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Antonello: What about the social implications of technology and healthcare?

00: 00: 20: 06
Alright. One of the areas in which I've been working is, in regard to the introduction of technology, of western technology, in the health care of developing countries. In particular, I've been working with Maya indians in Yucatan, in the area of Child birth and women's health. What is of interest there, is that the new technology that gets introduced generally, with some very small exeptions, does not take into account, what is already in place, what is already existing. The fact that Maya Indians as people all over the globe already have in place an indigenous system of childbearing, which consist of practitioners, village midwifes, it consist of a set of practices, things that you do when you're pregnant, things that are good, things that are bad, things that are dangerous. There's knowledge about the herbal remedies for problems, there's just a full knowledge of problems that may arise and they're not same as the problems that we think are appropriate. And there are also certain kinds of artifacts and technologies that are in place in the indigenous system.

00: 01: 44: 09 Now what happens when a modern western system gets introduced and it happens through a primarily through training courses for indigenous midwives, is that you get a clash between the two of them.
Let me give you an example: Maya Indians, traditionally, used to severe the umbilical cord after the baby was born, actually not until after the placenta was born, and they did that with a freshly cut bamboo sliver with a knife.
Something clean and sharp that was around. What they also did however, was that very shortly after the birth, the midwife would take a candle, she would light the candle, she would hold the baby on her lap, and she would take the umbilical stump and move the candle around it and cauterize it thereby. They call it actually burning the navel. What the effect of that is, is that first of all that all the germs might have been on there are now killed off. It also closes it up, the stump after that is dry, so it doesn't provide easy access for new germs to come in. And so in general, with that kind of treatment, the navel falls off without any problems. Now, when midwives were trained by the ministry of health, in those training courses they were first of all told not to follow the old practices at all anymore. They were sort of condemned out of hand without any consideration of what the benefits, the drawbacks might have been. And they were told instead to use a pair of scissors, they were taught how to sterilize the scissors, i.e., put them in a pot, put the pot over the fire, you boil the water in the pot and the scissors for fifteen or twenty minutes, right, that's how you sterilize a pair of scissors. Then you take them out and that's what you use in order to cut the umbilical cord.

00: 03: 51: 09 Now, so the midwife learned that, and if you ask them, do you know how to sterilize your scissors, they can of course tell you that they do. Now, as an anthropologist, is what happens, is that you go and you actually participate in what the native people do. And so one of the things that I did, was I followed a midwife, and we went to

birth together and I would sometimes be there for a day or to however long it would take for the baby to be born. And what I observed then, was that in spite of the training that these midwifes had had in the real new situations, when you actually use the scissors, what happens is, the baby is born, the midwife calls for hot water. Now the way these indians live is that they have this hut where the baby is born. There's a seperate cooking hut, which is like a few feet away and out there there is an open fire and a kettle is over that fire. It may have boiling water or it may just have hot water. Somebody goes over there and takes a dipper, gets a dipper full of hot water and brings it over, the midwife puts the scissors into it, it's impossible under those circumstances to make sure that those scissors are really sterilized. So then if you cut the umbilical cord with those scissors, it is very likely that they are contaminated. And actually the midwifes told me that they found it was not so good to follow those new ideas, because babies would die as they called it from convulsions, which is most likely, merely, tetanus which was introduced by contaminated scissors.

00: 05: 28: 22 So what we see here is sort of a number of things, what we see is that there is a disregard for the native knowledge and for the ways in which the native peoples have already through hundreds and thousands of years, developed a way of dealing with the problems of childbirth, that have their own good effects. We also see that there is a backlash, that there is then a mistrust against the new technology which manifests itself in a variety of ways, you know, that can be negative if you look at other kinds of changes that you might want to introduce. In effect, what happened in that particular system is that people began to do both, people began to use the scissors but then also to burn the umbilical cord, so that you have, you know, the two of them combined again in a way that looks a little bit better.

00: 06: 37: 15 Another thing that we see here, is that there is a blindness on the part of the official healthcare delivery system as to the indigenous knowledge and as to the indigenous technology in ways of doing things. I would often ask local physicians about, you know, what they thought of what the indians did. They would either profess that they didn't know anything about that, in spite of the fact, that some of them was born that way themselves or they would just, you know, brush it off as superstition, as negative, as dirty. Sometimes they would have horror stories, things like a woman came in and she had a ruptured uterus, because the midwife didn't know, the midwife mistreated her, didn't know how to treat her. When they checked up on that it turned out that this woman had received injections of oxytosin, which is the hormone that makes the uterus contract. We do that in western medicine sometimes, under very controlled conditions. But in Mexico, as in most Latin American countries, many parts of the third world, you can go and buy it over the counter. And so, they gave that woman oxytosin injections, and that is how her uterus ruptured. So it wasn't the case that the midwife, it wasn't the fault of the midwife. What it is, is one of the inappropriate ways in which a kind of western technology get's used in a situation which doesn't have the appropriate controls over it.

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Antonello: Can you also talk about this country?

00: 08: 22: 00 Well, yes, of course, I think, you know, technology and the introduction of new technologies, is something that happens in the western world as well, all the time. In obstetrics, we've seen in the last two decades a very very strong move towards high technology, as

compared to the low technology of home births, or of the birth that the Maya Indians did.
What we see now is a very definite reliance on sophisticated technology in making decisions about the progress of labor, about the management of birth. In the US, and I believe in most countries of western Europe, maybe with the exception of Holland, this technological view of birth as falling into the techno medical domain, rather than being a normal, natural event, is something that has taken over and that is now the dominant view. As a consequence what we see is, that not only medical practitioners, but also the women and the families themselves are increasingly asking for and feeling comfortable with, technologized birth. In the US what we see going along with that, is that there are very very few births that happen at home anymore, less that one percent, much less than one percent. On the other hand, what we see is also an increase in surgical deliveries, we have now well over a quarter of all birth being done by caeserian section.
More than 95% of all birth have electronic fetal monitoring associated with them, and, you know, those are technologies that really substantially impact on the experience of birth, on the place that birth has in the family, on the relationship between mother and child, not to speak on the actual medical outcomes. It turns out that much of the new technology has never been proven to be of benefit from the strictly medical point of view. In other words, the outcome of birth is not improved by the technology. I know that this sounds rather incredible, but there are no good studies that show that internal electronics, fetal monitoring improves outcome. Still, this kind of technology is now absolutely standard in all American birth, and I believe the same thing is true in most parts of Europe.

00: 11: 22: 02 What it does is a number of things, it's not only increase of costs. You know, one could from a cynical say, okay we keep our economy going that way, it also does something about decision making, it defines as the relavent knowledge, the knowledge that is technology based, now by that way fact, what we do is disallow the knowledge that and the experience that a woman might bring into the birth process. If you as anthropologist want to do, are present at the birth and stay there, and stay with the woman, stay with throughout the process of labor and really observe what is going on there, you can see very often that the woman has a good idea about what her body needs. For example, you very often see that the woman when she's in strong labor, wants to be upright, in Yucatan, Maya Indian Women, the normal birth position there is upright, either sitting on a chair or kneeling, or else lying in a hammock crosswise being supported from behind, either by the husband or by her mother or some other woman. Where she's pulled up into a semi upright position at the height of every contraction. Now this gives her gravity, also allows her to push much better.

00: 12: 54: 05 What we do in a technologized birth is that first of all, because a fetal monitor essentially ties the woman down to the machine, she's no longer mobile. They put them on a very narrow bed, where she's immobilized, her hips are immobilized. I mean, you know that a baby in order to come out, it has to do an internal rotation, right, that you don't allow a woman on one of our delivery tables to do any hip movement at all. And you can see it, sometimes I've taken video tapes of women as she's trying to press the baby through, you can see this tremendous urge and attempt to move because this baby has to rotate internally, right, all of that we don't allow. We put their feet in stirrups, and thereby, keep them in one particular position. If you look at this crossculturally, you can see that wherever you leave women alone, they pretty much assymetrical positions and they move during the process of

labor, you know, they change their position. And that seems to be very important. So one consequence of the technology is that the woman is no longer able to move, no longer able to listen to the messages that her body sends her about what kind of attitude her body ought to take, so that the baby can go through.

00: 14: 13: 18 Of course the other part of the technology that we use very

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00: 00: 09: 22 ...it was much more difficult. And then also, you know, the other thing that played into that under color was the germ theory of disease...the germ theory of disease. bars Because it was once, people began to believe in germs, it was very clear that you cannot sterilize in a bedroom, you know, the bedroom in the house, as well as you can sterilize a hospital room and that's when hospitals rooms with straight surfaces, with linoleum floors and so on...

00: 01: 12: 08 We were talking about anaesthesia, and I was trying to talk about the effects that anaesthesia has. On the one hand what it does, is it no longer allows the woman to listen to her own body, because those messages are obliterated. So, for example, when it's time to push the baby out, she has to be told to push, rather than getting that message from her body. And that kind of pushing is much less effective, than when the woman really feels it. So we have the negative effect there. Historically speaking, anaesthesia is a very very nice kind of topic, because it had a major effect in the transformation of birth, in the movement of birth from the home to the hospital. Anaesthesia is one of those things that is much easier done in the hospital, it was initially administered in homes and doctors would come to the house of women and administer the anaesthesia. But then it turned out that it was safer to do that in a hospital, where they had assistance and so on. But the other major factor that first changed the whole social fabric of birth and really moved childbirth into a medical domain, is the germ theory of disease. Which, when it came in in the late 19th century, when people began to actually believe that there were these invisible things that were on your hands, that could enter your body and that could make you very sick. And that there were ways of protecting oneself against that, by disenfectants and so on. So that there were then attempts made to introduce that notion into our homes during childbirth, and people tried to become much more clean, people tried to wash things down. But it also was clear that this could be done much more easily in a hospital environment, where all of the surfaces were slick, where you had metal surfaces where you had glass, and you had linoleum on the floor.

00: 03: 31: 01 So what happened here then was that birth moved from realm that was, when a woman feels confident, that was handled by women. You know, the women of the family and midwives used to handle childbirth, it moved from there into the hospital and into the professional sphere. And that of course also was very much a male's sphere, so the various technologies that arose, became a very strong part of that movement and were instrumental in effecting that movement.
Were also instrumental to the extent that they were real advances, and some of those quite questionable. Part of the attraction for the women themselves. Now, that at the same time, you bump into different kinds of troubles, and worse kinds of troubles in many ways, then what you had before, is also something that needs to be considered here. Because you have negative effects of that technology as well.

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Antonello: Child mortality in the US is very high. Why dosen't the technology deal with this problem?

00: 04: 56: 08 Well, that's a very difficult question. Technology is clearly not dealing with that problem. And one reason for that is, that first of all, there are many many different reasons why child mortality, infant mortality, prenatal mortality at birth is so high in this country, and part of that has to do with the different access that people have. Not only to obstetric care, not only to care in hospitals, but also to things like education, nutrition, differential distribution of diseases, maternal diseases, the differential distribution of access to drugs for example, all of those kinds of things are quite stratified in the US.
So that if you look at places like Washington, DC, or in the city of Detroit, you have infant mortality rates that are equal of third world countries. On the other hand, if you look at middle class environments, like you take this area around here, the Bay Area, you have really good infant survival rate. So it's a very mixed bag, so I would say, that if one wants to deal with those questions in a serious way, one has to look at the root causes. But one thing that is for sure, is that the technology that has been proposed as dealing with those problems in a meaningful way, is not doing that sort of job.

00: 06: 20: 02 One of the major, if you look at one major technology in obstetrics at this point, fetal monitoring as I mentioned before, that is a technology that is ubiquitous, there is no American hospital where you are not going to find electronic fetal monitoring, it swept the country within a space of, you know, five to ten years. It has been exported all over the world. Most European countries use it just as routinely. And all of that happened in spite of the fact that there are no good studies that show that this technology will produce better outcomes. I know it sounds incredible, but it is the fact, if you go look at the medical literature, there are several randomized controlled clinical studies where they show that it doesn't really matter one way or the other. Now where it does matter, however, and that doesn't get studied, is in the satisfaction for the mother. It is quite a different story to give birth to a child under your powers, so to speak, as compared to tied down to a machine. There are things that we've observed in doing detailed behavioral studies of interaction around birth, in technologized situations. It is for example, that when a baby is being born at home, there is a bunch of people around there, there is a midwife, there's probably the father of the baby there, maybe siblings around them, maybe the woman's mother around her, her friends, all focusing on this woman and they're supporting her, they are holding her, they are giving her rubs. They are talking to her, they're trying to minimize the discomfort, she has freedom to move around, right, and this baby will get born in an environment that is conducive to listening to the messages that this mother-baby unit give to each other.

00: 08: 19: 20 Now you put the woman on a fetal monitor, what happens is that all of a sudden, what ever it is that she knows is no longer decisive about the management of the birth. What happens is that, it is the physician who can read the fetal monitor output, and that output is a bunch of graph paper, lines on graph paper, which you have to be able to read. That he is the only one that can make decisions about what to do next and what kind of shape the baby is in. Very often, what happens is, that they decide there's something wrong, when in fact there isn't, and one of the things that does happens that is showing in these randomized clinical trials, is that in many cases a decision is made to

use another kind of high technology, ie, surgery, cesarean section, in order to deal with problems that presumably have a reason. Usually these babies are born, there are problems, there is no difference in outcome except that the mother has gone through a section. Now of course every one of those sections in a country where there is a rule that says, once a section always a section, if this mother has another baby, there's going to be another automatic caesarian section. That is one of the reasons why cesarian section in this country is constantly on the rise. So the interesting thing is, that one, technology draws in its wake another one, and so you get this, this whole web of technologies where everyone.. you call in one in order to remedy what the other one has done. You know, you give the woman anaesthesia, and she's then no longer able to push, so therefore you give her oxytosin in order to increase the strength of the contractions. But they get so strong, you have trouble with fetal heart pulse and eventually ending up with a section. Those, this kind kind of synergism, negative synergism is something that nobody understands very well and whenever you know, technologies are suggested as a solution to a problem, one has to be very very careful. To also consider the effects it has on the rest of the system within which this is introduced, and that is somewhat all of obstetrics, not only in medicine. It is the same thing all over the world when you are talking about, how we're going to go about introducing, presumably, beneficial new technologies. It is a consideration that should always be taken very very seriously.

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Antonello: Do you think technology can be used in a different way?

00: 11: 08: 15 Oh yes, I definitely do. I think, you know, technology per se, is neither good nor bad, it is the question...the whistle question is that we need to understand a number of things. noise One of them is, how the new technology interrelates with what is already in place. Another one is, in whose interest is that new technology developed and introduced. And here, I think, very often what we can see, if we just ask the question, is that that technology is introduced not for reasons of benefitting except in some fairly abstract way, the people who are going to use it. But it in fact benefits the ones who are introducing it, who are selling it, who are producing it, and manufacturing it. So that technology introduction very often is pushed by economic, for economic and political reasons, but there is another way. I mean, one could look at what it is that the people need, what it is that the community needs. What is it that under certain circumstances childbearing women need in order to make birth a more satisfying and a safer experience. What is it that a community needs in order to have less malnutrition, in order to be able to take the backbreaking labor away from women, for example, they have to carry water for miles every day.
What kinds of technologies are required in such situations, but I think the analysis, the motivation for that has to come by looking at the participants, at the people, at what we call in a technology enviroment, the users. Unless we start looking at the users first, and try to understand what the problems for which we are trying to provide solutions look like, unless those two things come together, I think technology's always going to backfire.

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Antonello: 00: 13: 51: 04 I was talking about, you know, other ways in which it is really important to take the user into account, and I was giving an example of a failure that happened with Maya Indians in Yucatan. The medical system was trying to introduce the idea of birth

control, and they again did not look at all what the indians themselves did or used already, and what their belief system was. So they told them, they told the midwives about.. and the midwives of course are part of the common culture, they hold the same beliefs as the women in the community. So they told the midwives about various methods of birth control, and they told them about the pills but of course they can't do anything with pills because they have to be prescribed by doctors, and they told them about condoms and they told them about injections which are illegal in the US but they still use them in developing countries, where you get an injection that makes you sterile for three to six months. It's of course a technology that has really bad problems associated with it because of the side effects, you cannot make it detract, you cannot take it back, right, this woman is stuck with the side effects for three to six months. Very often it gets done to women who are nursing and effects the breastmilk, I mean there are all kinds of problems with that kind of technology, but that's just an aside. One of the things that they are very interested in was sterilization, that was a method that they would like to push because then you don't have to worry about prescribing pills or side effects, or whatever, once a woman is sterilized that's it.

00: 15: 29: 23 And I thought in the beginning, having talked to many women and realizing that there's quite a bunch of them who haven't gotten to the age of, you know, into their middle or late thirties, really feel that they've had enough children and they don't want anymore children. So the question's what can they do. They made a law, it's pretty much one of abstinance, I 'll tel you a little bit more about that in a moment or two. But the hospital in training courses and in propaganda and film, was pushing sterilization, but nobody came essentially.
Eventhough, when one knows that there's a clientele out there, that there are many people out there who should be good candidates for sterilization. So the anthropologists began to sort of look into them, take it up as a, an interesting issue, try to follow.... It turns out that there is a set of beliefs, and I call them beliefs though I think it is the same as what we, if it were Western would call knowledge, within that system which has to do with how the body works. And it turned out that that was exactly ....is exactly against the idea of sterilization, I will explain to you how that was the case.

00: 16: 51: 21 The Maya Indians believe that there is a central organ in the body and it is located right under the navel, and that is what they say, the machine that makes the body work, it's called the tiptae. They never talk about it, I mean, it was years before I heard about the tiptae years of working there as an anthropologist because nobody ever asks about it, so they don't bring it up. The tiptae is a very important organ because it's sort of like, take the brain and the heart together for us in our system, that dictate us all of these sorts of things. If the tiptae is out of order, you're in big trouble, you know you get sick, you can die, you get weak. If you're a nursing mother, you have no milk, you have headaches, you can't sleep, all of those things happen when a tiptae is out of shape. How does the tiptae get out of shape, well, for one thing if you're pregnant, since it's under the navel, the growing child pushes it up out of the place where it should be. So one of the things that happens after a baby is born, is that the woman comes to the midwife and the midwife does a very particular massage which puts the tiptae, it does all kinds of things to the uterus, it also puts the tiptae back in place. Okay, now it's very important, because if you don't do that then you're in trouble afterwards.

00: 18: 10: 22 Of course if a baby's born in a hospital, there's nobody that does anything about the tiptae.
and I noticed that the few women who ended up in the hospital, afterwards came to the midwife and said would you please fix my tiptae. I actually found out about the tiptae at one point when I was doing a videotape of a massage of, of a postpartem massage that the midwife was doing, and she went into the woman's abdomen and sort of terminally she went like that, and we were looking at the videotape afterwards and I said why did she do that. And she said, oh well that's nothing, and I said but why did you do, I've seen that before, why do you do that ...and she said well, I put the tiptae back in place, I locked the tiptae in. And I said, what's that, and that's whan she began to explain it to me.

00: 18: 59: 03 Now you can see that any woman who believes that there is this organ in her body, which absolutely essentially for helping survival, but western doctors know nothing about, is not about to have anybody go cut around in that area for purposes of contraception. It is like crystal clear, I wouldn't have brain surgery for contraception, especially if I had a surgeon who didn't know anything about how important the brain was. So here was the explanation for why these women more in spite of the fact, that the nurses would come and talk to them and they talked about sterilization, they really don't want any more children, they never went to the hospital to actually have it done.

00: 19: 46: 19 I'll tell you, I'll tell you one final example, it's one of my favorite ones, because it again speaks to the fact that in the introduction of western methods, very well intentioned, mind you, in trying to reduce the high birthrate so that women could have better health and they could have better incomes, that they could pay better attention to the children, have better child spacing, and so on. One of the obvious things that one could teach them, or then to talk about would be abstinance at the time, at the certain time. There is the native knowledge about menstruation is the following, what they say what happens is that all month long blood drips into the uterus, it goes drip, drip, drip, drip, at one point the uterus is full and then it opens and the blood comes out. And then you menstruate, and then it closes up again. So within this logic, if you were trying to conceive, if you want to have a baby, when would you have intercourse? Obviously when the uterus is open. And when did you not want to have intercourse? When it does not matter, when the uterus is closed. Right? So, what happens then is that if they want to conceive, to have sex just before and just after the period. And when they don't want to conceive, to have sex in the middle, Okay. Which is precisely opposite of what it should be. Do you follow? Because the fertile period is in the middle, it is between menstrual periods. Because that's when you have a ripe ovum.
But they believe that at the point the uterus is closed, so that's not....alright.

00: 21: 46: 02 So if they would have known, if they would pay attention to the indigenous knowledge system and try to understand how we can develop messages, you know, that would really help that people in these problems. It's very easy, you know, you give them a different metaphor. You tell them about a uterus that develops this egg, and this egg is ripe at this point. And you just have to switch around the times at which they should have intercourse, for them. I bet, you know, my belief is that if one did a systematic campaign, that publicize that knowledge, you would do more to impart the birth rate in that region then with all the high technologies like sterilizations and IUD's and

injection.. The interesting thing is that that belief, having talked to many anthropologists who've lived in other parts of the world, is extremely common. It's a logic of the body, you know, it's closed at some times, it's open at others. So that when it's open you want to get the semen in, because they do understand of course the connection between intercourse and semen and conception. --- JORDAN 103A Antonello: Can you talk about Progress?

00: 23: 09: 16 Progress sort of implies that things get better. Right? .....The question then arises immediately.... better for whom? You know, if you think that you mentioned, the US and a short history of 300 years, but the very beginning of it, there was something here before and it's really starting up, it's predicated on the destruction of what there was before. Now if that is progress, that is certainly one idea of progress in a sense that, there are more people here now, that life here is more complex now than it was then. But it also involves major destruction of something that was there and that had grown in this environment. If you look at the Maya Indians, there too what you see is that this area had been overrun again and again. You know there were the Olmacts, the Toltects and the Spaniards. Nowadays, if you look at the local people, they sometimes talk of the Mexicans, you know, people from Mexico City as another set of foreigners, they don't see themselves as the indians, as Mexicans, they see themselves as they call themselves Yucotectcos.In..the people from Mexico City are outsiders just as well, just like the gringos, the Americans that come down there.

00: 25: 04: 06 I think the notion of progress is something that is really difficult to pin down. And I think one way in which I like to look at it, is that there are certain parts, certain times during history it would be prehistory as well, where there were more options available for more parts of the population that was in existence at the time. So that what ever improvements, what ever better ways of life are around, they're not concentrated just amongst some elite and they're not available to just some small parts of the population. But that are open and accessable to people as a whole. And I think in that regard, technology can, it can work on both sides, you know, it can be on the one hand a great leveler in so far as, we all have access, we can all communicate with each other. Most of us can talk to each other by telephone, I mean it used to be a very priviledged sort of thing, to be able to send messages. You might have runners, you might have to be able to command a stagecoach, you might have to send a messanger, if you didn't have messanger pigeons you might not be able to send the news of the birth of your child back to your parents. In many ways, all of us now have access through technology to things that people that before was hierarchically distributed, right, in that sense. I think technology has been a great leveler.

00: 26: 45: 00 On the other hand, it has also functioned to make the world more hierarchical.
There's first of all the distribution between nations, there are some nations who have lots of technology and by virtue of our technocratic & technology oriented worldview, they have more of the stuff that is considered valuable. But also within societies, there are people who have more access to technology, and through that have more power, inherently have more power.
You know in the medical field that is very obvious, I also think it's obvious in the stock market, it is obvious in production, in many other areas as well. If you listen to children on the street corner, the discussion of what kinds of technologies they have in their home, is

something that's really important, teachers talk about it. The kind of preschool training that we do with children, you know the kind of home environment that they are exposed to. There's another way in which a new class structure is being introduced because some children, you know, grow up with these new kinds of technologies and others don't. Well it used to be a great advantage to have sort of a literal literate dinner table discussion, because it would help you later on in school you would know how to speak proper English, or German, or Italian or whatever. Nowadays, having the appropriate technologies at home and being familiar with those gives children a tremendous jump on others. So I think that technology has crept into the home environment, in really insidious and also divisive sorts of ways.