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Cousin Marriage Transcript

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Statistics

- 20-50% Muslim marriages and 8.5% all births consanguineous
- Cousin marriage prohibited in China and 25 American states
- Permitted California, eastern American states, UK, much of Europe
- 2% babies born with disability, 4% if parents cousins
- 1% Down's syndrome if mother over 40

Family Relationships and the Law since the '60s: Cousin Marriage

Baroness Ruth Deech DBE, Gresham Professor of Law

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The History

This year sees the bicentenary of the birth of Charles Darwin, who was born on 12 February 1809. He was the British scientist who laid the foundations of the theory of evolution and natural selection. After publication of his book *On the Origin of Species by Means of Natural Selection*^[1] it became difficult to continue to defend the exclusive belief that God created the world in 7 days and that man and animals were utterly distinct. His theories are particularly controversial in some parts of the US, where anti-evolution opinions and religious objections prevail. Strangely enough, some of the US states that dislike Darwin's undermining of the Bible story are the very ones that are most likely to prohibit marriage between first cousins, presumably doing so on the grounds of the genetic risk known to exist to the offspring of such marriages. The opposite is also the case: US states that permit cousin marriage are, on the whole, the ones least likely to be persuaded of exclusive biblical truth and the most aware of genetic influences on human health.

Charles Darwin himself married his first cousin, Emma Wedgwood (1808-1896), of the china-manufacturing family, whose business collapsed early in 2009. They had 10 children with a very poor record of survival and health, and Darwin recorded his fears about the inheritance he had given them. His oldest daughter died of tuberculosis at the age of 10; another at birth and another at age 2. Five others were very ill or disabled. One of his sons, Leonard, however, survived to become President of the Eugenics Education Society, and also married a cousin, but had no children.

In 1871 the UK undertook a National Census. Darwin lobbied Parliament to include a question about marriage to cousins. Parliament refused, on grounds of privacy, and Darwin complained about this in his 1871 book *The Descent of Man*.

Eugenics has become a word that sums up the greatest of evils, populations being manufactured to meet a certain ideal physiognomy or intellect, or being killed because they do not measure up to the ideal, or being forbidden to marry certain others or reproduce because there is a likelihood of less-than-ideal children. Fear of this type of forcible manipulation is now so strong that it is very difficult to discuss cousin marriage in an unsentimental fashion. We live in a world of almost totally free reproductive choice, and no limits are recognised save incest (and that depends on its definition) and paedophilia (which also has varying ages of consent within its scope).

Darwin was no exceptional man in marrying his cousin. Albert Einstein married his cousin Elsa Lowenthal. Queen Victoria married her first cousin Prince Albert. Of their 9 children, one had haemophilia and died at 31; two more were carriers and passed it on to their children including Tsarevitch Alexei. Going further back into history, Isaac married Rebekah, his first cousin once removed (Genesis 25) and Jacob married two of his first cousins, Rachel and Leah (Genesis 29).

All over the world, except in the West, it is a common practice. 20-50% of Muslim marriages are consanguineous^[2]. 8.5% of all the births in the world are to consanguineous parents. Obviously it is permitted by the Koran, but uncle-niece unions are forbidden, even though they are permitted to Jews and Hindus. Uncle-niece marriages involve the same amount of inbreeding in the children - 12.5% of the children's genes are identical by descent.

Religions differ in their approach. The Orthodox Church prohibits cousin marriage; the Protestants permit it and Catholics can get a dispensation. The 1981 Marriage Law of China prohibits cousin marriage. In the US, cousin marriage began to be banned at the time of the Civil War, e.g. Kansas 1858, Nevada, North and South Dakota, Washington, Ohio, New Hampshire and Wyoming in the 1880s and Texas in 2005^[3]. It has been suggested that where the western states had to make a fresh start in drawing up marriage laws, they were more likely to confront the issue. Currently 25 States prohibit cousin marriage, including Michigan, Ohio, Pennsylvania and Louisiana^[4]. Some permit it if the bride and groom are too old to reproduce (Utah, Maine and Illinois). Maine requires a certificate of genetic counselling. North Carolina forbids double first cousin marriage, that is, where both sets of parents of the bride and groom are siblings. Cousin marriage is permitted in California, most eastern US states, and in the UK and most of Europe, all being nations that understand the risks in heredity. The frequency of cousin marriage in the US is estimated at about 1 in 1000. All US states ban marriages between uncle and niece, aunt and nephew.

The Risks

To set the risks in context, in the UK 1 in 50 babies is born with a serious disability, such as spina bifida or Down's syndrome, whether or not the parents are related[5]. With cousin-parents, however, there is an increased risk of an autosomal recessive genetic condition. This is because both parents are more likely to carry the same gene with a mutation, inherited from the same ancestor. If one spouse has the mutated gene, there is a 1/8 chance that the cousin will also have it. This gives them a 3-4% chance of an adversely affected baby[6]. If both parents carry the faulty gene, there is a 25% chance that each baby will be affected because he or she inherits the two mutated genes. With each and every baby, there is a 50% chance that it will be a carrier of the mutated gene, although not itself adversely affected. And there is a 25% chance that any baby will be perfectly healthy, neither a carrier nor affected.

The level of risk overall in cousins' reproduction versus the general population is somewhat disputed, but there seems to be a majority of scientific analysts agreeing that there will be twice as many sick children (4% births) in cousin marriage families as in others who are not related (2%)[7]. Depending on one's perspective and whether one looks at the percentage or at the absolute numbers, this is an acceptable or an unacceptable outcome. The death rate in late pregnancy and early infancy of babies of cousin parents is three times greater than that in the general population.

It is a difficult field in which to make estimates, because the statistics about increased risk are only averages, and are different for different populations of cousin marriages. If a population has many cousin marriages, the outcome for this concentrated population may be different from a large diverse population with only the occasional cousin marriage. If the grandparents are related too, the result may be worse. The results may be affected by the poverty of the parents, their lack of understanding of medical risks, and other environmental factors such as very young mothers and short intervals between the birth of each baby. There may also be fluctuations in the willingness to use contraception, carry out prenatal testing and abortion, which would alter the results for babies actually born alive.

After reports about disabilities amongst UK babies of Pakistani-origin cousin marriages, the UK Human Genetics Commission pointed out that although the risk in cousin marriage reproduction is doubled, there is a 1/100 risk of a Down's Syndrome baby being born to a mother over the age of 40[8]. The age of marriage and birth is increasing in Western societies due to women's education, divorce, the drop in the marriage rate and easy access to abortion. The response to this birth defect risk has not been to ban or even disapprove of births to older mothers - on the contrary, they are celebrated, whether by assisted reproduction or not - but to spend more on prenatal screening and counselling, without in any way pressurising women to abort foetuses known to be developing abnormally. People with Huntington's Disease are not discouraged from giving birth despite the 50% risk to offspring. Cystic fibrosis sufferers' children have a 25% chance of being affected, but there is no suggestion that they should refrain from having them. The cry of 'eugenics' would arise if it were otherwise, not to mention human rights and, specifically, the right to marry and found a family and the right to a private life. As a society we have become more compassionate towards the disabled, whether born so or developing in later life, and in the UK the rights of the disabled in education, employment and everyday life are fiercely protected by statute[9].

Cultural Issues

In Britain, there was a protest when Ann Cryer MP, who represents the city of Bradford, which has a large immigrant population, drew attention to the number of disabled babies being born in the city hospitals and called for cousin marriage to be stopped[10]. 55% of British Pakistanis are married to first cousins and in Bradford three-quarters of them. British Pakistanis represent 3% of all UK births but one-third of the children with recessive disorders. 10% of the Birmingham babies (another city with a substantial immigrant community) born of first cousins die in infancy or have a disability. In 2002 in Bradford 42% of all births were to the Pakistani community there. 4.60/1000 were deaf, compared to 1.38/1000 non-Asian babies; 5.48/1000 had cerebral palsy, as against 3.18/1000 of the others. The local estimate was that 75% of the Bradford disabled children had cousin parents, and the rate of cousin marriage in the UK Pakistani community is increasing, for reasons explained below. The average number of children in the Asian UK family is 5.2[11].

According to British studies[12], religion gets in the way of clear thinking about the problem. While women tend to be blamed in the minority culture for being childless or having disabled children, the Muslim view of illness is that it is a consequence of Allah's will and they may therefore approach it with fatalism. According to the Koran[13] they will be rewarded if they accept misfortune as their lot. But they are also anxious to seek cures, and we should recall that centuries ago, Muslim doctors were the most advanced in the world. It is therefore peculiarly frustrating that genetic disorders have no cure. There appear to be conflicting views in Islam about the approach to be taken to diagnoses. If Allah's will should not be opposed, it follows that amniocentesis

should not be undertaken. Other authorities in Islam allow testing but not abortion. Allegedly, the Imams who have come to the UK from abroad are unaware of the genetic problems in cousin marriages. The situation may be compounded by lack of English language skills and education.

The communication and understanding of genetic problems in the immigrant community was very limited, according to the studies. Often the disabilities that existed were attributed to neglect by the medical system and the implications for future births were misunderstood. Where it might be explained that, for example, there was a 1 in 4 chance of each baby being affected by the cousin parents' mutant genes, the message received might be that 1 in 4 babies would be affected, so that if the family already had one affected child, the next three were likely to be healthy, whereas in reality the statistical risk is to each and every baby in turn.

In counselling and medical visits, where say, the wife speaks no English, and the husband acts as interpreter, he may not tell her awkward facts about genetics because he does not want to deter her or worry her, and he may not put her questions to the medical staff when she asks them through him. According to the studies, even where babies had already been born to cousins with autosomal recessive disorders, the immigrant families were planning future marriages with first cousins. They might reject testing designed to avoid marriage to another cousin with the same mutant gene. Indeed, if a potential spouse was known to be a carrier, it would be more difficult to marry him or her to anyone else outside the family, and easier to go forward with the expected marriage to a cousin. Testing and the results might implicate the entire extended family and stigmatise them all, genetically speaking. Thus testing might be rejected or the results, if adverse, not made known to family members who could make use of the information.

Reasons for Cousin Marriage

Why then does cousin marriage continue, in a world of easy travel and communication, where the choice of marriage partners has never been wider? Some of the justifications for the practice go back for thousands of years and some are contemporary and additional. The practice declined in the US and Europe in the late nineteenth century^[14]. More transport and communication increased the range of marriage partners that one might meet, and smaller families reduced the number of cousins available. Greater female mobility and autonomy also contributed to a reduction in the custom^[15]. All of these factors might in due course be expected to lead to a similar decline in immigrant cousin marriages, save for some extra influences of today. The US was in general more hostile to cousin marriage than European states were, and this was associated with increased concern over health and reproduction. It was also the case in the USA (as now in Britain) that cousin marriage was associated with immigrants and the poor, and at odds with freedom of choice, romantic love and integration. There are some contemporary driving factors attached to cousin marriage in the British immigrant community that may well lessen the otherwise inevitable decline.

One is finance. According to the studies, marriage is often arranged as a result of debts and obligations within the extended family, obligations that are seen as more pressing than concerns about genetic disorders. Another is financial support of relatives in the home country. Marriage may be undertaken with a member of the extended family who remained behind when the others emigrated. Once another family member arrives in Britain as a spouse, he may contribute to the support of the remaining family members left behind in the home country and alleviate this burden on the already-settled English members, or even relieve them of it entirely. Considerable sums are transferred every year from workers in Britain for the support of relatives overseas, and this is an important feature of family arrangements.

A third factor supporting cousin marriage is that it provides a ready-made framework of supportive family members for a new immigrant spouse arriving in the UK with no English language skills and little education or knowledge of English society. There is a need for the two families of the newly-weds to get on, since they are all in an unknown country, and they will share similar values and practices. A final factor is the value of being able to sponsor a relative to migrate to the UK as a fiancé or spouse and legally settle here. In the Middle East, cousin marriage is said to underpin clan loyalty and to accompany nepotism. Family loyalty to the extended group is said to counterbalance democracy, which rests on individual choice and rights, and not on family and group rights. Thus widespread consanguineous marriage might be said to be a barrier to integration within the new broader democratic society in which the minority community has settled, and arguably to democracy as we know it abroad. Similar charges have been made against the Jewish practice of intermarriage within the faith, i.e. that it is a way of resisting integration, for good or ill. And there are genetic problems in that community too. The reasons connected with visas, financial arrangements and compatibility of families mean that the practice will be with us for a long time to come and may even increase. Perversely, the more that genetic problems are diagnosed within a family, the more they may be driven to continue to arrange marriages with cousins, for fear of rejection as unfit by outsiders.

The Legal Response

How then should family lawyers respond? A recent American study by the National Society of Genetic Counsellors reported that the risk of genetic problems was only 2 or 3% greater and that there was no need for cousin-parents to have screening additional to that offered to all parents; and that the laws banning cousin marriage should be relaxed^[16]. The report compared the risks to those undertaken by women over 40 having babies, to which I have already alluded. (There is a difference however between the two situations, which goes beyond the statistical. The genetic problems of cousin marriage may well go on to be replicated generation after generation, with accumulated suffering in one extended family, and no countervailing action is likely to be acceptable under current ideology. The one-off Down's Syndrome baby is just that: moreover, there is more than ample warning to women about reproductive risks at older ages, and screening is encouraged, abortion available and IVF, possibly with donor eggs from a younger woman, is an alternative choice. In other words, the older woman is fully informed, given many opportunities to take preventative means and will be affecting only one generation.)

If the American States' ban on cousin marriage were challenged in the Supreme Court they might well be found to be unconstitutional. The state would have to show that it had compelling reasons to limit the right to marry, and that the means are related to the goals. Since the increased risk is not great in percentage terms (although it should not be overlooked that every sick child is an enormous concern) the ban does little to reduce the birth defects in the population overall. American cousins are unlikely today to grow up in the same household, so the instinctive taboo about incest with someone close to you will not be present.

On the other side, however, there are some compelling arguments too. American and British societies are obsessed with the need to protect one's own and others' health and environment. There is constant government attention, and laws, directed at food safety and obesity, the pollution of the environment, smoking, alcohol and exercise. Children are educated about these matters, medical treatment may be denied to those who will not control their health or take exercise, and they may be denied the opportunity to adopt children or undertake IVF. They are the butt of scorn and publicly chastised. Smokers and the obese are targeted by insurance companies, by law and by societal disapproval. Pregnant women are instructed by their medical advisors not to smoke, not to eat cheese, to take folic acid, not to drink alcohol or take common drugs such as aspirin, even when the advice keeps changing, in a way that might make one sceptical of its soundness, there is the expectation that the latest advice must be taken and most pregnant women themselves are eager to take whatever measures they can to safeguard their own health and to give their baby the best possible start to life. This is regarded as perfectly normal. Medical research and books are directed at these problems and the message is that we must take responsibility for our own health wherever we can, because not to do so is a moral failure, given that we understand what are doing to ourselves by unhealthy practices. It is also unfair on our fellow members of society, who have to pay for our medical treatment, or bear the cost in other ways, and because we may become a financial burden on our own families and let down our employers. Indeed, personal health is the fetish of the late 20th century, and we never fail to be surprised when a person who does not smoke or overeat and who took exercise, nevertheless succumbs to some disabling condition.

In this scenario of the informed society choosing to be healthy, risky sexual practice is an anomaly: we are ambivalent about the sexual life. The same attitude is seen in relation to warnings about drug use. There is plenty of information about the medical dangers of taking recreational drugs, but the sanctions in criminal law are relatively light, frequently ignored and occasionally downgraded with considerable publicity. For example, in February 2009 it was proposed in the UK that ecstasy should be reallocated to a less dangerous category in part because it causes fewer deaths in a year than horse riding^[17]. There is more tolerance of drug taking than one would expect in society, given what is known about it, and the severe sanctions imposed in other countries, e.g. Thailand, make an interesting contrast.

Early in the 20th century, and certainly before that age, there were dire warnings about sex before marriage, illegitimacy, adultery, pornography, masturbation, prostitution and homosexual practices, all of which may well have unfortunate consequences but are now tolerated in the name of individual freedom, privacy and happiness. The Edwardians ate all they could, smoked and were not told to take exercise. But tremendous taboos surrounded sexual expression. There has been a complete reversal of attitudes. There was a tremendous campaign about safe sex in the 1980s as a consequence of the identification of AIDS. This may have had some effect and it has abated now, although there are still campaigns and education about safe sex and sexually transmitted disease. There are attempts, more successful in the US than in the UK, to prevent under age sex and teenage pregnancy. On balance, however, almost anything in the sexual arena is tolerated, even though it may have deleterious consequences, and there is no criminal sanction. The exceptions are under age sex, for which

prosecution may be brought, incest with very close relatives (father-daughter, siblings, although the stigma attached to the latter relationship is weakening), and paedophilia. The latter, for some reason, is an exception to the general rule of tolerance of sexual practices and attracts in large measure all the disapprobation and public scourging that used to attend all extra-marital sex.

Rape, forced marriage and polygamy are all theoretically very much disapproved of in the UK, and yet there is some indication that the police and welfare workers are tending to play down the evils of these practices on cultural or religious grounds out of fear of offending a religious or ethnic minority in our multicultural society. There is not true of rape but difficulties of proof and the attitude of juries to victims who know their attackers have made this a controversial category of prosecutions.

In general, arguments about reproductive freedom and fear of being critical of minority practices are preventing society at large from facing up to certain problems. Britain has a Forced Marriage (Civil Protection) Act 2007, which has been widely welcomed but has not so far made much impact, if the newspapers are to be believed, on the apparently widespread practice of taking 16-year-old immigrant community girls out of school to be sent to the country of origin for an arranged marriage, or having to accept one in the UK, sometimes on pain of death. The police have not been as vigilant as might be expected, it is sometimes said, in preventing 'honour killing' (that is, murder by family members of a girl who has in their view dishonoured the family by refusing an arranged marriage or behaving unchastely.)

Prevention

If we believe in self help towards health, in freedom of choice and in using our new-found genetic intelligence, should we not be doing all we can to prevent or eliminate the genetic problems arising from cousin reproduction, short of banning those marriages altogether? Moreover, wider choice of marriage partners helps integration and diversity, which may be why there is so much disapproval of cousin marriage in an immigrant population, if not so much when it occurs occasionally in the majority^[18]. It is a wish to drive integration as well as concern for health that is shaping the reaction of the majority.

I have not entered into any discussion about banning the practice of marriage between cousins, for two reasons. One is that it would continue in any case, and the pair would marry in a religious ceremony, even if that marriage was not recognised by the state. The other is that we live in an era of reproductive and relationship freedom, where formalities matter little and the right of the individual trumps that of society as a whole. The prohibited degrees of marriage hardly matter any more, except where they amount to incest, because a couple may live together without ceremony and be recognised as partners, either in law or in welfare and housing and financial arrangements, and of course socially. Marriage is not important and is declining^[19]. This means that we have lost the ability to give information (or take even firmer action) that is vital for the health of the next generation, because the happiness or convenience of the present generation prevails over the unborn. The only controls being exercised are incest - there is no pressure to be allowed to marry or reproduce with one's own children or siblings, whether by adoption or naturally. It is interesting to note, however, how there has been a sudden (in one century) swing away from approval of one type of marriage (cousin) to another, looser, based purely on romantic considerations without welfare restrictions. Future historians may have difficulty in deciding which was better in the long term.

Illustrating the state we are in is the attitude to one-parent families and same sex parents. Despite the volume of studies showing that children do better in two-parent families and that same sex parents are more likely to separate even than heterosexual unmarried couples, with confusion for children^[20], both UK and US society refrain from any impediment or protection of the children. Children are not educated in school about the vulnerabilities of one-parent families because that might upset the children in class who are themselves being raised this way.

The UK Human Fertilisation & Embryology Authority Act 2008 revised the Act of 1990 with the same title in two socially (as opposed to scientifically) significant ways. First, it removed the requirement in s.13(5) of the 1990 Act that when a doctor is considering whether or not to offer IVF treatment to a woman or a couple, he or she must consider the welfare of the potential baby, 'including the need of that child for a father'. That phrase was a compromise reached during the debates in 1990 between those in Parliament who thought that every individual should be entitled to IVF treatment, regardless of status, and those who would have limited it to stable heterosexual couples. In practice, over the years, increasing numbers of single and lesbian women were receiving treatment, but the very phrase 'the need for a father' was seen as discriminatory by lesbian women. It has been replaced by the need to ascertain that there will be 'supportive parenting'^[21]. This is a meaningless phrase because it is a concept that can only be tested in the future, and cannot be established or refuted at the time of treatment; it is also unlikely that any woman seeking treatment would admit that there was no supportive parenting. This change to the law took place (on a whipped vote) despite the presentation of the evidence that girls and boys perform better,

emotionally and educationally, if their father is present in the family. The contribution of one sex (men) to the upbringing of the next generation was completely written off in principle. The denigration of fathers was inconsistent with other UK government initiatives in the field of paternity - the introduction of paternity leave in employment, the reforming of the Child Support Agency, the pressure on fathers to retain legal and physical links with the child after divorce, and the new requirement for mothers to name the father on the birth certificate.

The other change that was enacted by the 2008 Act was the provision for two women to be registered as parents on the birth certificate of a baby born by use of donor sperm (or naturally) to one woman who has a female partner, even if the non-birth mother has already died or left before the birth^[22]. This new provision undermines the principle of truth in the registration of births and of course the naming of two women on the birth certificate will immediately be seen to be a false record of biological parentage throughout the life of the child and a possible source of embarrassment. Such is our concern for the rights of any one or two persons of any sex to become and be regarded as parents that we have lost any notion of marriage, its definition and formalities, its purpose (except financial) and of how best to raise and protect our children. It follows that it would be anomalous to stigmatise or control cousin marriage in any way.

The counter argument is the one based on our attention to health as a public issue. Since we are expected to take care of our health (albeit that most of us fail to do so), we cannot exclude from this concern the genetic risks of cousin marriages, now that they are understood. There is no reason, one could argue, why there should not be a campaign to highlight the risks, and the preventative measures, every bit as vigorous as those centring on smoking, obesity and AIDS.

The solution has to lie in this approach, coupled with genetic counselling tailored to the special circumstances of the affected families, including language and religion. While there is reluctance to target or upset Muslims over cousin marriage issues, it should be noted that the practice is not religiously mandated, only permitted, so it is not at heart a religious issue, although associated factors, such as abortion and prenatal testing may be. Even there, opposition to testing, abortion and amniocentesis may be a reaction to Western practices, rather than religiously dictated.

The campaign has to start with education of all school pupils at the appropriate age, so that they become aware of the basics of genetics, what it means to be affected or to be a carrier of a mutant gene, what the percentage risk means in terms of each and every pregnancy, and the nature and symptoms of the known autosomal recessive disorders. Then the genetic counsellors, who are already in existence, need training with respect to the populations that they have to deal with. How to get across the language barrier and ensure that all questions and answers are transmitted and received directly and in full by those affected; to consider the need to give advice and convey a clear preference for one course of action over another, rather than always following the approved practice of setting out the facts and leaving the patient to make their own choice. Choice has to be informed. How to handle religious objections to testing and to involve religious leaders (as has happened in the orthodox Jewish community in relation to Tay Sachs testing^[23].) Then there needs to be a widespread and accessible scheme of carrier testing for problems and subsequent matching. Where marriages are arranged, it is possible to test for carrier status and record the results without stigmatising individuals. In the Orthodox Jewish community, young people are screened for Tay Sachs, but not given the result. When a match is proposed, there is checking on a register to ensure that two young people who are both carriers are not introduced. Some variant of this could be possible in cities such as Bradford with a high density of immigrant population.

Screening is available for the more common genetic diseases, such as Tay Sachs, beta thalassaemia, sickle cell disease and cystic fibrosis, each of which affects a particular national group. The problem remains with the more rare and undetectable autosomal recessive genetic diseases which affect the more inbred populations. The availability of prenatal testing should be made known, even though there may be religious or cultural objections to this invasion of pregnancy.

It is important for diagnosed genetic risk information to be passed on to the extended family, once established in relatives, so that it may be used to inform marriage plans. There are social and cultural factors that militate against passing the information on, and it may turn out that the information is kept by the one or two people tested. There are significant ethical factors in the spread of genetic knowledge about the family in any case. That is why public information and education is important, to instil into younger people the need to inquire about their own and other family members' status, without being intrusive or breaching the Data Protection Act or the general rules of medical confidentiality.

Another way forward is the use of preimplantation genetic diagnosis (PGD) in consanguineous marriage. In PGD a normal fertile couple may choose to use IVF when there is a serious risk of a disease in the family^[24]. If that is the path chosen, the embryos created by IVF treatment will be biopsied in the laboratory. The removal of a single cell from an 8-cell embryo a few days after in

vitro fertilisation will enable it to be tested for some, but by no means all, autosomal recessive disorders. Affected embryos may be allowed to perish and only the healthy ones (which may include carriers) will be implanted. The advantage of PGD is a high probability of producing only healthy children (misdiagnosis is a possibility). The disadvantages are the bureaucracy, the testing and treatment time, and expense, and the reduced chance of becoming pregnant at all with a healthy embryo, and the ethical objections. The ethical objections are based on the practice of creating embryos only to destroy them; of giving the message that only non-disabled people are valued and that the disabled should never have been born at all; and of a slippery slope to the production of the perfect child in only one form. In the UK, these arguments were aired and countered in the debates surrounding the passage of the Human Fertilisation & Embryology Act 2008. The decision to carry out PGD and its undertaking are controlled by regulation and guidelines; the eugenics fear is met by public education and the control of the use of PGD in the Act with its limitations; and care and respect for the disabled in society and through legislation has in fact never been more extensive. Most disabled people become so after birth, and the fact that every effort is made to treat or prevent a condition does not mean that the person suffering it is not valued. The counter argument to PGD is that cures might be found for the disability of the child born naturally, and/or he or she might be a genius with a late-onset disease, a Beethoven writing music before becoming deaf, a Mozart before succumbing to a fatal disease at 32. But with the knowledge we have today, a cure for some genetic diseases is unlikely; Beethoven would get his hearing aid, and it is a grave hardship to be born with the knowledge that one has a fatal disease which might have been eradicated, had there not been scruples, but may strike at the time of life when one is most involved with raising a family and pursuing a career.

My overall conclusion then is that when we have knowledge, we should convey it to make sure that choices are made that are beneficial to the family and society. Knowledge should not be withheld for fear of offence. Human rights and religious and cultural practices are respected by not banning cousin marriage, but those involved must be made aware of the consequences. This applies equally to all members of society who have knowledge affecting the future generations that they are responsible for. This may be termed a genetic theory of marriage partnership.

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[21] Human Fertilisation and Embryology Act 2008, s.14

[22] ss.39, 40, 46

[23] *Dor Yeshorim*, <http://www.modernlab.org/doryeshirum.html>, and the Greek Orthodox in relation to beta thalassaemia

[24] Sched. 2, para. 3 of the 2008 Act