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CULTURAL FACTORS IN THE UNDERDEVELOPED COUNTRIES

Dr. Carleton S. Coon

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3 November 1960

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Reporter: Grace R. O'Toole

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COLONEL de CAMARA: One day last summer when we were preparing for Unit III, I picked the telephone up and called Pennsylvania to speak to our speaker of this morning. I asked him if he would come back to the Industrial College and address this Class of 1961, and he very graciously assented.

We then got around to the subject of essential reading and, after a little bit of conversation, he very modestly said, "Well, of course, there is always my latest book, Caravan: The Story of the Middle East." I recognized that we couldn't ask the students to read a 700-page book, so I decided then that the thing for me to do would be to read the book myself and to write a synopsis of the book for the students. Believe me, never in my life have I ever so badly underestimated a task. This is a veritable storehouse of information. It's an encyclopedia of the Middle East. When I got finished I had the feeling of the man who tries to get a drink of water from an open fire hydrant.

I feel a little better this morning, because I talked with Dr. Coon, and he says that no one in the world could synopsise that book. So I feel better.

Now a few facts about our speaker that you didn't find in the biographical sketch: In addition to the countries listed, he has also worked and

studied in Ethiopia, in Afghanistan, and also in Arabia. Instead of being the author of several public works, as the biographical sketch says, by my count he has authored 14 books, including the latest one, which is Caravan: The Story of the Middle East.

Since I am apologizing for the synopsis, I am going to recommend to you gentlemen that you get this book from our Library and read it.

Gentlemen, it is a real pleasure for me to introduce to this Class of 1961 Dr. Carleton S. Coon of the University of Pennsylvania.

Dr. Coon.

DR. COON: It is a great pleasure to be here. I am always a little scared at a time like this. This is such a distinguished audience of Admirals, Generals, and what not. I am trying to get my watch out, because I can't see the clock up there with these glasses. It is necessary to wear this kind of glasses in order to see my script. Bifocals don't work very well.

I have been lecturing around to distinguished groups of Air Force Colonels and to this group before, and so on, and I find that for a person like me to try to suggest what anybody should do is pretty stupid, because you people have been around just as many places as I have, and some of you a lot more, and you've had more experience. I find that what people who are in their forties, let's say, like most is to get filled in on some of the latest things that are happening in the different fields of science,

and then we can draw our own conclusions from that.

I may be wrong, but I didn't know exactly what I was going to talk about, and I still don't, but I am going to make an attempt at saying something. I read in the Washington Post this morning about a colleague of mine, Monty Cobb, over at Howard University. He suggested that we put all the old people on the moon. Then I read in the same column that some religious leader said that he is going to make the Martians Christians. So that, if people can talk in those terms, I think I can say about anything.

What I have been doing for the last four years is a sort of a disagreeable thing and an uncomfortable thing. I have been working on the origins of the different races of man. In the first place it's a bad subject because of discrimination and segregation and integration, and all these things. Nobody likes to hear about it much. It embarrasses people. Still somebody has got to study these things, and that's what I am doing.

My principal job, despite that Middle East, is physical anthropology. That's what I have been doing all my life, and I have been doing nothing else for the last four years. This is an extremely broad subject. It is not a specialist job. If you confine yourself to a lot of bones and measurements of living people you will get nowhere. This involves zoology; it involves anatomy; it involves physiology; it involves the study of blood, which is serology; and most of all it involves genetics. We have to cover all sorts of things.

We have three central problems. One is our relation to the other primates, meaning apes and monkeys. Another one is the problem of from whom we are descended, and how. The third one is, how do we classify living peoples? This will come into the cultural field before we get through. At least I hope it will.

We have to draw on many different disciplines, many different subjects. In the first place, let us look at the other primates. Why do we have to study apes and monkeys? The answer is that if we know what primates are, to which man as a whole is closest genetically, then we find out what our ancestors were like at the time they branched off, and we can tell how some of the races have drawn on certain genetic factors and primates and other races have drawn on other genetic factors. In other words, there was a branching off very early.

If we look at the variability in the related primates, in, say, for example, skin color, we find that in any group of chimpanzees in Africa there is just as much variation in skin color as there is in the entire human species. In other words, you can get black chimpanzees, white ones, the yellow-skinned ones, and the brown-skinned ones. The whole gamut of skin color is present in the primate stock. We don't need to explain the present variations in this on the basis of something recent or something peculiar happening genetically.

Then if we look at, for example, dwarfs, we wonder why there are pigmies in the world. You'll find pigmies in Africa; you'll find pigmies

in the Philippines; you'll find pigmies in the Malay Peninsula; and you'll find pigmies up in the hills in India. Now, are all those pigmies related? Once there once a great pigmy race that spread over the old world and then got blocked off into little pockets. How did the pigmies get that way?

This is a theoretical subject, but I think theory is important at this point. Well, if we look at the plant world we find there are dwarf trees. There are dwarf plants of various kinds. If we look at the animals, many different species of animals have had pigmy strains. There were pigmy mammoths once on the islands off the coast of California. There was a pigmy elephant on the Island of Malta at one time.

If you look at the other primates, there are four other primates besides man that have pigmy races. The chimpanzee has a pigmy population living south of the Congo River. The chimpanzees north of the Congo River are full size. There is a pigmy bush baby; there is a pigmy marmoset in South America. So we know that all you have to do to have a pigmy is to have environmental circumstances of such a nature that it is selectively advantageous for the animal to be small rather than big. All it takes is a mutation in the growth hormones, and particularly in some of the cells in the anterior ~~lobax~~ lobular pituitary, which is that little gland that is up over your palate, you know, at the base of the brain. If that pituitary goes wrong you can become a giant, like the French Angel

and these other monstrous wrestlers that we have seen, and circus giants. If it goes wrong the other way you can be dwarfed.

In animals dwarfing is advantageous when the animals are living in a confined space. If there is not enough food and there is not enough room, then you get a bigger population density in a group of dwarfs than you would in a group of full-sized animals, because they require less, they can move around better, and so on.

Any group of animals requires a certain population level in order to reproduce itself. If you get down below a couple hundred individuals you are generally headed for extinction. In order to keep the population big enough to prevent extinction it is better to be a pigmy under certain circumstances.

So that we can say the pigmies of the world are not united. The pigmies evolved separately from full-sized ancestors in different parts of the world. That solves one big problem of the origin of the pigmies, and also we know why it is better to be a pigmy than not to be one under certain circumstances.

In the Belgian Congo, for example, the population was decreasing among the full-sized Negroes when the Belgians were there. I think it has decreased a lot since, too, by other means. But the pigmy population has remained constant or has increased since the censuses have been going on. What happens to the pigmies is that these Negro tribesmen very often will take pigmy women for their third or fourth wife, and

produce children by that woman who have some of the qualities of the pigmy which make survival and reproduction more feasible than in the full-sized group, because the forest is a very poor place for full-sized people to live, and there is a constant seeping of pigmy genes into the local Bantu tribes who came from outside the forest originally, about 1000 or 1500 years ago. That helps us a little bit on that.

Well, now, another thing that is useful for us to know about in reference to the other primates has to do with sexual behavior. The human family and all of human social structure is dependent upon a shift which our ancestors made at one time in behavior. If you will look at the other primates you will find that they have the same general menstrual cycle that we do. That is a common thing in primates. It is rather rare among animals as a whole. A male gorilla will have 4 or 5 females, and there will be maybe one neutral male who doesn't compete, or one old male who doesn't compete, sort of hanging along on the fringe of the group so that he can eat when they eat. In other words, they have to have a certain amount of companionship, but there is only one functioning male in that group. It's the same with all of these other primates. The female comes into a period of intense sexual activity at the time of ovulation, sometime between two menstrual periods, and she becomes very amorous. The female will approach the male and he will take care of her, and then another one will come around and it will be her turn, and so on. So there is a procession of

females getting the attention of that male. There is no jealousy between the females unless two of them happen to come up at the same time.

If that happened in man, we would have no social structure.

Dr. Kinsey has shown that American women, at least, feel a greater urge at times when it is unprofitable than at times when it is. In other words, their greatest feeling, if there is any difference, is before and after menses, when there is no egg in there to fertilize. In other words, in man the predominant role of sex is to provide a union between males and females of a more or less permanent nature, and that makes it possible to have the human type of family.

Of course, in the gorilla, the chimp, and these other animals, such as the gibbon, when the offspring grow old enough to compete with their parents--for the opposite parent--in other words, when a young female ape attracts the attention of her father, her mother chases her out of the band. When the young male attracts his mother the father chases him out of the band. And so these disappointed teen-age apes mate outside in the forest and start another nuclear family of their own and block out their own territory and find their own feeding places, and that goes on time after time, generation after generation.

In man it was necessary to have two fundamental changes take place. One of them was the shift from this violent estus of the female into the normal human female type of behavior, and the other one was it was necessary to find some way of keeping the young animals in the family

and in the group past puberty. Otherwise we would have had no social structure of our own at all, and we wouldn't have learned very much, either.

What happens is, just about the time, probably, when these changes were taking place, human beings began hunting. When they began hunting they had an entirely different system of economy from that of going out and digging roots and taking fruit off the trees, and so on. It would mean that a group of men would go out together, leaving their women alone for several days and they would come back with an animal that was big enough to feed 15 to 20 people, or a few animals, and then they would have to share the food.

In order to leave the young ones at home, these young ones had to be taught how to behave. The group had to stay together and the young ones had to help as they grew a little older. So language was necessary. Tools were necessary in order to make weapons and hardware. Hunting was necessary in order to have speech. And you had to have speech in order to train people. The old men at that time would have to scare the young men and teach them by shock treatment, put on masks and pretend that they were departed spirits come back to earth, and so on. You get this whole business of tools, hunting, and speech which differentiated us from these other primates. That is the essential thing about the origin of the human society. Some societies have advanced farther than others

in this respect, I might add.

Then we come to human paleontology, looking at the skulls and bones that people are digging up. I see that Ralph Solecki has found three more neanderthals in a cave in Iraq just this year. This has just come out. I was talking with Dale Stewart over at the U. S. National Museum yesterday. He was on that expedition. That makes six. Now they have a series.

The remarkable thing about this is that these people lived between 40,000 and 60,000 years ago. Dr. Stewart found the Chenada No. 2, which was found in 1957, had suffered a birth injury just like that of the Kaiser William^{II}. His brachial plexus had been torn or severed when he was born, and he had a dead right arm. A cave man with a dead right arm isn't very much use to anybody. You'd think they would have taken that baby out and left him under a rock or something. But he died at the age of 40. A piece of the roof of the cave fell on him and crushed him. How did that man live until the age of 40 with only the left arm? Not only that, but somebody had amputated his right arm above the elbow at some time, so he wouldn't have that thing flapping around. Imagine that 40,000 to 60,000 years ago. They amputated a dead arm successfully with a flint knife.

Another thing, the old Neanderthal man of La Chappelle au Seine in France who was always pictured as such an ugly brute had arthritis and had no teeth, yet he lived until his forties. His neck was twisted

around. Who fed that man? Who took care of that old man in the Ice Age in a cave, not only brought him his food but chewed it up for him or ground it up for him and saw that he was kept alive? He died at what was then an old age. The point is that it just goes to show that these people who lived that long ago had tenderness and solicitude or respect for cripples, or respect for the aged, just as some of us do today. Those human qualities had begun at a very early time in the history of human evolution despite the fact that these men had great beetling brows and no forehead. Nevertheless they took care of cripples and they took care of the old.

In other words, there was symbolic life. Language must have been there. There must have been a very good form of social organization, comparable to what living people have today, at that time. These are some of the things we can learn, about how far back human qualities go and how universal they are.

I want to talk a bit about physiology. There are some races that are better adapted to the cold than others. I said this about 10 years ago and I got hooted at and laughed at. But a fellow named Fete Sholander, of Norwegian origin, an American citizen, who was out at La Jolla Research Station in California, and Ted Hamill, from the University of Pennsylvania Medical School, and some others, went down to Australia a few years ago and found some Australian aborigines that go around naked. It goes down to freezing there at night in the desert.

They sleep naked at freezing. Sholander, Hamill, and so on took about six of these natives and put Reckle thermometers in them, and then wired thermo couplets on to eight positions in their bodies. They set eight white people and eight aborigines under the same circumstances side by side and they found that the aborigines' body temperature as measured by the Reckle thermometer remained constant throughout the night, but the temperature in their arms and legs went down. There was a heat transfer between the arterial blood going this way and the venous blood coming back just above the elbow. Owing to an anatomical peculiarity of the proximity of the blood vessels and certain other things they can conserve heat by letting their arms and legs get cold and when they get up in the morning they stamp and jump around and they are as good as ever. As to the Americans and the white Australians, their Reckle temperature went away down and they felt great pain and discomfort and didn't get a wink of sleep.

The white man is not adapted to the cold but the Australian aborigine is. Last summer I went down with those two men--they invited me to go with them--to Tierra del Fuego. We found the 40 remaining Alacabu Indians on Wellington Island. We tested them. These fellows -- Darwin saw them 100 years ago--were going around naked in canoes in snow storms. We found that these people up to 40 years ago had been going naked out in the cold, but they had been picking up clothes from the

passing ships, and of course they would wear the soggy clothes. They would jump in the water to get some mussels and it would snow on them or rain on them, and then they would come out with their clothes wet, and they would get T. B. and die. That's why there are only 49 left. One reason is that they began wearing clothes.

We did the same thing to these fellows. We found 10 of them and we wired them for sound and slept them out in a little tent, and the temperature was 32 Fahrenheit, very conveniently. We took the basal metabolism with a hood over them, and so on. We had only one casualty. One of the young men got frightened in the middle of the night and ran up the mountain. We finally recovered our instruments. We could see his fire up there. He had a fire and sat up there for 3 or 4 days without any clothing, and it snowed. So he proved what we came to see, unwillingly.

We find that these Indians have ^{an} entirely different kind of cold adaptation from the Australian aborigines. They blow off a lot of heat. They eat a lot of meat and blubber and seal meat and mussels and clams. They just burn up a lot of calories. Their extremities were warm all through the night and so were their body-core temperatures. In other words, these Indians adapted to the cold in an entirely different fashion from the Australian aborigines.

That's a remarkable thing, that two different races can both achieve the same result by two entirely different physiological means, and we

white people can't do either. I think that explains why *Sananthropus*, who lived in China 360,000 years ago, had a lot of features in his teeth and in his face like the modern Chinese, although he was of course in the lower stages of evolution than are the modern Chinese. He must have been cold-adapted, too, because he lived right through the middle of a glacial period in the north of China. There was nobody living through that same glacial period in Europe. They had moved south.

In other words, we know from physiology that there are great differences between races. Heat adaptation is another thing, too, which you find particularly in Negroes in Africa. In other words, these physiological facts help us understand some of the differences between people.

There is another thing that has been going on in zoology lately, which is that, with the population pressure of the world growing the way it is, and people talking about eating algae and "standing room only," and so on, I think it behooves us to find out what happened to other animals when they became crowded. There is a man named Calhoun in Baltimore. Several years ago he made an enclosure 100 yards square with big, heavy wire, with cement foundations, and that was enough to hold about 5,000 rats if they had been in separate cages. What he did was, he made feeding stations around the edge and put in an infinite amount of food and water, and he let in about 20 rats. They divided up and each one formed a kingdom around its feeding station. Then they had no man's land in between. They had territories where

the king rat in each place had a whole hierarchy of dominants, and there were anxious rats that would bury food when they didn't need to. Then there were rats that would try to sneak over into some other territory. As soon as they did, some police rat from the next country would jump and kill it. In other words, these rats could not tolerate crowding beyond a certain level.

With that in mind, the people who reexamined the business of why the lemmings swim into the sea, and what happens to snowshoe rabbits and Arctic grouse, found that these animals have great seasonal change. They breed rapidly and they produce large numbers and this goes on for a certain number of years until they get so crowded that they have trouble finding food, they can't hide from enemies like hawks and eagles, and things, and they just can't stand each other's presence. What happens is that the drino pituitary mechanism starts overfunctioning, the cholesterol level goes up, and they have what look like epileptic fits and drop dead. A certain number survive this and the cycle starts all over again.

We are going to have a panel on this and I've got to chair it, in two weeks. It's going on in Philadelphia, at the National Academy of Science. Anyway we are going to have a lot of speakers on this subject, and we are going to see what happens. In other words, if you get to a point where you are too crowded, it isn't a question of food. It isn't food you need. You need room. You need privacy. You need to be left

alone now and then. That applies to human beings as much as it does to rats or lemmings or any other animal.

That probably has something to do with the cholesterol trouble people have. It probably has to do with why we have so many people tucked away in insane asylums, and so on.

During the history of man there must have been many periods in which there was a selection for ability to tolerate crowding. It may be that some of the people in India and China who have been crowded in villages where they have a rice economy for several thousand years are better suited to tolerate crowding than are some of the Europeans. And the Europeans are better suited to tolerate crowding, say, than are the Australian aborigines. It may be that there has been a selection in different countries and different races, or segments of races, or populations within races, for the ability to stand this thing. Now when the world is growing as fast as it is in population, I think we must consider that crowding may be our No. 1 hazard, and not food or housing or transportation, or national boundaries, or any of those things. In other words, before we reach the food threshold or some of these other thresholds, we may all just go mad and die. That is something that we learn from zoology. Some populations, as I say, are better at this than others. It may be the people who can stand crowding who will inherit the earth.

Well, now time is moving on. I am going to talk about cultural

differences. In the first place, coming back to this race business, there are probably about five different lines of evolution in man, we are finding. There was an evolution in South East Asia that moved along to Australia that produced the Australoid people. There was an evolution in China that produced the Mongoloid people who spilled over into the new world. There was an evolution in Africa that produced Negroes, and we know very little about it. There was an evolution in North Africa that produced the full-sized ancestors of the bushmen who moved south under pressure of white people coming in from the Middle East. And there was a whole evolution in the Middle East and Europe of people called Caucasoids.

There are five different lines of evolution. There has been gene-flow around the borders and mixing and so on. But there are all sorts of differences between races in things like the relative sizes of men and women in this sexual dimorphism. There are some races in which the men are much bigger than the women and others in which they are both about the same size. There are differences in the size of the different endocrine glands. There are differences of these kinds which have nothing to do with that old bugaboo, intelligence, but which have to do, I am sure, with temperament and with ability to adjust under different circumstances. These are the things that are vital. And yet nobody studies it. You have to dig into the literature and dig again to find out

this information.

Another thing I want to point out is that every culture that we know of archeologically, going back several hundred thousand years, still exists in the world today. That may seem a very surprising thing, but it is absolutely true. This is part of this whole geographical fact that in the middle of an area you find animals evolve more rapidly and on the peripheries they evolve more slowly. It is true not of one race but of all the major races. There are some that evolved fuller than others and some have got cultural achievements more than others. It is not confined to any one group.

On the other hand, if we look at the earliest cultures we know of in Africa, India, and so on, we find that people made a kind of chopping tool. They took a pebble and just nicked it on one side and they used that for cutting wood, making spears, and so on. I have seen people using those tools in Australia. Up in Melville Island and some of the other islands fringing around Darwin there are people today who have great, big, heavy brow ridges and sloping foreheads, and they are making this kind of tool. If they were to all become extinct and if we were to dig up their remains, all we would find would be implements as crude as those found in North Africa and Palestine, say, 300,000 or 400,000 years ago. Yet they are still there and they are still going at it, and they haven't reverted.

That's a very interesting thing. Those Indians that I was with last

summer had a basic tool which was a quahog shell. It wasn't the kind of shell that they would get at low tide. They had to dive in that very very cold water to get these big quahogs. It looked like a quahog to me. It was some kind of a clam. I don't know the exact species. They got this, not because they wanted to eat this particular clam but because they wanted it to cut with. That was their only tool. With that they made houses of sticks, which they covered with skins; they made spears; they made harpoon points out of the bones of stranded whales; and they made canoes.

Then you will find that at the time the new world was discovered, when the Portuguese were going around the world, and so on, all of Australia and Tasmania were in this very primitive cultural level. A good many of the American Indians, say in Lower California, were, too. They are now extinct. Many of the Indians out in the deserts in Utah and Nevada were in just as primitive a cultural state.

Then let us take the neolithic, the slash and burn agriculture, what they call shifting cultivation, in India. People with polished stone tools are cutting and burning the trees and planting yams, or whatever they plant, for quick crops, like upland rice, and they move on after a few years. That culture is still going on in some parts of the world, although in most places now they've got metal tools, by trade. The only place that that is still going on, to my knowledge, with stone tools, is

in Dutch New Guinea, the country which the Indonesians want to take away from the Dutch, when the people there are neither Dutch nor Indonesian. They are still killing people in Dutch New Guinea and cutting off their heads and eating their brains, and yet we read in the paper that there shall be no more colonies, that everybody shall have equal status in deciding their fate in the world. If we are going to have brain-eaters in the United Nations it won't be much worse than what we've had lately, but it gives you a pause for thought.

I was asked by some editors of Life Magazine to pick out a couple of cultures which are a couple thousand years old and are still surviving so that they could run some pictures on them. I said the only two places I could think of are land-locked kingdoms like Nepal and Yemen. I can assure you in Yemen they do not know that it is at least a couple thousand years behind in many respects.

We have every kind of culture, every kind of people, still surviving. I think that when we have to concern ourselves with the role of our country in the world and the role of Russia in the world, and so on, we must remember these things. Most people say, "This country is independent now," and "That country is independent now. They are all the same. Everybody is equal. Everybody is equally competent to take care of themselves. Everybody is equally competent to represent themselves in the United Nations." It just isn't so. It takes a long while for people

to change. You can't change people overnight. You can't change cultures overnight, because there are certain basic things, like patterns of behavior, relationship of men to women, relationship of parents to children, which are very different in different parts of the world.

As you all know, in India, there are sizable families. Brothers take care of each other. They take care of their uncles, and so on. A fellow is very/limited if he is brought up in an Indian household. If he is the brightest, most competent, and most wonderful man in the world, he still has to take care of Uncle So and So. That happens in a good many cultures. We are very lucky, because we can forget about our brothers and our uncles and move to another part of the country and start out on our own. I think that breaking up family patterns is a thing that is very difficult, because these things are fundamental. People learn them when they are children and it takes generations for people to change those patterns. Also there is the authority of the father over the children, and the feeling that the old people know everything and the young people don't know anything. It is very nice to have respect for the aged, but, when the aged are not particularly educated and the young ones have been brought up in a new system, it's very difficult to change.

These things, wholly apart from any genetic basis, have a great deal

to do with differences. Those of you who have been in the Middle East know very well that you can meet an Arab at a cocktail party and he's got on the same kind of clothes that you have and he has the same education and he speaks English and French beautifully. He will go around and have a drink if nobody is looking and talk with your wife. But you go in his house, you walk in there, and his wife is sitting there, and see what happens. He will be very uncomfortable.

These patterns of behavior are basic. There is no reason why they shouldn't be. I was just thinking and I was talking to Colonel de Camara about it this morning. It seems to me that in our problem of our relationship with the peoples of Latin America, if the people in Latin America got out of the sack before 11:00 A. M., we would have a lot easier time with them. And if we stayed in the sack until 11:00 A. M. they would have an easier time with us. This business of different hours of getting up and going to bed and not being able to get a meal before 10:00, or being forced to eat too soon--these are culture patterns. I don't know how far back they go. It is just as true of Spain as it is of Latin America. It's very difficult.

So I think that a knowledge of basic cultures in the world is very important for people who are trying to live in the world. Another thing-- if you look at the history of contacts between different kinds of people, you will find that there is always the same pattern. When Dr. Livingstone

went wandering around through the Congo, everybody received him very well. There was only one of him. But when you get large masses of people coming into contact with other people there is trouble. The first Americans who went West among the Sioux and Blackfoot Indians and those other Indians were taken right into their camps and were treated with great hospitality. They were only 2 or 3 men. But when the settlers went out with their wives and children in covered wagons that was too much. There was competition, and so on.

Once you take women with you in the field you are putting up a barrier between yourself and the people you are with. It's always true. It's the women who are discriminating, and not the men .

Well, I think I've said enough. All I can just conclude is that anthropology should be our No. 1 subject in the position we have today in the world. That's it.

COLONEL deCAMARA: Dr. Coon is ready for your questions.

QUESTION: Doctor, from your studies of the human race in the past hundreds of thousands of years, do you feel that you are in a position to project what we might look like hundreds of thousands years from now?

DR. COON: I don't think we'll look like much of anything. I'm not at all sure we'll exist at that time. I should say that in the first place I think that the racial differences that exist today may probably be

smoothed out by a great deal of contact. There may be just one population. It seems to me that all of human evolution goes through several stages. One was the erect posture, using two legs instead of four. The next was the coordination of hand and eye in making tools. The next was the coordination of the various speech mechanisms, with the brain making speech. Next was, the man who was the best talker generally got the most women, in the early primitive societies. We may not have any women at that time, after all. Somebody was asking me the other day what we are going to do about education in the 21st century. All I could think of was to take your brain out and charge it and put it back again.

I don't think I am in a position to answer that question.

QUESTION: Doctor, practically every year we hear stories coming out of India and the Himalayas, and there is such a thing as the Abominable Snowman. At the present time I think Sir Edmund Hilary is there trying to photograph or capture one of these beasts and bring it back. Does this actually live? Can there be such a group of people who may be in the category of the snowshoe rabbit and who have been crowded out of their environment into the higher levels?

DR. COON: I have just been discussing that at considerable length in the other room with a smaller group, but I will summarize that. If there is such a thing there are not very many of them, and, as you say, they may have been crowded out of China (by their distaste for

communism), There was an ape called Giganto Pithicus of which three specimens have been found in a cave in Kwangsi recently, which survived quite late in the Pleistocene. It may still survive. On the other hand, I got a skin once and sent it home, and it turned out to be a bear. Also, as I was telling these other gentlemen, there is a Tibetan pharmacological book which gives the entire fauna of Tibetan Mongolia, the regular Chinese medicine system of what part of an animal is good for what human disease. It has pictures of all the animals and fish and birds in that fauna perfectly represented, with no distortions like mediaeval European bestiaries. They have a picture of an Abominable Snowman in there. They call it a Yedi. This book is 200 or 300 years old. It says that this animal's liver is good for curing madness, and that it looks like a man and a monkey, but it belongs to the family of the bear. That's what it says in that book. It's in three languages--Tibetan, Mongolian, and Chinese.

I think it is a bear.

QUESTION: Doctor, in your studies have you determined the origin of the Basques living in the North of Spain and the South of France, and also the origin of their language?

DR. COON: That has been puzzling people for many, many years. There are many theories about it. One theory is that they represent the survival of the oldest European population and that this language

was there long before the Indo-European languages and other languages came in, and so on. You see, the thing that is most peculiar about the Basques is their blood group setup. They have almost no blood group B, they have the highest negative resus count in the world, and so on. So obviously the Basques have been living in a state of isolation, I mean genetic isolation, without interbreeding with other people for a long time.

One possibility is that they represent the earliest neolithic migration, say, about 3,000 or 4,000 B. C. Another one is that they represent a group of people who came looking for metal and sources of tin and copper from the Black Sea and the Aegean in the days when there were still languages of that type spoken in Asia Minor. Their language is related, I believe--I am not an authority on this--to Georgian and Circassian, and those other languages in the Caucasus. Physically they resemble the Georgians and the Circassians more than they do the French and Spanish. It is possible that that represents a seaborne migration at the beginning of the bronze age. Those are the only two explanations I have ever heard that make any sense. Which one, if either, is true, I have no idea.

QUESTION: I would not ordinarily have the audacity to ask this question, but, since you referred to this subject in general in a passing answer to a previous question, I will now ask it. With reference to your prediction of one race some few centuries hence, and relating your answer, if you decide to answer this, Doctor, to the question of the population

growth, would you make some comment with respect to the long-term and short-term implications of this amalgamation of the several races into a single race, and would you give some indication of the external characteristics of the future race?

DR. COON: Captain, there is no subject that I am less for than this one, because it puts me in the crystal-ball business. I say that there will probably be amalgamation, because, when human beings come in contact they always breed with each other after a while. It takes them a long while to start but generally it takes place. Then, of course, there are environmental forces, you know.

When races have met and had what we call peripheral gene flow in the past, say, for example, when some Europeans have come into China bringing wheat and sheep, as they probably did, they mixed with the Mongoloid inhabitants. There is no trace of that in the Chinese today. That's been bred out because it wasn't suited to whatever circumstances that country had. The people who remained as Chinese certainly have very little which would indicate that such a mixture ever took place. In other words, you slough off invaders after a while, because what you have is best for where you are.

How these things work, I don't know. Of course there will have to be regional variations, because some people can take certain climates better than others. But, on the other hand, if we control climate by

everybody's living in an airconditioned house, that won't take place. Although, for example, you take blondism. Blondism is right around the Baltic, the North Sea region. There is a ring right around there and it is correlated on the weather map with a lot of fog and very little ultra-violet penetration. Certainly there is no reason why blondism should actually survive. It isn't a dominant genetically. It has to have a selective advantage, which has probably something to do with U. B. and the vitamins, and so on.

Now, will the people in the Baltic take enough of their vitamins in pill form so it won't make any difference if they are blond or not? Will the people in Africa put on enough skin lotion so that it doesn't matter whether they are black or not? And so on.

That's a question that has to do with what people are going to do in the future. I think it is a purely academic question, because I don't think that, unless we lick the population problem, there will be anybody left anyway, and, if we lick the population problem, there will still be regional differentiation of sorts. So it's a very tough question.

STUDENT: Could you relate that to our own situation in this country with the problem we currently are facing?

DR. COON: The problem we are currently facing is probably the most difficult problem a nation ever faced. How it is going to come out God only knows. It's the sort of thing that whatever you say you are wrong. It's going to require a tremendous amount of wisdom.

QUESTION: Doctor, you mentioned culture factors and types of people and nations with different cultures and different stages of wealth being represented at the United Nations. Do you think we should have something like apprentice nations, or should we have the brain-eaters in the United Nations? How do you solve this problem of being born black and white, or the night and day skin problem, instantaneously?

DR. COON: Personally, I have never been opposed to colonialism. If you have a colony, say, like the British did in India in the old days, you send out a few highly trained men who quietly go up into the various districts and learn the language of the people and do everything they can to help them without bringing in a lot of fanfare and without disturbing them very much. Now what do you do? You get a bunch of 60-year-old college professors going over there and telling them how to put up a pump or something. You haven't got anything to back it up with. If they don't want to put up the pump they don't have to.

Do you see what I mean? I think we are overstaffed in our dealing with the so-called underprivileged countries because we don't have any power. They don't have to do what we tell them to do. We can only suggest it.

Another thing I think is very important, too, is our handling of so-called underdeveloped countries. There is more than one way to be underdeveloped. In our handling of them we always back up the tyrants, the rich, and the corrupt, and the old kings who are oppressing the people. We pay them off. Then we try to do something helpful and

democratic, and the very people we are paying off suppress it. The Russians go in there, and they are on the side of rebellion and rectitude. Why are we on the wrong side and the Russians on the right side always? How can we win in a struggle like that?

QUESTION: Family and tribal culture has grown considerably, and we have built up what we have today as our culture. In China we understand that they are separating the families and splitting them into communes and separating the children from the families. What will this lead to in the long run?

DR. COON: I don't think they will get away with it very long. The Russians tried that at one time and I think it is an early phase of communism. The Russians started splitting up families and taking all the kids and separating them from their mothers, and it didn't last long. Children will always go back to their mothers, no matter what you try to do. The human being is not different enough in different races and countries that they let anyone get away with that for any length of time. Once they get what they want, the families will go back again, I think. Maybe I'm wrong. I don't see it.

QUESTION: Some of our friends abroad, and of course our enemies, often accuse us of being racially conscious. I wonder, as a result of your studies, particularly in the newly developing countries, as to the extent to which you find that people in those countries think in racial rather than religious or national terms.

DR. COON: I think all people in every country think in racial terms wherever there are any differences in races--in India more than any place, much more than here. Look at the segregation you get in India between these casteless people, the whole Munda-Santal peoples up in Chutunaquo and that region. My Gosh! Those people are not allowed to do anything. They've got one or two seats in Congress now. Those little Negritos up in the hills are really kicked around.

I think that every place has that racial consciousness. Look how the Japanese women are all getting their eyes operated on, and so on. There is a tremendous amount of race consciousness everywhere. We didn't invent it.

QUESTION: Doctor, you concluded your talk by saying that you thought anthropology should be our No. 1 science today. I am wondering if you can cite some of the outstanding examples of the practical application of anthropology to perhaps world and national problems.

DR. COON: Well, the trouble is that I have been working on physical anthropology so long that I haven't kept track of what people have been doing. Cornell, for example, has had teams of anthropologists working in Siam studying villages. There has been a great deal of anthropological interest in how people live and so on all over the place. There have been village studies conducted in Lebanon, too. And there has been a group working down in the Andes on the way the Indians in the high altitude

live and their attitudes; not only that but their nutrition and everything else. The Chinese have done studies in parts of China, too. The Japanese have done studies of their own. There has been a great deal of this work done in India. It helps to a better understanding of what people are like and the more effective way of dealing with them. There is a lot of it been done.

But I am rusty. I have been in a box for about 3 or 4 years.

QUESTION: Doctor, with reference to this statement that, as a race, our attempt to tinker with our present environment or to create a new one may lead to our downfall, I wonder if you will comment on that.

DR. COON: We've been tinkering with our environment ever since we stood up on our hind legs. So that tinkering with the environment is nothing new. It is the rapidity of change in culture, particularly in technology, as compared with the slowness of our breeding program. In the first place, technology always comes first. People invent new uses of power and new uses of machinery, and soon, and then the social system has to adjust to it. In order for the social system to adjust to it, the organism has got to adjust to it. So you've got three stages. I might say that technology always seems to start off with warfare. Then you get the application of wartime inventions to peaceful use. Then you get the shift in the social structure. Then you get the shift in the animal. And this animal can't shift that fast. We have been through

several ages since I've been alive, comparable to the iron age, the bronze age, and the neolithic.

QUESTION: Sir, in light of your experience and studies in the Middle East, could you speculate on the future of the Israeli-Arab relationship?

DR. COON: Yes, I'll be glad to speculate on it, but I'll probably be wrong. My speculation is that they will continue to hate each other's guts as long as you and I are alive and that nothing is going to happen for a long, long time which will settle the matter. That hatred is too deep and too ingrained.

QUESTION: Doctor, in your study of peoples, have you noticed any significant differences in intelligence quotients, intelligence ability, specifically in these virgin, new, African nations now? Would you say that their intelligence abilities are the same as, say, those of Europeans? Have they got the same capabilities?

DR. COON: This is the good old question. That's the When did you stop beating your wife? kind of question. Whatever you say you are in trouble. Well, I'll say this. I do not know of any I. Q. studies made in West Africa or other parts of Africa where the new nations are coming into being. The only intelligence test business that I know of, of Negroes and whites, is mostly in the United States on American Negroes. American Negroes in the first place were highly selected at the time of departure, because they didn't come voluntarily. They probably did not represent

the social register league of West Africa at that time. In the second place, they are about 30 percent white anyway today. So I don't know that you can infer anything from the American Negro versus the American white. Also, American whites may have been selected. I don't know that you can make any cross inference.

I do think that there are some things that are important. There are the differences in rate of growth, differences in emotional control, and things of that nature, that may be significant. For example, in West Africa, in these old kingdoms, when they had a fairly complicated kingdom, such as Benin, Dahomey, and those places, they did not have a democratic government by any means. Law and order were enforced by fear. There were a lot of executions and bloodshed. In other words, those people were undoubtedly just as bright as any of us, those kings, just as Mr. Nkrumah is. Nobody could ever find anything wrong with his I. Q. Those people enforced order by fear.

Whether or not it will be possible for those people to get over that so that order can be enforced in some other way, I couldn't predict.

QUESTION: Doctor, do you have any knowledge of what the Soviet, specifically the Russian Soviet, scientists are doing in the anthropological fields at this time and what use they are making of any of the areas in which they are studying?

DR. COON: Yes, I can answer that. I have seen quite a bit of the Soviet scientists. They come over quite a bit to conferences and

things. I should say that they are doing a lot of work in fossil man and archeology, but they are greatly hampered in a theoretical way because of their prohibition to accept the facts of life in genetics. They are still Lysenkoists, you see, officially. So they are 20 or 30 years behind us theoretically in that.

They have been doing a lot of studies of cultures of different peoples not only inside of the Soviet Union. They also have made a big study of Africa, for obvious reasons. I remember in 1956 that several of them came over to Philadelphia to the International Congress and read papers on Africa. They really have been working on Africa, I should say, for 10 years, very hard, and have been getting all sorts of stuff. They are mapping their own different peoples inside the Soviet Union and are getting all sorts of information out on those. And they are doing a lot of archeology.

One thing I notice is that they are not digging. This gives me pause for thought. They are not excavating any of the numerous caves on the north side of the Oxus River, which are full of archeology. They just don't excavate those caves. I'd like to know why not, too.

QUESTION: I understand that psychologists down at Duke University have been working on extra sensory perception. I wonder from your observations of the Australian bushmen and their famous bush telegraph if you have an opinion on whether they do have a racial ability of mental telepathy.

DR. COON: Gee, I don't know. They certainly understand each other. Colonel deCamara was saying before we came out, "We'll get this transcript on for you to correct, on this lecture." I said, "Well, it certainly has got to be corrected, because what you put over in speech you cannot do in writing without changing it completely." The written message is entirely different from the verbal message. There is a certain communication which goes on which is beyond words when you are addressing a group of people. When you are writing you have to do something entirely different.

I think that E. S. P. certainly works in terms of an adjunct or a jet assist to speech, but whether it works among people who are not looking at each other, I don't know. I don't know anything about it. You are taxing me beyond my limit.

QUESTION: How do various religious beliefs influence cultural development?

DR. COON: It works both ways. Religious beliefs influence cultural development tremendously. If you look at Lebanon, for example, you will find that the Christians are the rich people, the people who go abroad, and who bring in the money. They seem to get ahead faster than the Moslems. Well, the Moslem women are not educated the way the Christian women are. The Christian girls are educated along with the boys. Most of the Moslem women are illiterate. A mother has a great deal to do with bringing up children. If a child is brought up by

an ignorant mother he has less of a start in life than if he is brought up by an educated or an intelligent mother. It's the same in Saudi Arabia, where the women can't go outdoors. They just fester inside those walls. Also another thing--in an Arab community you will find that where you've got 3 or 4 wives and each has children, each wife is sort of pushing her boy up to compete with the other boys. So you've got a bunch of half-brothers in there who are fighting for their father's attention. With one wife, all you've got is a good old sibling rivalry, which is nothing beside this semi-sibling rivalry.

So I think religious beliefs affect culture to a considerable extent.

QUESTION: Doctor, if you had seven more caves to dig, where would you dig them?

DR. COON: I 'd go right back to Afghanistan, because Louie Dupre has just come back from there, and he has found a whole valley covered with fleche, with two tiers of caves, and there was 10 miles of it when I was there.

QUESTION: Religion seems to be quite a divisive factor in world affairs. Do you see in the longer run the possibility of its becoming a unifying factor, or will it remain this way?

DR. COON: I don't know. I think it is going to take an awfully long time. I don't think the many people who have the highly organized religions are going to change them overnight. I don't think that Christianity and Islam are going to get-together very soon, and I don't think that

Orthodox Judaism is, either. Of course religion is a divisive factor but it is a very strongly uniting factor within the religion. If it wasn't so strong inside it would lose a great deal of its effect. I don't think religions change very fast. I can remember in my lifetime that a lot of people said they didn't have any religion, when I was a boy and went to college. Now look at the way they are packing the churches. Certainly religion in this country isn't on the downgrade. Sophistication does not affect religion, because religion satisfies an emotional need which cannot be satisfied any other way. Once people have got a set of religious beliefs they are not going to switch.

QUESTION: Doctor, I was interested in your findings about some of these aborigines who can apparently withstand a good deal more cold than we can, who can sleep fairly comfortably in almost freezing weather. Could you tell us something about the possible application of these findings and perhaps similar findings about racial differences to our own military survival training?

DR. COON: There are some applications. In the first place, there are not enough Australian aborigines so that we can make troops out of them. There are only 49 of these Indians left. They're not much use. But we know, for example, from this work and some stuff that the Quartermaster Corps has been doing in Natick, Massachusetts, and a lot of other stuff that is going on at Wright Field, and so on, and what is going on up in the Arctic at Ladd Air Base in Alaska, the capacities

of Eskimoes, American Indians, white people, and Negroes fairly well. The Eskimo has been living in good housing with good clothing for so long that if he ever had any cold adaptation he hasn't got it now. The way an Eskimo differs from a white man in thermal business is that his hands can stand a lot more cold than ours, and the blood supply increases when he's got his mittens off and he's handling his tarpoon or something. Also, he's got big perimeter in his face, and there is a tremendous amount of extra blood supply comes into his cheeks that keeps his face warm. So with the Eskimo it is just the cheeks and the hands. His body is short and thick set, and the blood doesn't have as far to go.

We know from studies of Negroes that they suffer tremendously in their hands and feet from heat loss. They really do have problems in the cold. I don't think we ought to send very many Negroes to cold places. I know that would be called discrimination, but it is just common sense. I think that Negroes would be much better in the hot places because they can take the heat better than a lot of other people can.

I think we can use it in our own personnel, but of course you can't get away with it, obviously, because some of the people can't even publish what they find. They have to go to outside outlets. But I think that in designing clothing and in designing equipment we know what the

tolerances are of the different kinds of people under heat and cold. In designing uniforms and all sorts of things of that kind, it is being done every day. I can't improve on what they are doing. Those fellows up in Natick are doing a wonderful job.

QUESTION: This question relates to your response to the question regarding Russian activity in the physical sciences. At least one earlier speaker has asserted that (and I think you came close to the same thing) we are not competing effectively in communicating with people in the underdeveloped nations in terms that they can understand. My question is: If this is true, or if you agree with it, is it because we have less information about their culture or is it because our bureaucratic setup provides a block to our using our information in the right quarters?

DR. COON: I think the second one is closer than the first one. We've got just as much information as they have. Another thing is that our personnel requires such a high standard of living. I remember up in Katmandu General Riley told me. "It's wonderful to have all you Americans here. We've got several hundred Americans here. You use up all the gasoline as fast as we can get it in, and then you take and spoil all our servants, and it really doesn't do us much good in the long run." He's right, I suppose. It's just this idea that we have to maintain our standard of living, and bring our wives and children on foreign service

posts, which we do. You can't expect them to get sick and die.

What are we going to do? Then you invite somebody in to dinner and they can't invite you back because they haven't got a good enough house or the right kind of food, or something. They can't afford bootleg liquor, or something.

I think it's the standard of living as much as anything. And also, as I said before, it's the fact that we back existing regimes which are usually corrupt.

QUESTION: The conclusion has been reached that some cultures seem to go matriarchal. Secondly, do you think that the United States is turning in that direction?

DR. COON: There has been a lot of speculation about this matriarchal business. In the first place I will say that I never heard of a group of primitive hunters who were matriarchal. Matriarchy seems to appear most in primitive agriculture where the women produce the food. There is one great exception. The Toureg, out in the Sahara Desert, are matriarchal, practically. Anyway, at least, the women have an awful lot to say. Yet they are camel breeders, and warriors. So I don't think you can win on that.

As to what we are going to do, I leave that to Margaret Mead.

COLONEL deCAMARA: Doctor, this is a good note to end on. You have been hit with a barrage of questions, sir, and, believe me,

you didn't duck a single one. On behalf of the Commandant, the students, and the faculty, thank you very much, sir.

Handwritten text, possibly a signature or date, rotated approximately 45 degrees clockwise.