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Sarah Franklin on the Sociology of Reproductive Technologies

David Edmonds: *In the sci-fi movie Gattaca potential children are carefully chosen using pre-implantation genetic analysis. The movie taps into fears about the futuristic uses of reproductive technology. These are similar concerns to those often stoked in the press when there's a technological break-through such as the birth of the world's most famous sheep, Dolly, who demonstrated the possibility of cloning. Since the 1950s sociologists have focused attention on such new medical technologies: IVF, cloning, stem cells and human embryo research are only some of the areas their research addresses. Sociologists in this field use a methodology very different from philosophers, from bioethicists; they stress what they call 'situated knowledges' or 'embedded ethics'. Sarah Franklin is Professor of Sociology at Cambridge.*

Nigel Warburton: *Sarah Franklin, welcome to Social Science Bites.*

Sarah Franklin: Thank you very much, pleasure to be here.

Nigel Warburton: *The topic we are going to focus on is the sociology of reproductive technology. Perhaps we could just begin by saying which kinds of reproductive technology you're interested in?*

Sarah Franklin: Well I'm particularly interested in the modern reproductive technologies. I began my work on in-vitro fertilisation in the 1980s, and then I've gone on to do work on cloning, pre-implantation, genetic diagnosis, stem cell research - all of the reproductive technologies that basically involve reproductive cells, reproductive substance, and reproductive biology.

Nigel Warburton: *And as a sociologist what is it that you do in relation to this? I can understand what a scientist of reproductive technology does, but a sociologist of reproductive technology is something I've not encountered before.*

Sarah Franklin: Well to a certain extent new methods have had to be developed for this field which relies to a certain extent on qualitative methods like participant observation and spending time in labs, also doing interviews with patients, with clinicians and scientists, and also working on the

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public perception of these issues because that plays a large role in the sociology of this field. There's quite a few dominant narratives, or discourses you might call them, about what it means to consider the question of human cloning, or what it means to have a designer baby, so the methodologies that are used tend to combine work in the lab, interviews with people with analysis of public, mainstream or popular culture.

Nigel Warburton: *It would be interesting to talk about that in relation to in-vitro fertilisation. I imagine you go in to a laboratory and see people working with embryos or potential embryos and sperm and cells and so on, and what do you do? You observe them, and then what?*

Sarah Franklin: Well IVF is a really interesting example because IVF really began in 1960s: the first successful fertilisation of a human egg was at Cambridge in 1969, and then it was a quite a long time till it was clinically successful, it didn't succeed until 1978, and after 1978 it began to be taken up and it began to be much more of a viable, clinical option. But I don't think anybody thought in 1980 that there would be 5 million in-vitro fertilisation offspring by 2012. So studying this field has had to mean developing new methodologies as we go forward, and my first study of in-vitro fertilisation simply asked women why they were undergoing that technique. In the mid-1980s when I began to research IVF it failed 90% of the time. So the question of why that would be considered an attractive, a desirable option to be celebrated and pursued was itself of sociological interest. So I began by doing that, and since then I've developed other ways of studying it. But initially it was really 'What does this technique mean to people?'

Nigel Warburton: *On that question I'd love to know what the motivation was for women undergoing that treatment in the early days?*

Sarah Franklin: Yes, well, I was really interested in the answer to that question too. And I found something quite surprising because you would have thought that what the women I interviewed in the mid 1980s in Birmingham would say was that they wanted a baby, and obviously that was one of the motivations, but it wasn't the only motivation. They knew there was a 90% chance that if they did IVF they wouldn't end up having a so-called 'take-home-baby'. So what did they want? They wanted to know that they had tried everything so that in the future they wouldn't look back and think 'was there something I could have done? Did I let myself down by not pursuing an option that was there?'. But what they didn't anticipate and what really no one can anticipate before they undergo IVF is how demanding a procedure it is. How physically demanding, how emotionally demanding. And so what they didn't anticipate was how the procedure what change them, how it would change their desire for offspring, how it would increase their proximity to the possibility of being pregnant. Because if they made it to the point where they had an embryo transfer they had a fertilised egg inside their uterus, which is far as a lot of people are concerned is pretty close to being pregnant. And still quite a few of the cycles that got to that stage fail. So they, sadly, often found that undergoing IVF took away from them exactly what they had hoped it would provide: instead of providing reassurance it made it harder to live with the impossibility of becoming physically

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pregnant. And that was one of the first aspects of IVF that really made clear to me how paradoxical it is, how it has a very self evident logic going into it, but that exiting from it requires a much more complicated way of understanding what it is exactly IVF is offering.

Nigel Warburton: *And presumably what it's offering is changing over time as well, so the motivations will change and the impact of unsuccessful treatment will change as well?*

Sarah Franklin: Yes. I don't think anybody possibly could have imagined how quickly IVF would change. Initially, it was offered for various kinds of infertility, it was offered as a means of overcoming blocked tubes, it was offered as a means of repairing a process, of establishing a pregnancy. But IVF before it was used clinically and since has become a platform for a much wider range of technologies. IVF was always a big technology in the livestock breeding industry and embryo transfer is now a huge global industry for improving the genetic capital of animals. But in-vitro fertilisation quickly expanded into genetic diagnosis, into the diagnosis of male infidelity. And of course now the big change with IVF is that it's so closely linked to stem cell research. All the material for human embryonic stem cell research comes from IVF programs, or very nearly all of it. So there's now quite a complicated connection between what we might call technologies of reproduction and technologies of regeneration. So oddly IVF is now likely to be the platform technology for the future of regenerative medicine.

Nigel Warburton: *There's also the phenomenon that IVF is sensational news and there are certain sorts of caricatures of scientific practices that get through newspaper and television to the wider public, and I wonder if that's something that you've investigated: the way that IVF is represented?*

Sarah Franklin: Well, yes, certainly the mainstream representation of IVF is also one of the most fascinating things about it, and I think Raymond Williams was very helpful in his analysis of television in giving us some ways to think about how public conversations take place about technology, and he famously said that technology is one of the least understood and least well theorised questions in all of social science. And the reason he said that was so was because people already think they know what the impact of technology is, something like television. It's notoriously difficult to theorise technology in relation to the question of impact, which after all is a term taken from physics. We wouldn't really expect any kind of simplistic model of technological causation to be sociologically credible, and yet that is what almost all models of technological change end up being. In mainstream debate they often tend to be very future-orientated, they often tend to be relatively simplistic, they often tend to portray science and technology, racing ahead without any control, and the area of reproductive technology is a perfect example of that: it's a perfect example where the debates are often framed in terms of enhancement, designer babies, test tube babies etcetera. But the actual reality of how decisions are being made is much more complicated. So probably one of the most

important contributions sociology of this area can make is as an alternative to the dominate framings of technology which don't take into account its actual social complexity as a way of life.

Nigel Warburton: *Well, to take one those: the notion of a designer baby, a kind of an enhanced baby, better than you would have got by the traditional process of generating children. Is that really a myth? Is it really wrong to think that the technology is tending in that direction?*

Sarah Franklin: Well it's a really interesting question why reproductive technology becomes so closely linked to the enhancement question. I have written a book about pre-implantation and genetic diagnosis with a colleague of mine Celia Roberts at Lancaster. We looked at a clinic in London where they were doing the technology that involves both in-vitro fertilisation and testing the embryo for a known genetic disorder, and of course that technique is quite rare and that's because in order to do a genetic diagnosis of an embryo you have to biopsy the embryo and to do that you have to tear off a tiny cell and you have to analyse the contents of that cell with a very high level of molecular precision within a very short period of time because you have to decide whether you are going to allow that embryo to be used clinically, whether it's going to be transferred for an attempted pregnancy. And if you are looking for just one gene it's very complicated and there's an error rate. So the idea that you could look for several is at present technologically unlikely, and, even if you could, say, read the genes of the embryos, you'd probably get lots of different pros and cons, as it were. And the idea that you could then 'add in' genes and you could control how they are expressed are all ways of *imagining* biological control that are actually racing ahead of the technology. So rather than the technology racing ahead of the reality it is a bit of the other way around: these areas are beset with very high rates of failure, people who use them are really encouraged to think very carefully because they are very difficult, very time consuming and very often fail. So the idea of the designer baby is a very powerful idea in public culture, but for people who are actually having PGD it's a very offensive idea because they are not trying to have designer offspring they're trying to prevent a child suffering the consequences of a known and usually lethal genetic condition.

Nigel Warburton: *If somebody's known to have an inherited condition which could be prevented, that's very different when you intervene from somebody deliberately trying to engineer a particular kind of person in the petri dish.*

Sarah Franklin: Yes, that's quite true. They're very different things, I personally think one of the unfortunate things about the huge amount of emphasis on enhancement and on genetic engineering and the *Gattaca* type scenario is that it makes it much harder for us to learn what is actually going on. And the future of all of these fields of bioscience, biomedicine, and biotechnology, is going to be about difficult decisions. It's going to be very hard to know what's right and in a certain situation where for example, you know, it may be possible to replace the islet cells in young people

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suffering from diabetes but, you know, it might actually be very dangerous and experimental for a long period of time until that works. And how should we know whether it's right to subject children who have a survivable illness to some form of new medical therapy that could substantially increase their quality of life, but could also do the reverse? And these sorts of questions are going to occur time and again in all different walks of medicine and science, and the people who are undergoing treatment now are arguably some of the most knowledgeable people about what those decisions involve. Not just practically, or medically, or clinically, but ethically. And one of the reasons why sociology is an important counteractive to the predominance of traditional bioethical ways of thinking about these questions which often emphasise things like autonomy, and the right to know, the right not to know etc., which are important questions of course, but they are not the only questions. The question of how do you make sense of a technology that gives you a great deal of extremely precise knowledge and information but no clear indication whatsoever about how to incorporate it, how to act on it, how to decide who to consult etc. Those sorts of difficult situations are what are being mapped by sociologists and anthropologists in this area, and it would be a great contribution to widening the public debate on these issues if those kinds of studies could have a larger role. These would be the media representations, the bioethical debates, and so forth, and I think that that's one of the main aims of this area.

Nigel Warburton: *And does that involve individual case studies as well as looking at broader trends?*

Sarah Franklin: Yes. It involves individual case studies, it involves participating in public consultations and debates, and it involves the kind of fieldwork I do where I'm sitting in the clinic and there are clinicians and the scientists and the patients and whoever is around, are going to come talk to me partly because I'm not a clinical professional, I'm not a patient, I'm not a scientific professional. I'm a person who's there as a social scientist, I'm a person who's there working at an effort of social description, working at a level of social analysis, working at an effort to think about these questions. and to make that thinking part of teaching, part of research and so forth. So that's really the work we are trying to do.

Nigel Warburton: *Would it be fair to summarise that as saying that you are trying to make sense of what's happening?*

Sarah Franklin: Yes absolutely. Trying to make sense of it, and I often thinking of it as an exercise of collection. I'm trying to make sense of it by finding out how other people make sense of it. And with that archive of different representations of the dilemma that I've collected, I then try to represent back the knowledge that I've found. So my knowledge is really in conversation with other people's knowledge, and it's producing a different set of resources, really, to bring to the question of how to think about these questions and then how to resolve them.

Nigel Warburton: *If what you are doing is curating other people's experiences and describing situations, it's not obvious that will change social policy because it seems relatively neutral.*

Sarah Franklin: Well that's quite right. And one way to describe the particularity of a sociological expertise would be that you are looking at the causes of the causes. So we have an idea of what the causes of, say, ethical uncertainty are about, say, about a topic like cloning; but one thing the sociologist does that is quite different from what a clinician or policy maker does, is they don't just go in and say 'Here's the problem how are we going to solve the problem?', they say 'How did this definition of the problem come to be the definition of the problem that we are using to define this problem?' For example, the problem with cloning isn't necessarily 'Will humans be cloned?' In fact, it's entirely possible that humans may have been accidentally cloned already by various types of reproductive technology, and, technically speaking, the Dolly technique doesn't involve cloning because it involves a combination of different kinds of cells; whereas 'cloning' comes from the Greek word for twig. Cloning comes from viticulture because a fruit tree won't reproduce true unless you take a cutting. If you plant the seed of a grape it won't grow the same kind of grape: it's only if you take a cutting of a vine that you can get an exact replica. So cloning, a term from botany means descent from the shared reproductive substance of one parent. That wasn't what the Dolly technique involved, the Dolly technique involved somatic cell nuclear transfer. It was a new means of trying to reproduce large numbers of cells that had a transgenic component. The idea was to introduce a human gene into sheep in order that the missing protein for people who suffer from a rare genetic disease could be extracted from the animal's milk. So really the questions we might want to ask about Dolly the sheep are quite old questions about reproduction and manufacture, and in a way how reproduction is becoming a form of manufacturing. Those are the kinds of questions that would be pertinent to the technique of making Dolly the sheep. The question of whether humans should be cloned, which was by far the dominant policy and media question, was, from a sociological point of view, from a historical point of view, not really the right question.

Nigel Warburton: *Well, then there's an interesting sociological question about why those sorts of questions get a grip on the media and other more accurate representations of what was going on don't.*

Sarah Franklin: I want to read the book on that. I really do want to read the book on how certain definitions of the problem become so widespread in the media, and what's the sociology of that.

Nigel Warburton: *I was intrigued that you talked about 'manufacturing' as part of the technology of cloning. I didn't quite understand what you meant by that.*

Sarah Franklin: Well, I suppose one of the really interesting things when you are in a lab where reproductive cells are being manipulated and handled and literally being rebuilt, is that you are reminded of very traditional artisanal crafts. We associate something like the Dolly technique with a very high tech, future orientated science, which it is. But actually in the labs where those cells are being manipulated people are, for example, making their own pipettes, they're making their own glass tools by hand over a tiny little forge, they will describe their tools elaborately. It's one of the best questions to ask in a lab: 'Why are you using that pipette?' because you'll get a very long explanation of why exactly the tip is the shape it is, and how they really prefer that to other ones, and what they are going to do with it. And all of this work is meticulous handiwork, really, that reminds us that although biotechnology is associated with new forms of commodification of the human, new bio-commodities, and so forth, it's at a very early stage, it's really almost like agriculture before capitalism. It's like a very early form of capital, that's literally being handmade before it becomes scaled up. What we're seeing with IVF is we are seeing the scaling up stage. We're seeing it become franchised, we are seeing hedge funds invest in it, we're seeing billion dollar industry reach a whole new level of financial scale. And much of the stem cell sector is really prior to that. So I'm also very interested in the making of capital out of living cells. I'm interested in it as a technology, as an economy, and those are the kinds of questions close attention to the lab can reveal.

Nigel Warburton: *What's the most important impact that the sociology of reproductive technology can have?*

Sarah Franklin: I think the importance of what I'm calling empirical ethics would be based on the methods that are used in social science that involve actual conversations with people who are very embedded in a situation, participant observation interviews etcetera, and trying to extract from those observations from that data collection ways of approaching these questions that are based on what the people closest to them experience as the primary ethical issues. For example. it's a very big ethical issue whether or not a clinic has a good freezing program. If a clinic has a really good program for freezing embryos it means that the couples that are undergoing IVF in the clinic have the option to freeze any excess embryos that they have that weren't transferred for clinical purposes, that weren't transferred to establish a pregnancy because you can only transfer one. And so if a clinic doesn't have a good freezing program the option for a couple to give those embryos to research would be in some ways more appealing because they don't have the option of freezing them. That's not an ethical question that you're going to see in a kind of mainstream discussion of what are the key bioethical issues for contemporary in-vitro fertilisation. Because that's the kind of ethical issue that's really only going to make sense if you're in that situation. And the lesson from that is that we really need to think more sociologically about what the ethical questions are, and where they come from. And similarly, we need to think more creatively about where the answers to the ethical questions come from, because they're not all going to come from philosophy, they're not all going to come from bioethics. A lot of them are going to come from people including clinicians, scientists as well as patient, patient groups, as well as sociologists who work in this area, who have had quite complicated conversations about where are the ethical issues, what are they, and what is relevant to

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addressing them. The field in general, the field of sociology of reproductive technology which is now a field that is about 25 years old has helped to provide a different empirical base for thinking about the ethical challenges that are ahead of us and that really is the most substantial contribution of the field. And it will become increasingly apparent I think what a substantial contribution that has been.

Nigel Warburton: *Sarah Franklin, thank you very much.*

Sarah Franklin: Thank you very much it's been a pleasure.

[ends]