1 Introduction

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This volume offers a survey of the practices of reproductive donation and a discussion of the social and ethical issues that these may raise. Our focus is on collaborative, or third-party reproduction. Here a child is not conceived through sexual intercourse by the parents, but rather the conception is likely to take place in a clinic with others involved in providing the eggs, sperm, embryo or sometimes the uterus in which the fetus grows. Typically in collaborative reproduction, roles are separated, so that these third-party progenitors do not become parents and usually play no part in the lives of the children they help to create. Indeed, it is often the case in collaborative reproduction that the children are unaware of the part that others have played. Within the technologies and practices of assisted reproduction, a child can have up to five progenitors: a social mother, a social father, a biological father (sperm provider), a biological mother (egg provider) and a surrogate (gestational) mother.[1]

There are a number of different reasons why people may turn to collaborative reproduction. It can provide a means of overcoming infertility. So where, for example, a man's sperm is defective or not produced in sufficient quantity, or a woman no longer has viable eggs because of her age, gametes (egg or sperm) from a third party can provide a substitute. Without such collaborative reproduction, their only other possibility

[1] This list is likely to be extended very soon to include mitochondrial mothers. Techniques have been developed to transfer a nucleus between eggs. This can be used to avoid the transmission of mitochondrial disease by a mother to her children. The nucleus of a donor egg is replaced by the nucleus from an egg from the mother who suffers from mitochondrial disease. The hybrid egg is then fertilized in vitro and the resulting embryo is placed in the mother with mitochondrial disease. Normally mitochondria are transferred from mother to child in the body of the egg (cytoplasm), not in the nucleus, so that through the use of nuclear transfer between eggs the child will have healthy mitochondria from the woman who provided the egg but nuclear genetic material from the mother. In the UK this technique has been used experimentally but it has yet to be approved for use in fertility clinics.

of having a child would be to adopt. The main difference, obviously, is that an adopted child is not a blood relative of either parent.

Some people may use egg or sperm donation as a way of avoiding the transmission of a genetic disease to children. There are ways of achieving this that avoid the use of collaborative reproduction, such as prenatal diagnosis and termination of affected pregnancies or pre-implantation genetic diagnosis and embryo selection. However, these alternatives are not always applicable and they may also be rejected by the would-be parents for moral and psychological reasons. Nevertheless, the use of egg or sperm donation for this purpose is becoming rare.

There is an important underlying factor in couples' choice of procedures in assisted reproduction: using gametes from others is usually a last resort that is only contemplated where there is no possibility of a couple having 'their own' child conceived with their own gametes. This has driven the uptake of new (expensive and invasive) techniques in the treatment of male infertility. Intra-cytoplasmic sperm injection (ICSI) is a procedure in which a single sperm, which may be surgically extracted from the testes, is injected into an egg to effect in vitro fertilization and so avoid problems with low sperm counts or non-motile sperm. ICSI was first used in Britain in 1992 and records show that as the use of ICSI increased, the use of sperm donation declined. In 1992 there were 25,000 donor insemination clinic treatments. By 2002 this had fallen to about 5,000 but by then there were over 15,000 ICSI procedures carried out (HFEA, 2006).

But while the use of sperm from others for treatment of infertility may have declined, it has become increasingly important in a number of countries, including the UK and USA, for baby-making by those who do not have an appropriate reproductive partner. This includes single women (Graham and Braverman, Chapter 11) and lesbian couples (Appleby, Jennings and Statham, Chapter 12). Gay men, of course, need a woman to carry the pregnancy as well as an egg donor. While the same woman can do both, many gay couples in the USA seem to prefer to separate these two roles and use in vitro fertilization (IVF) with an egg donor and surrogate mother, rather than insemination of the surrogate mother.

Surrogacy comes in two forms, often referred to as full or partial (Braverman, Casey and Jadva, Chapter 16). Full, or gestational, surrogacy is where IVF is used with the gametes of the commissioning parents – or a donor(s) – and the resulting embryo is placed in the surrogate mother, who carries the pregnancy and hands over the baby after the birth. In partial, or genetic, surrogacy the surrogate's own egg is used and the pregnancy is usually achieved by artificial insemination. Unlike

full surrogacy and sperm donation, egg or embryo donation require the use of IVF to achieve a pregnancy and that technique is but a generation old, with its beginning marked by the birth of the first IVF baby in July 1978 (Edwards and Steptoe, 1980).

With the involvement of third parties, collaborative reproduction is disruptive of the social order of sexual reproduction and it has often been seen as transgressive (Haimes, 2000). Today in many countries and jurisdictions some or all of the practice of third-party reproduction is subject to restrictive regulation or is completely outlawed (Gürtin and Vayena, Chapter 5). There are those who object to the complicated relationships that are created and claim that the well-being of children can only be assured by banning all forms of reproduction that result in children growing up apart from both their biological parents (Karnein, Chapter 4).

Concerns and controversy are often focused on questions of legal and social parentage in collaborative reproduction and the status of the third parties in relation to the parents and resulting children. There is also the issue of the character of the transaction between provider and user of the gametes or embryos. Throughout this book we refer to reproductive 'donation'; however, we are not always discussing gifts. In some societies sperm and eggs are bought from the providers and sold to users, and surrogate mothers are paid for their services. But in other parts of the world there is at least an ideal that gametes (like any other part of the body) are beyond commerce and should only change hands as part of a virtuous gift relationship. If there is payment, regulations often limit this to the reimbursement of expenses (Pennings, Vayena and Ahuja, Chapter 9).

There are international declarations and directives that prohibit commercial trade in gametes or embryos (and other human tissue). The European Union Tissues and Cells Directive (2004) requires voluntary donation without money changing hands except payments that are 'strictly limited to making good the expenses and inconveniences of donation'. While some bioethicists write of the perils of commercialization and commodification, others contest the whole concept of market inalienability. Much more could be said about the gift relationship (Titmuss, 1971) and commercialization, but here we will follow common usage and, throughout the book, the term 'donation' will refer to the process by which sperm, eggs and embryos are provided for users regardless of whether this is an altruistic gift or a commercial sale.

Another major ethical issue that runs through many considerations of reproductive donation concerns the welfare of the children who may result: should these children be told of the manner of their conception?

Do children have a right to know? What are the consequences of secrecy or disclosure? Should children know the identity of their donor parent? Should it be possible for them to meet and perhaps form a social relationship? And does the same go for donor siblings who may be born in other families who have used the same donor? A couple of decades ago secrecy was the general rule and it was argued that this would protect the welfare of children. Sometimes, of course, children who are not told of their origins may discover this – perhaps through another family member who knows what has gone on. In addition, today there is a growing trend to end anonymity in donation and provide systems through which adult children of donation can discover the identity of their donor parents.

The technique of DNA paternity testing, combined with access to large databases, has raised a new possibility of identifying an 'anonymous' sperm donor. In 2004 a 15-year-old American teenager who had discovered he was a donor child tracked down his donor (Motluk, 2005). He sent a sample of his DNA to a commercial firm (Family Tree DNA) for analysis and to see if anyone on their database might share his paternal blood line. There were two matches and both people had the same surname – so it was likely that this would be his father's name. From his mother, he learnt the date and place of birth of his anonymous donor father. Using another online search company, he was able to purchase a list of all those born in the same locality on the same date. One of these had the same surname as his two DNA matches. Within ten days, he had made contact with his donor.

Today there are also websites where donor families and donors can post details that can be used to identify families who have used the same donor as well as the donors themselves (Freeman, Appleby and Jadva, Chapter 14). In the USA linking is usually done through the unique numbers that are assigned to donors and that are known to recipients. However, discussions are underway about the possibility of setting up new databases that hold DNA from donors and recipients, which would allow direct linking without the use of any other information from either party. So people are finding new ways of unravelling the secrets of collaborative reproduction. Today, the notion of an 'anonymous' donor must be regarded as an increasingly provisional category.

History may often help to illuminate the present and so we will turn briefly to the history of artificial insemination. It is a history which is not only significant for the continuing resistance to any acceptance of reproductive practices which include third parties, but one which also included rather different interpretations of these practices than those

found today. Significant objections to artificial insemination were often based on the relationship between the parents and the donor rather than the manner of conception itself.

There are accounts of the medical use of artificial insemination from the eighteenth century in Britain. By the end of the nineteenth century, at least a few doctors in France, the USA, Britain and doubtless elsewhere were treating problems of male infertility using either husband's sperm (so called homologous insemination) or occasionally donor sperm (heterologous insemination). In 1887 this had provoked a *non licence* from the Sacred Congregation of the Holy Office of the Vatican (Schellen, 1957; Bartholomew, 1958; Pfeffer, 1993). But there were also those who saw that reproduction that did not involve a sexual relationship could be put to new social purposes.

In Australia, Marion Louisa Piddington proposed 'scientific' or 'celibate motherhood' through artificial insemination by donor (AID) for widows and single women unable to find husbands because of the casualties of the First World War, which were particularly heavy for the Australian army (Louis, 1916; Curthoys, 1989; Richards, 2008). The plan included establishing a governmental 'Eugenic Institute' to run the scheme, selecting desirable superior donors and providing the mothers with an allowance to support them through the child-rearing years. The Institute would hold records of donors and births, and the 'scientific children' would require the permission of the Institute to marry to avoid the possibility of intermarriage of donor siblings – a possibility that continues to trouble some detractors of secret artificial insemination (AI) to the present day. In a society where the Catholic Church had a strong influence, the proposal found little support. But one who did offer support was a Sydney doctor, Henry Waterman Swan (one of a handful in Australia at the time who provided AID for his patients), who wrote an anonymous pamphlet, 'Facultative Motherhood without Offence to Moral Law: Every Woman's Right to Motherhood' (Wyndham, 2003). But while this doctor might have believed that AID would remove the moral offence of single motherhood, few others accepted the argument and were very critical of what the press called the 'conscription of the virgins' (Wyndham, 2003). Interestingly similar suggestions were made in Britain after the Second World War. C. O. Carter, who ran one of the first genetic clinics in the UK, suggested that 'there will be a number of young widows of a good type who have only been able to have one or two children before their husbands were killed' who should use AID to expand their families. (Carter, 1945: 130). The USA National Research Foundation for Eugenic Alleviation offered a kind of reproductive lease lend to Britain with a proposal for clinics in London where American

semen from prime donors could be available to British women (Pfeffer, 1993).

In the 1930s a number of eugenicists familiar with AI – not least from its wide use in agriculture – saw the potential for eugenic enhancement of 'test tube babies', as some called them (Rohleder, 1934), who were conceived without the complications of a sexual relationship. Brewer (1935: 122–3) suggested 'generation without antecedent sexual union', or 'eutelegenesis', could be applied to human populations 'by using the germ cells of a few highly selected males to impregnate the general body of females. Such a process might produce a great and rapid improvement in the hereditary qualities of the race.' The proposed scheme would enrol volunteers. 'Eugenic advance must be the voluntary adventure of free men and women or nothing' (Brewer, 1935: 124).

An American Nobel Prize-winning geneticist, Hermann Muller (1935), made similar proposals. Like Brewer, Muller thought that positive eugenics need not wait for the development of techniques for ectogenesis (in vitro fertilization) and eutelogenesis (AID) would be a good start. While Brewer's proposal led to little more than some anxious discussion within the UK Eugenics Society, Muller's proposal did lead to the setting-up of a sperm bank, but not for another forty-five years (Richards, 2008). The Californian Hermann J. Muller Repository for Germinal Choice opened its doors for business in 1980. This was a sperm bank that offered sperm from selected males (including a few Nobel Prize winners) to selected couples. This 'genius factory' traded for nineteen years, over which time some 215 babies were born (Plotz, 2005).

Aside from these eugenic proposals, the practice of AI grew very slowly in Britain between the First and Second World War. There was a handful of doctors who offered AID to infertile couples, and, possibly, the occasional 'bachelor mother'. Some people encouraged infertile couples to do it for themselves. Marie Stopes, the birth control and sex education pioneer, told wives whose husbands might be sterile to 'avoid expensive doctors … and arrange the whole matter with [their] husband and do it [themselves]'. They were advised to enlist the help of their husband's best friend or a relative as a donor and were given detailed instruction on self-insemination (Richards, 2008). This shows that the use of intrafamilial donors, although still considered problematic at present, is not a new idea (Vayena and Golombok, Chapter 10). One medical practitioner who ran a clinic for the treatment of sterility in Exeter in the 1930s found that about a quarter of those whose husbands were sterile would opt for AID and about two thirds of these were successfully inseminated (Church of England, 1948).

In 1948 an expert advisory committee set up by the Archbishop of Canterbury reported and called for the criminalization of AID (the

practice of artificial insemination by husband, or AIH, was found acceptable) (Church of England, 1948), but these recommendations were never acted on. Indeed, as the availability of illegitimate babies for adoption decreased in the post-war years, there was more interest in AID from infertile couples. But while there continued to be a few clinics that offered it (outside the National Health Service), official attitudes were slow to change. In 1960 a UK Government Departmental Committee (Feversham, 1960) recommended that while AIH was acceptable, it was suggested that AID should be strongly discouraged 'as it may well disturb the harmony of society': 'We think the fact that through the need for secrecy the donor must donate in complete ignorance of the identity of the recipient of his seed indicates a lack of responsibility on his part.' However, by 1968 the Minister of Health had agreed that both AID and AIH should be available to patients in the National Health Service. Another important landmark was the Family Law Reform Act of 1987, which made AID recipients and their partners legal parents and removed all rights and duties of fatherhood from sperm donors. This also covered egg and embryo donation, which became available in the late 1980s. In 1990 there was the Human Fertilisation and Embryology Act, which regulated assisted reproduction, including donation, under the Human Fertilisation and Embryology Authority. In the early 1990s, over 40 per cent of children conceived in fertility clinics (the majority being for-profit clinics in the private sector rather than the National Health Service) were the results of donor treatment and this was mostly sperm donation (e.g. 1993: 2,283 sperm, 169 egg and 35 embryo donations). At the beginning of the twenty-first century, that proportion had dropped sharply – only 10 per cent in 2006, despite the increase in treatments for single women and lesbian couples, and by then egg donation was almost as common as sperm donation (2006: 693 sperm, 562 egg and 74 embryo donations) (HFEA, 2006).

Of course, every country has its own history of assisted reproduction (Glennon, Chapter 6; García-Ruiz and Guerra-Diaz, Chapter 7). AID developed earlier and more widely in the USA than in the UK. By 1941 a US survey of doctors claimed that at least 9,580 American women had been impregnated by artificial means (Seymour and Koerner, 1941). In 1948, the year in which the UK Archbishop's Committee had advised criminalization, AID made its first appearance on the big screen in America in a movie entitled *Test Tube Baby*[2], which told the story of

[2] The title comes from the title of a book published in 1934 (Rohleder, 1934). The term became widely used especially in the USA as a term for AID. But following the birth of the first IVF baby in 1978 the phrase resurfaced as a description – probably intended to be pejorative – of IVF children.

a successful use of AID by an infertile couple. At the time there were many reports in the press about test tube babies. It has been argued that the increasing use of AID was associated with the developing autonomy of women, which was related to their efforts to gain control over their bodies through the separation of sex and procreation by the use of artificial methods of birth control. This, combined with the historical circumstances of the Second World War, acted to weaken moral inhibitions regarding AI. Despite continuing uncertainties about the legal status of AI children and parents, physicians involved in infertility treatment took a major role in encouraging the use of AI (Bernstein, 2002).

The USA also pioneered the commercial cryobanking of sperm with the first sperm bank opening in 1972. By 1992 this was a $164 million a year industry dominated by a few very large operators (Mamo, 2005). These companies offered extensive catalogues giving detailed descriptions and photos of donors, which may now be viewed online. Two types of donors are offered: identity release and anonymous. Donors are carefully screened and are typically contracted for 9 months or 1 year, over which time they are expected to donate weekly. They are only paid for donations that reach specified quality standards. Because of the difficulty of freezing, eggs are not banked, but companies offer similar catalogues with donor characteristics. Only when an egg donor has been selected (and usually would have met the customer) is the process of ovulation induction started and eggs later collected.

To conclude this brief history, we will present a comparison of the reports of the two UK expert committees that investigated artificial insemination in 1948 and 1984, as these represent not simply the changing moralities of these two periods, but also the different ways in which collaborative reproduction was seen and the rather different anxieties it raises. These committees were very similar in their composition, both made up of expert professionals: medics, Christian theologians, lawyers, social workers, but significantly in the case of the later committee, a biological scientist. The 1948 committee was appointed by the Archbishop of Canterbury and chaired by the Lord Bishop of London, J. W. C. Wand (Church of England, 1948), while the later one was a government committee chaired by an academic philosopher Mary Warnock (Warnock, 1984). Both sought evidence rather widely from professional bodies, practitioners and interested parties. But while Wand was confined to artificial insemination, Warnock's brief was wider, to cover all of assisted reproduction, which by then, of course, included IVF, as well as sperm, embryo and egg donation (the first live birth from egg

donation had taken place in Australia by the time the report was written) and embryo research. While Wand declared that AID for single women was beyond their remit (but nevertheless reported that 'problems of the gravest possible character would inevitably arise in the case of insemination of unmarried women'), Warnock's committee stated explicitly that access to treatment should not be based exclusively on the legal status of marriage. Wand concluded (with one dissenting voice) that 'the evils necessarily involved in artificial insemination (donor) are so grave that early consideration should be given to the framing of legislation to make the practice a criminal offence'. Warnock did set some limits, but basically constructed a detailed specification for the provision of fertility treatment within a legally regulated system. Indeed, such a system was set up under the terms of the 1990 Human Fertilisation and Embryology Act with a quango (the Human Fertilisation and Embryology Authority) in control, licensing both the commercial clinics and those of the National Health Service. Both reports list pros and cons for AI, but while Wand considers eugenic implications, Warnock is silent on eugenic matters. Warnock provides only a brief dismissal of Wand's major preoccupation and reason for criminalization: the issue of adultery. A contemporary reader might wonder what adultery has to do with collaborative reproduction. However, Wand considered the issues of AIH/D in terms of a view of reproduction as the coming together of bodies and so the relationship of those persons. Thus AID is symbolically the coming together of donor and recipient. We may contrast that with the Warnock symbolism of gametes fusing, which is represented as the image of a human egg – detached from any body or person, in vitro – surrounded by sperm, one of which will penetrate the egg and effect fertilization.

The Wand committee expressed 'profound compassion [for] married women who long for children'. Indeed, they received 'eloquent testimony from a number of married couples to their joy in the new baby and the increased happiness of their marriage'.

However, ends cannot justify means and their final conclusion was that AID was not morally acceptable:

> Artificial insemination with donated semen involves a breach of the marriage. It violates the exclusive union set between husband and wife. It defrauds the child begotten, and deceives both his putative kinsmen and society at large. For both donor and recipient the sexual act loses its personal character and becomes a mere transaction. For the child there must always be a risk of disclosure, deliberate or unintended, of the circumstances of his conception. We therefore judge artificial insemination with donated semen to be wrong in principle and contrary to Christian standards (1948: 58).

For the Wand Committee, there were both legal and moral issues of adultery. Lawyers on the Committee were of 'no doubt at all that the act of both a married "donor" and a married recipient constitute adultery', following UK (*Russell* v. *Russell*, 1924) and Canadian (*Orford* v. *Orford*, 1921) jurisprudence.

Unlike the Wand committee, there were those who saw the process of reproduction separate from that of sexual connection. Indeed, for them that was exactly the point. For example, it was no accident that a radical like Piddington, who argued for 'scientific motherhood' by way of AID, was also a feminist birth control and sex education activist. She saw that sexual relationships could be separated from procreation, not simply in practice by the use of birth control, but also in terms of a symbolic scientific understanding of conception. So she saw AID, not as a conjugal act of intercourse, but as a means of conception – so it could provide a path to motherhood 'without sin'. In a similar way later eugenicists, such as Brewer, regarded it as a way to improve the race without compromising marriage or marriage choice.

The subject of investigation for the Warnock committee was the 'alleviation of infertility' and the means by which this might be achieved. The committee was able to give short shrift to the adultery argument – helped no doubt by judges who had some time earlier in a Scottish case (*MacLennan* v. *MacLennan*, 958) decided that AID, even in the absence of the husband's knowledge and consent, did not constitute adultery:

> Some go so far as to suggest that the introduction of a third party into the marriage means that AID is in fact comparable to adultery, and that it violates the exclusive physical union of man and wife, and represents a break in the marriage vows … [But] AID involves no personal relationship between the mother and donor at all, and the identity of the true father of the AID child will normally be unknown to the mother, and unascertainable by her. In most cases it can be assumed that the mother's husband is willing from the start to treat any resulting child as his own and merely as an accepted 'child of the family' (Warnock, 1984: 20–1).

So for the Warnock committee there is no relationship between donor and recipient: instead a need for 'absolute anonymity' that protects 'all parties not only from the legal complications but also from emotional difficulties'. But the report does recommend that 'at the age of 18 the child should have access to basic information about the donor's ethnic origin and genetic health', but not, of course, the donor's name. There is also concern for the welfare of the children and the Committee concluded that practice should not be 'left in a legal vacuum'. They recommend that the donor should have no parental rights in relation to the child and that these should pass to the recipient and her partner.