cultures-- advanced technically, educationally, so forth. And I didn't bring the pictures. They show silhouettes of the kind of women. Basically these men in the test were shown little drawings of women, mostly front view, so you can see their shape.

And they chose the slightly heavier than what people in the USA or Europe would choose. So he suggests-- I think his argument is a little bit fuzzy, and it hasn't been fully tested. But he points out that obesity was all but impossible in pre-colonial Amerindian groups.

These were American and American Indian groups in South America. Being underweight was probably more common. And if a woman was slightly overweight, he suggests that there was a greater probability of her being fertile. And also the probability would be greater that she doesn't have a problem with parasites, which are common down in there, with their living style.

And, of course, that suggestion should apply to other groups. That should be more tested. And it should at least be true for groups that have been isolated from modern societies. We don't know. He's probably right about this. But, you know, you need to test any of these ideas.

But you could also just say, well, OK, one exception doesn't disprove the general finding. And even though that's true, when you get a consistent finding like that in one society, there's got be some reason for it. And so it's worthy of more investigation. But not just with the Yomibato, but with other groups where similar conditions apply.

OK, now this is a study where they paid attention to both of these measures. This is the article. Male Preferences for Female Waist-to-Hip Ratio and Body Mass Index in the Highlands of Papua New Guinea. It was published in the *American Journal of Physical Anthropology* a few years ago.

They were using 100 men in three villages in this remote region. They were asked to judge attractiveness of women who had undergone micrograph surgery to reduce their waste-to-hip ratio. They had undergone a kind of plastic surgery.

So what they do is, they take the fatty tissue, the adipose tissue, from the waist, and reshape the buttocks with it. So the weight-- the average weight, anyway-- of these women doesn't change much. But their shape changes. They get more of an hour-glass figure.

And the men consistently chose post-operative photographs as being more attractive than pre-operative photographs of the same women. And it didn't seem to be the body mass index that made a difference.

These are the actual numbers from the study. And they did it twice. These are the two groups of women undergoing the surgery. This gives the patients' ethnicity. And you can see that varied.

And in this group, you can see that the body mass index was not-- one group actually went up a little bit, the other group went down a little bit-- the body mass index. But the waist- to-hip ratios that you can see, were consistently reduced.

All right. So that was the data they had. And the men were tested on photographs. These are the nature of the photographs. So here's pre-op. Here's post-op. And this is the oblique view-- pre-op and post-op.

So it shows what the surgeons were doing. And these are the preferences. Much greater preference for the post-operative-- similarly for that view.

So that was one study that, because they were the very same women involved-- the only thing that was changing in an obvious way was simply that shape that affected their waste-to-hip ratio. The body mass index, when it did go down, didn't seem to make any difference in that particular study.

So what about preferences shown by females choosing mates. This has been studied also. And as we know from when we were talking about Scott's chapters, that females tend to make their decisions by different kinds of means. It doesn't mean that physical attractiveness does not make some difference. But it is often not nearly as important for women as it is for a man.

And there's reasons-- evolutionary reasons-- for that. Women prefer resource potential. And so you'd predict that, well, they might prefer slightly older men, more likely to have more resources. They are more likely to prefer rich men, and so forth-- men with property. Most men at the age when these choices are made don't actually have property in our society. But anyway, that's how I would expect them to differ.

And if you look at the term "maximum reproductive potential," it just has a different meaning for women and men.

And this is the difference in age preferences-- the mean age. This is the age difference-- male greater than female. It's only these to the left of that vertical line there, where in actual marriages, the male is younger than the female. These are all the ones where the male is older. And note that the peak is roughly three years. That's a consistent finding in these studies. But notice also a huge range.

It goes up, of course. Some women will marry a man that's more than twice their age. And this does occur, so all that kind of data is on this type of curve. But you can see, it's a small, small percentage there.

So it's explained-- it's predicted-- by this expectation that women are looking more for potential or actual resources. All right. Humans also have this tendency to stay and act within groups. And different groups may compete with each other, sometimes violently. Remember the story of Romeo and Juliet.

So I want to try to specify a list of evolutionary fitness benefits of these groupism feelings. Why do we like to measure-- to choose someone within our group-- especially if you think of earlier society during our evolution. OK. And these are the things I could come up with. Higher probability of finding a mate. Higher probability of rescue and survival if you stay within that group.

Higher probability of better defense against predators. If there's a predator-- people in the same group get together, help each other-- not as likely to help the outsider. Higher probability of a better defense against hostile human groups. Advantages in food acquisition, gathering, hunting, sharing and specialization. These are all advantages of being in a group. Help in child-rearing and education. And advantages in learning from older, more experienced group members.

It's much easier within your group than for someone from another group. Of course, now we've formalized education so much. We cross these boundaries all the time. At least during our evolution, these probably all would be true-- which would simply explain why we've evolved these kinds of feelings.

OK. Then we get to his appendix questions about the biological basis for reciprocity among humans. The claim is it remains unproven. Here the statement is that general self interest and an ability to see beyond the short term, may be all that's required to generate such behavior. So what's the misunderstanding in that kind of statement? It's very simple. They confuse proximate and ultimate issues.

As we know from before, you have to deal with those things separately. Understand that they're separate kinds of issues.

What about the idea of languages? Languages vary greatly among human societies. So if someone claims that this fact clearly demonstrates the greater importance of culture than biology in the control of human behavior, how does a sociobiologist deal with that? Very simply.

The important issue is language versus no language, not the details of a particular language. That's where Chomsky made a great contribution, pointing out the form of grammar that's the same in one language after another after another.

So we're born with an innate ability to learn any language. That's what we inherit. And here's one of Stephen Jay Gould's statements. "Men are not programmed by genes to maximize matings, nor are women devoted to monogamy by inalterable nature. We can speak only of capacities, not requirements or even determining propensities. Therefore, our biology does not make us do it."

So how do you deal with that kind of criticism of sociobiology? He's pitting culture against biology. Culture versus biology. It's not an either/or matter at all. As we pointed out, both are always involved.

OK, now this is interesting. This is a critique of Alcock. In the final paragraph of chapter seven, he sums up his conclusions about the unlikely philosophy that Gould, Mead and many social scientists and some feminists would have us accept, largely on ideological grounds. But then he suddenly shifts the argument.

And listen to what he says. "That this position has any residual credibility can be attributed largely to the power of wishful thinking that some special meaning accrues to human existence." And this is a quote now. "It is not easy to accept that evolution is a meaningless tale told by an idiot."

His conclusion is then stated. "Indeed most people find it hard to believe the blind evolutionary processes have created us, a creature whose unconscious ultimate goal is no different from that of the slime mold, the aardvark, the pine tree, and the earthworm. Although this point is evidently unpalatable, it is true nevertheless."

So my criticism of Alcock here is just his very narrow definition of what you mean by an ultimate goal. There's the ultimate reason we evolved this way-- certainly this very simple rule of maximizing genetic fitness. So is it really a meaningless tale told by an idiot?

In my view, what is really incredible and amazing is that the simple and repeated process of genetic spread and change, following the biological law of natural selection, has led to such complex creatures with such cognitive capacities, and with such an ability to ponder the nature of the world and its beings. And beyond that, I would add that conscious beings-- the sociobiologist, the evolutionist, they have no explanation for even the existence of consciousness. It's outside their realm, as I pointed out before.

OK, here's a final topic. We have four minutes. Romantic love. Is the phenomenon of romantic love-- the falling-in-love experience-- an invention of medieval court life, as has been repeatedly asserted in literature? And it's a very popular belief after it was first proposed. Does it only occur in certain cultures?

So I want to state a sociobiological hypothesis concerning its origins. Because you're working on another homework, on your topics, I'm not going to give this as a homework. I'm going to give you what I would say about it.

First of all, I would say that the idea was invented by people who could not accept the role of innate motivations in humans at all. And there are many people like that.

OK. Does it occur only in certain cultures? It appears to occur in all cultures to some degree. And there are many cultures that have marriages that are made by the-- basically all the decisions are by the parents and the relatives. But even in those cultures, they end up having to separate-- well, this was an arranged marriage and that is a love marriage. They separate them.

And you find that in all these cultures, because falling in love still happens. Fortunately, in societies where the marriages are decided by parents, they often work out better than marriages here, where the rate of divorce is now greater than 50%.

But let's state a sociobiological hypothesis about the origins of that feeling. It's clearly instinctive. If you haven't experienced it, you will realize when it does occur, that it's an innate-- something's happening to you. Does it occur only in young people? No. Are prominent leaders in the community exempt? There's plenty of examples in the news where that's not true.

If it has evolved as a human fixed-action pattern, it's got to be adaptive in a sociobiological sense. Like many evolved tendencies, it can produce conflicts, not only in the society but within the individual. And this can cause what we call cognitive dissonance which the individual will struggle to resolve in one way or the other.

So consider why it must have had to evolve in early human groups. Think of the close bonds acquired in growing up in an extended family, within which there were very bad consequences of inbreeding. It was necessary for genetic fitness to have a motivation that could occur in strength after sexual maturity-- strong enough to cause a young person to leave his natal group.

And the result was what they often call "roaming in search of a mate"-- a very common tradition. Usually the male-- but not always just the male-- will go off in search of a mate. He leaves home till he finds a woman he can fall for.

You also have secret liaisons, eloping, all the other characteristics of the falling-in-love phenomena, including behaving stupidly, irrationally, disregarding long-established habits, and everything. It has a biological reason.

And then I'll let you just read these. I've put a few summaries of recent research, and they're very easy to find.