IN VITRO FERTILIZATION:
THE ETHICAL ISSUES

BY JOHN HARRIS

Human beings who appear to be attempting to play God attract the sort of hostility usually reserved for Gods who forget themselves so far as to aspire to do likewise. And just as "acts of God" are synonymous with disaster, so acts of scientists can appear disastrously divine. The spectre of Dr. Frankenstein, the representative "mad scientist", is standardly invoked as a dire warning of what to expect when researchers tamper with the ultimate constituents of what matters. However grotesque, there is a certain appropriateness to its invocation in the context of the discussion and speculation surrounding recent work on so-called "test-tube" babies.

The storm of interest and protest that this work has attracted and continues to attract is, as is often the case, not on account of what is being done but for fear of what the work demonstrates can or might be done. The work in question, initially undertaken to remedy infertility, involves the fertilization of human eggs "in vitro" and the growing of the resulting embryos in the laboratory for subsequent transplantation into mothers who have experienced difficulties in conceiving by more economical means. However, two of the leading people in this field, Dr. R. G. Edwards and Mr. Patrick Steptoe, whose work generated the first successful test-tube baby, have pointed the way clearly to new and controversial uses of their work and others have been quick to follow. These controversial possibilities have led the British Medical Association first to condemn such work and to forbid their members to assist, then almost immediately to withdraw the ban and finally to set up an ethical subcommittee to report on the rights and wrongs of all such work. The moral

3 loc. cit.
concern of the Government has also been stirred so far as to establish its own ethical committee, the Warnock Committee, to make a similar report.

For all its innocent beginnings (and maybe endings too) the work of Edwards and Steptoe and others has opened up possibilities and perhaps even more important, public discussion of possibilities,\(^4\) that have hitherto figured, if at all, only in the dreams and discussions of moral philosophers. I shall start in Section I by reviewing what is now being done by researchers in the field of \textit{in vitro} fertilization and indicate what such researchers believe will or may become possible in the relatively foreseeable future. Section II will explore the moral status of the embryo with a view to establishing the permissability of killing such a being \textit{in vitro} or \textit{in vivo}. Section III will examine the question of whether or not experiments on embryos raise different moral issues and require different justification from those involved in deciding whether embryos may be killed or aborted. Finally, in Section IV we will consider whether the possibilities opened up by \textit{in vitro} fertilization constitute a slope so slippery that we dare not step onto it.

I

WHAT'S HAPPENING NOW

At the moment eggs can be removed from a woman and fertilised in a dish on the laboratory shelf. These embryos can then be implanted in a woman so that she can grow them and give birth to the resulting baby in the normal way. About fifty such children have been born to women treated by Edwards and Steptoe. If the embryos are not implanted they can continue to grow \textit{in vitro} (at the moment they have been so grown for up to nine days). They can then be “flattened”\(^5\) for examination, simply thrown away like most aborted embryos, used for experiments and or for therapy (more of which anon), or they may be frozen for future use.\(^6\)

\textit{The Spare Embryo}

Most eggs obtained for fertilization are provided by women who wish to have a child and the embryos are re-implanted in the donor mother. So called “spare” embryos are produced when, usually as a result of fertility hormones being used, women produce multiple eggs which are all fertilised but of which only one (or perhaps two) are re-implanted because of the added risks attached to the prospect of multiple births. The remaining embryos are thus “spare”. Of course other spare embryos could and have been produced deliberately and not as the bonus by-product of a fertility clinic. Indeed many


\(^{6}\) This is the practice in Australia: See Edwards and Purdy, op. cit.
such embryos were produced by Dr. Edwards and other workers in order to test and develop fertilization techniques.\(^7\)

**Permutations**

We should note for the record a number of possibilities that arise. The eventual "host" mother may not be the donor of the egg cell and the donor of the sperm may or may not be known to the donor of either the egg cell or to the eventual host mother. So the possibilities are that because of conceptual problems (though of course not necessarily so):

1. A woman may donate her own oocyte or egg cell to be fertilised either by her husband or partner or by some other donor spermatozoa, for re-implantation into herself.

2. A woman may donate an oocyte for fertilization in any of the above ways for implantation in another woman either so that woman can have "her own" child (perhaps fertilised by her husband or partner) or so that the original donor can (for whatever reasons)\(^8\) avoid pregnancy but still have "her own" baby.

Where a woman accepts a donor oocyte with the intention of giving birth to and bringing up the child as "her own" we might call this "prenatal adoption",\(^9\) where the intention is that the resulting child be returned to the donor of the oocyte (or perhaps of the sperm) it might be called "uterine leasing" or "postnatal parenthood". And of course the baby might go to some "stranger".

**Freezing**

We have almost run ahead of ourselves, but not by very much. The question of whether or not it is dangerous to the embryo to freeze and thaw it is not yet finally resolved, and this is important if the above possibilities are to be realised as we shall see. There have been decades of work on freezing and thawing mammalian embryos and other living tissue and very high success rates are now normal. Indeed, it is standard practice to freeze and "bank" some strains of experimental mice. So that while the prognosis of success with human embryos is very good indeed the problem remains that, as Clifford Grobstein has said, "Ninety per cent success rates ... may be acceptable for laboratory and domestic animals. In humans it is the ten per cent failure rate that is of concern – particularly if these are partial failures, not detectable until after birth or even later in life".\(^10\)

\(^7\) *The Observer*, 3rd October 1982.

\(^8\) She may have a condition that makes birth dangerous.

\(^9\) Edwards and Purdy, p. 360.

But the prognosis for freezing is so good that in Australia for example it is regarded as morally acceptable to freeze spare embryos precisely because, since it may be possible to thaw them later and implant them, this does not amount to killing them.\textsuperscript{11}

We should note also that one of the possibilities adumbrated above, that of donor embryos for "host" mothers, could be achieved "most effectively" with frozen-thawed embryos because these can be held until the uterus of the recipient is in the most receptive stage of the "cycle".\textsuperscript{12} Although such donations are of course possible without resort to freezing.

Finally, freezing generates one further permutation, that of:

(3) \textit{Post Mortem} conception and birth, since frozen egg and sperm may be thawed and brought together after the death of either or both of the donors and frozen-thawed embryos may be implanted after the death of the donors.

IMMEDIATE AND PROXIMATE POSSIBILITIES

Firstly and of course the main use of \textit{in vitro} fertilization techniques is in the treatment of infertility. It is estimated that there are for example 2½ million infertile couples in the United States, seventy five per cent of whom could be helped by the techniques now developed.\textsuperscript{13} But although \textit{in vitro} fertilization techniques were developed primarily to treat infertility many other uses immediately suggest themselves.

Suppose that a young woman were to have eggs removed from her ovaries and fertilised by her husband (or anyone). She could then freeze and store these for implantation whenever career permitted or fancy took and with a supply of embryos in the bank a couple or either one of them could be sterilised without losing the capacity to have children. These may seem frivolous uses to some but they have important effects. For example, since we know that the incidence of Down's syndrome increases sharply in the last decade of fecundity (between 35 and 45) a mother wishing to give birth during these years could \textit{conceive} much earlier when the chances of avoiding Down's syndrome are much higher. But better still, the chances are that it will be possible to check whether the embryo had Down's or other genetic disorders before freezing and implantation and so virtually abolish this risk. Indeed as R. G. Edwards has noted:

Identifying embryos with genetic abnormalities would offer an alternative to amniocentesis during the second trimester of pregnancy, and the "abortion \textit{in vitro}" of a defective preimplantation embryo, still free-living, minute and undifferentiated, would be infinitely

\textsuperscript{11} Edwards and Purdy, p. 361.

\textsuperscript{12} Groebstein, \textit{op. cit.}, page 16.

\textsuperscript{13} \textit{The Guardian}, 25th October 1982. About one in ten women are infertile.
preferable to abortion in vivo at twenty weeks of pregnancy or thereabouts as the results of amniocentesis are obtained. It would also be less traumatic for parents and doctor to type several embryos and replace or store those that are normal rather than having the threat of a mid-term abortion looming over each successive pregnancy.14

Further, there are good prospects15 of sexing embryos which will make it possible for parents to choose to implant "boys" or "girls" in order of preference or in preferential order. It will also be possible to implant only those embryos of the preferred sex. This may have more "respectably medical" uses in that embryos can be screened for sex-linked disorders.

Cell and Tissue Banks

R. G. Edwards was able to report recently16 that "it is now possible to contemplate the use of "tailor-made" embryonic tissue grown in vitro for grafting into adults". The special advantages of this possibility are that "Grafts of embryonic tissue may offer a wider scope than those taken from neonates or adults, because tissue could be obtained from organs which do not regenerate in adults, and the risks of graft rejection can possibly be eliminated".17 Edwards goes on to list a number of specific possibilities that arise.

Foetal tissue can be used to replace bone marrow in patients that have for example been exposed to radiation and foetal liver cells injected into the placenta can prevent the expression of inherited anaemia. It may be also that tissue grafted from neonates may be used to "restore immune deficiencies in old people"18 and a "practical approach to controlling immunological ageing may involve a combination of dietary manipulation, chemical therapy and cell grafting . . . Other recent reports have indicated that pancreatic cells may be used to repair diabetes and cultured skin cells grafted to repair lesions . . . Human amniotic epithelial cells . . . could be useful in repairing inherited enzyme defects in recipient children and adults".19

Further Edwards reports that there are indications that foetal brain tissue might be capable of repairing neural defects in adults and "there are reports that kidney cells may be transplanted into the human brain in order to cure illnesses such as Parkinson's disease".20 "Myocardial tissue . . . should be obtainable from embryos growing in vitro without great difficulty,21 and might be used by cardiologists for repair of the major vessels of the heart.

Finally, there are various indications that the ultimate and most intractable problems of tissue and cell grafting and of transplantation procedures may be

14 Edwards and Purdy, p. 373.
15 op. cit., p. 372 ff. 16 op. cit., p. 380. 17 Ibid.
18 Ibid. 19 op. cit., p. 381. 20 Ibid.
21 Ibid. The pancreas may also be transplanted from the foetus at 20 weeks and may be used eventually to cure diabetes.
solved by methods of in vitro embryology. Edward notes a number of methods for completely avoiding rejection by "tailoring embryos to suit a particular recipient" and lists two strong advantages in using foetal tissue. The first is that "foetal tissue . . . might not be rejected by incompatible donors as strongly as adult tissue" and the second that "Tissues compatible with an adult host might also be obtained through cloning" or by otherwise genetically tailoring matched or compatible tissue.

We have for the moment looked sufficiently far into the future and we must now return to our starting point and ask what arguments there are against the continuation of such work and the realization of these possibilities?

There is only one argument for doing something; the rest are arguments for doing nothing.

Cornford's jibe at academics in 1908 is particularly apposite in considering the case against in vitro fertilization. The arguments for doing nothing or rather for doing nothing of the sort fall into two broad categories. There are the arguments which are all variants of the "slippery slope", the lower reaches of which we have just been examining. The other arguments all turn either on the issue of whether it is morally permissible to kill the embryo, or on whether it is morally permissible to use it or parts of it for our own purposes. We will examine both groups of arguments, attempting the slippery slope last.

II

THE MORAL STATUS OF THE EMBRYO

The two questions to which we require answers before we can decide what an appropriate response might be to the possibilities we have been considering are: when does life begin? and when does life begin to matter morally? It is often thought that the answer to the second question is the same as that to the first but as we shall see this cannot be the case.

When Does Life Begin?

To many it has seemed that conception is the obvious answer to the question when does life begin. Over any rival candidates it seems to have the decided edge that it is an identifiable event from which point the egg begins the continuous process that leads to maturity. But of course the egg is alive well before conception and indeed it undergoes a process of development and maturation without which conception is impossible. The sperm too is alive and wriggling. Life is a continuous process that proceeds unimpeded from generation to generation continuously (or at least sporadically) evolving. It is

not then life that begins at conception. But if not life, is it not at least the new individual that begins at conception?

A number of "things" may begin at conception. Fertilization can result not in an embryo but in a tumour which can threaten the mother's life. This tumour, called a hydatidiform mole, would not presumably be invested with all the rights and protections that many believe spring fully armed into existence at fertilization.

Even when fertilization is, so to speak, on the right tracks, it does not result in an individual of any kind. The fertilised egg becomes a cell mass which eventually divides into two major components: the embryoblast and the trophoblast. "The embryoblast becomes the foetus and the trophoblast becomes the extraembryonic membranes, the placenta and the umbilical cord. The trophoblastic derivatives are alive, are human, and have the same genetic composition as the foetus and are discarded at birth".25

A further complication is that the fertilised egg cannot be considered a new individual because it may well become two individuals. The fertilised egg may split to form twins and this can happen as late as two weeks after fertilization.

Life then is a continuum and the emergence of the individual occurs gradually. At this point it is commonly argued that if life does not begin at conception and if it cannot be said that a new individual human being begins there, at least the potential for a new human being is then present complete with its full genetic makeup in all its uniqueness and individuality. And since the fertilised egg is potentially a human being we must invest it with the same rights and protections as actual human beings.

The Potentiality Argument

There are two sorts of difficulty with the potentiality argument which are jointly and severally fatal to it. The first is that the fact that something will become x (even inevitably, which is not the case with the fertilised egg), is not a good reason for treating it now as if it had become x. We will all, inevitably, die but that is, I suppose, an inadequate reason for treating us now as if we were dead.

The second difficulty is that it is not only the fertilised egg that is potentially a new human being. The unfertilised egg and the sperm are just as potentially new human beings. To say that the fertilised egg is a potential human being is just to say that if certain things happen to it (like implantation) and certain other things do not (like spontaneous abortion) it will eventually become a human being. But precisely the same is true of the egg or sperm. If certain things happen to the egg (like meeting a sperm) and certain things happen to the sperm (like meeting an egg) and certain other things do not (like meeting a

contraceptive) then they will eventually become a new human being. So if we are somehow morally required to actualise all human potential then we are all in for a highly exhausting time.

All that can safely be said of the fertilised egg is that it is live human tissue. Life itself does not begin at fertilization, nor does human life, they both continue. What we need is not an account of when life begins but of when life begins to matter morally and why it matters morally. The question must be what should lead us to accept the embryo or the foetus or the neonate or the child or anything at all as having that range of qualities that makes for personhood? In virtue of what are we morally required to accept something as a person and consequently morally required to refrain from treating it in ways we may not treat people?

**The Concept of the Person**

The concept of the person is a topic for a book or at least a paper of its own. I cannot here hope to develop such a concept.²⁶ I think, though, that sufficient can be said to show whether or not there is good reason to think that the embryo, foetus or neonate are persons, and so see what protections we are morally obliged to afford them, not in virtue of their potential but in virtue of what they are.

It is important to remember that what we need to identify are those features, whatever they are, which both incline us and entitle us to value ourselves and one another and which licence our belief that we are more valuable (and not just to ourselves) than animals, fish or plants. In other words we are looking for the basis of our belief that it is morally right to choose to save the life of a person rather than a dog where both cannot be saved and that this choice is not merely a form of species prejudice, arbitrary but understandable. So the features we are looking for, although they will be possessed by normal mature adult human beings will not simply catalogue the differences between such beings and animals.

A concept of self will not simply be a means of self-justification. For example, the question of whether or not there are people on other planets is a real one. If there are, we need not expect them to look or sound or smell like us. They may not be organic at all and perhaps reproduce by mechanical construction rather than genetic reproduction. But if we are able to answer the question in the affirmative we will be distinguishing people on other worlds from animals, machines or plants on those worlds. We will be deciding

whether the appropriate response to them is to have them for dinner in one sense, or in the other. And if these people are technologically very much our superiors, we may hope to persuade them for the same reasons that we are people, not just like them maybe, but enough like them. But in what respect?

Each of us will have our own reasons for valuing our own lives and each of us is able to appreciate that the same is true of others, that they too value their own lives. What we have in common is our capacity to value our own lives and those of others however different our reasons for so doing may be or may seem to be. These features tell us both how to recognise other beings as people and also tell us why it is wrong to kill such creatures against their will. They are people because they are capable of valuing life and it is wrong to kill them because they do value life.

The wrongness of killing another person is on this view chiefly the wrongness of permanently depriving her of whatever it is that makes it possible for her to value her own life. So that, although each person may find different and unique value in their own life each is equally wronged by being deprived of a life, the continuation of which they value. We can thus see what is wrong with ending such a life without in any sense sharing the values that make it worthwhile. If we discover persons on other worlds we may recognise them as persons and appreciate the wrongness of killing them without in any way understanding “what makes them tick” or what they could possibly value, so long as it is clear that they are capable of valuing their existence.27

Persons – A Definition

A person will thus be any individual capable of valuing its own life. Such a being will, at the very least, be able to conceive of itself as an independent centre of consciousness, existing over time with a future that it is capable of envisaging and wishing to experience.

To take the concept of the person further than this is a task for another occasion. We have, however, come far enough to draw two conclusions. The first is that we require an account of the moral difference between persons on the one hand, and animals, fish, plants and perhaps robots on the other. Such a concept will tell us how in principle we might recognise people when we encounter them. If the concept of the person that I have sketched above is unacceptable, some other such concept that will do the same job is still required. Our second conclusion is that on the concept of the person I have outlined neither eggs, nor sperm, nor embryos nor yet neonates will possess.

27 On this conception of the person neither suicide, aiding suicide nor voluntary euthanasia will be wrong, for individuals, by wishing to die show either that they do not value life or that they value death more. To frustrate the wish to die will thus be as bad as to frustrate the wish to live. We must of course be sure that if we kill people in accordance with their wish to die that all aspects of that act are in accord with their wishes.
the requisite degree (or indeed any degree) of self-consciousness required. But these beings are unlikely to qualify on any other account of what it is to be a person. This is because neither their state of consciousness or any other capacities they possess are relevantly distinguishable from those of many animals.

We can conclude that even if the concept of the person just outlined is rejected, no such concept will be able relevantly to distinguish the moral status of the embryo from that of many animals without the aid of the fatally flawed potentiality argument, and so the prospect of concluding that the embryo shares the rights and protections of normal adult human beings is vanishingly small.

It will also be a consequence of the arguments developed here that since neonates and very young children are not capable of wishing to live, it will be no more wrong to kill them, side-effects apart, than to kill other creatures of comparable capacities like dogs and sheep. The side-effects in the case of neonates and young children are likely to be importantly different than in the case with embryos and since we are here concerned principally with in vitro embryology we will be content simply to note this for the record.

**Abortion**

We should also note before moving on that anyone or any society that permits either abortion or methods of “contraception” which prevent implantation of the fertilised egg, takes the view that the embryo is of less value than the mature human being. It cannot be morally worse to end the life of an embryo in vitro than it is to do so in vivo. Nor can it be morally worse to fertilise an egg in vitro knowing that you will not allow the fertilised egg to be implanted or carried to term than it is to fertilise in vivo with the same attitude to implantation or the prospect of birth. The motives of science are not more obviously corrupt or more frivolous than the motives of sex, so that even without accepting or even considering arguments about the moral status of the embryo, a society or an individual that has concluded that I.U.D.’s and some contraceptive pills are permissible forms of birth control, or that abortion is permissible, either freely or where the disutility of continuing a pregnancy can be demonstrated, must conclude that in vitro fertilisation and the non-implantation of “spare” embryos is also permissible on the same terms. That is, either with the same freedom permitted to the use of I.U.D.’s and other methods of contraception that prevent implantation, or with the same freedom that abortions are standardly performed.29

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28 Of course, one side-effect will be that if their parents wish them to live, they can be wronged by killing their embryo.

29 Around 150,000 abortions are performed in the United Kingdom each year (149,746 in 1979): *Office of Population Census – Abortion Statistics* (1979), AB No. 6., H.M.S.O.
By far the most significant of the new moral dilemmas posed by in vitro fertilization techniques are the questions of experiments on and use of tissue from embryos and the problem of whether such techniques leave us bootless on a slippery slope.

III

EXPERIMENTS ON EMBRYOS

Our investigations into the moral status of the embryo (and I use ‘embryo’ indiscriminately for all stages of development from zygote or blastocyst through to the end of the third trimester of pregnancy) have indicated that the embryo is not a person and that it is not morally wrong to end the life of such a being. Are there any reasons why we should not use the embryo for experimental purposes, for observation or indeed for the provision of tissue or organs in any of the ways described in Section I?

Pain and Suffering

Certainly it does not follow from our conclusion that there is nothing morally wrong with killing an embryo, or that there is nothing morally wrong with doing other things to or with it. For example, we may hold that it is wrong to inflict pain on creatures whom it is permissible to kill and that if they are to be killed we must do so as painlessly as possible. This is, I suppose, the attitude of most people to the killing of animals for food and other human purposes. Where pain is inflicted on such creatures (and where it isn’t for the creatures’ own good, as in most surgical operations) we demand, or we ought to demand, that the gains for humanity are of an importance to warrant the cruelty and suffering involved.

If, as seems likely, the embryo is not capable of feeling pain in the first few weeks of life (probably up to eighteen weeks) because it lacks a sufficiently established nervous system, this reason for not interfering with it cannot apply and it will not for similar reasons where adequate anaesthesia is used. We should also note and be concerned that many abortions are carried out after eighteen weeks and are performed in circumstances that are careless of the pain that might be inflicted on the embryo.

So, although the gratuitous infliction of pain gives us one reason to object to experiments on the embryo, it is an objection that can very easily be met.

Consent

To many people the idea of experiments on living human embryos is deeply disturbing, as is the prospect of using tissue or organs from such beings to save the lives of human persons or to repair disabling defects. But the idea and the wide-spread practice of using tissue and organs from live adults seems to be
far from disturbing. Skin grafts, cornea, kidney and bone-marrow transplants from children and adults to one another are not uncommon, nor of course is the use of cadaver organs and tissue. In each case however the crucial difference seems to be the ability to give and the actual giving of consent.

With live adults and children the wrongness of performing operations upon them and of taking away even "spare" parts against their will is straightforwardly related to the wrongness of killing them against their will and consent will remain effectively the *sine qua non* of such operations.\(^{30}\) However, with cadaver transplants the situation is far from straightforwardly similar. The current practice is to require consent either from the potential donor while alive, perhaps in the form of a will or kidney donor card or suchlike, or to obtain consent from the next-of-kin after death. And by and large people seem to want the obtaining of such consents to be mandatory. Now of course, all things being equal, it is always a good idea not to ignore people's wishes and sensibilities over such matters. However, all things are decidedly not equal.

The necessity of obtaining consent for cadaver transplants costs many hundreds of lives each year in this country alone. Where there is no kidney donor card, for example, the necessity to find next-of-kin and find them in any condition to entertain the question of transplants from their nearest and dearest means that many potential donor organs are lost. Other vagaries of consent can have more disastrous consequences. Following a BBC Panorama programme in 1981 on the subject of transplants thousands of potential donors tore up their cards and the consequent short-fall of donors meant that many hundreds went without the transplants they desperately needed, either to stay alive or to improve the quality of their lives.

*Transplantation Orders*

The dead person cannot be wronged or harmed by the transplant of their organs "against their will" for they have no will — they are not there to be harmed. Is the squeamishness, sentimentality or ignorance of relatives of the dead a sufficiently important value to warrant protection at the cost of hundreds of lives annually?\(^{31}\) The State has the power to order a *post mortem* examination regardless of the wishes of the deceased or his or her relatives and often does so order when there is nothing so important as the saving of a life to be gained by so doing. If the State can order *post mortem* examination of the dead on the slightest of pretexts, where for example there is the vaguest of suspicions as to the cause of death, how much more important and useful it

\(^{30}\) There may, of course, be occasions when even the killing of the innocent (perhaps in war?) is morally permissible, even without their consent.

\(^{31}\) There is an estimated shortfall of 1000 kidney transplants alone. Of course if transplantation orders were to be instituted there would have to be complete confidence in the criteria for brain death and that no life support systems would be prematurely switched off.
would be to be able to order post mortem transplantation! If the ability to use cadaver organs for transplants were automatic there is no doubt that many hundreds, perhaps even many thousands of lives could be saved annually at the same “social cost” that we already (willingly?) pay for judicial certainty as to the cause of death.

If we return now to the issue of experiments with and transplants from the embryo we find related problems and issues. Unlike the articulate child or adult, the embryo cannot give or withhold consent, and this is not just a contingent difficulty about the development of speech, it reflects the fact that the embryo has no self-consciousness at all. If we are justified in killing or aborting the embryo, and do just this, its life will be lost and its death is a useless waste, not of life primarily, though living cells and tissue die, but of life-saving potential. If we can use it to save and ameliorate the lives of persons in being, would it not be both wasteful and morally wrong not to do so?

There are two sorts of problems here which turn on the question of whether the embryo can be said to be moribund or not and on the issue of whose consent is required.

Condemned to Death?

How about the foetus which is not growing satisfactorily or which is cleaving abnormally? Do we regard this embryo as having condemned itself to death . . .? Is it not time that we started regarding these early embryos as collections of cells, and not as foetuses? Those that are not replaced in the mother are condemned to death, just as sperm that is spilt on the floor is condemned to death.  

These remarks of Patrick Steptoe strangely echo those of John Locke:

Indeed having by his own fault forfeited his own life by some act that deserves death, he to whom he has forfeited it may, when he has him in his power delay to take it and make use of him for his own service; and he does him no injury by it. For whenever he finds the hardship of his slavery outweight the value of his life it is in his power by resisting the will of his master, to draw on himself the death he desires.  

Although Locke was referring to slavery the principle to which they are both appealing is the same, that death is wasteful and that when you are justified in ending a life you may also be justified in forbearing to take that life and making use of it instead. Of course, the issue of slavery is much more complex and for Locke the morality of the decision is in part determined by its being preferable to the slave, given a justified alternative of death.

32 Edwards and Purdy, p. 364.
But Steptoe is surely right to suggest that if the embryo is moribund it is morally preferable to use it to save or benefit life than simply to waste both the embryo and the lives it might save or ameliorate? But is the spare embryo rightly to be thought of as “condemned to death”?

Certainly if the embryo is not to be implanted either now or in the future then it is condemned never to become a person (if it is frozen indefinitely it may perhaps not be straightforwardly moribund either).34 But might not a host mother be found or come forward to give the lie to the claim that the embryo is either moribund or condemned to refrigerated limbo? For if a woman were to say “You may implant that embryo into me, I will carry it to term” then, although the embryo might have been “condemned to death”, an eleventh hour reprieve seems possible.

Where such an eleventh hour reprieve appears it will not of course be true that the embryo will inevitably die and if it will not die it cannot be claimed that its organs and experimental possibilities will go to waste. But of course if it is not morally wrong to kill the embryo, then it may be killed despite the appearance of such a reprieve; and if it is killed in these circumstances then unless the organs and so on are utilised to benefit lives in being, they will be wasted. It would only fail to be permissible to kill the embryo in these circumstances if one could not do so either without the permission of any would-be repriever or unless other consents are necessary.

Consent

Who has the right to determine the fate of the embryo fertilised in vitro?

In the case of a normal pregnancy there is of course no question of aborting the foetus against the will of the mother; this is partly because such a course would involve a physical assault upon the mother. Now if this mother has an abortion, who is to determine what happens to the aborted foetus? If for example medical researchers want the foetus for experiments, is the mother’s consent required? We are inclined, I suppose, to think that the answer to this question is “yes”. Who else if not the mother should decide such an issue? But suppose the foetus were aborted alive, late in pregnancy, and could survive; should the mother be asked whether she wishes it kept alive or not? We cannot answer this question without knowing whether or not we are morally obliged to save the life of such a foetus. If we are obliged to save its life, if we are not entitled to kill it, then the mother cannot give the licence that morality will not grant.

If, as has been the argument of this paper, we are not morally required to preserve the life of such a foetus then again, why should we turn to the mother? Has she not already abdicated responsibility for the foetus by opting for abortion? We should turn to her only to see whether this is so. And of course if

34 See Edwards and Purdy, p. 362, where Trounson makes use of this very point.
she hasn’t thus abdicated responsibility for the foetus, perhaps because the abortion is being performed to preserve her own health and not because she doesn’t want the baby, then the case is different. In this case, if the foetus can live it must be restored to the mother – this will be a case of premature birth.

Where the aborted foetus cannot live or is already dead, again why should we turn to the mother for a decision as to what should be done with the foetus? If experimenters ask her for and are given permission to experiment on the foetus this permission will not absolve them from the responsibility of deciding for themselves whether such a course of action is ethically sound. And if she withholds permission, we must ask what gives her the right to decide that others should not benefit from the research or from transplantation? This would be another case for transplantation orders.

Property Rights

The only candidate for such a right vested in the mother is the claim that she has a property right in the foetus, deriving presumably from a view about the ownership of things growing either inside or on the surface of one’s own body. This might well seem to be obviously the most basic and the most secure form of ownership possible. But there are obstacles to the idea that the foetus is owned by the mother simply in virtue of its growing inside her. There seem to be powerful exceptions to the general theory that such things are simply owned by the “owner” of the relevant body, at least in any absolute sense. For example, deadly and infectious viruses and so on may grow on or in someone’s body but it is not clear that they are owned in any sense that would preclude society’s right to kill or otherwise dispose of them against the will of the “owner” where the social utility of their destruction is clear. It is also worth noting that any claim that the mother owned her foetus would seem to confirm that it cannot be considered a person because, since the abolition of slavery at least, it is generally agreed that persons cannot be owned.

We may conclude that even in the unlikely event of our being satisfied that the mother’s relation to the embryo or foetus is one of ownership, we are not forced to accept that we may not vary such property rights where, as in the cases we are considering, there are clear gains in terms of lives to be saved and improvements to be made in the quality of lives in being.

To sum up this discussion of the fate of the embryo, the situation seems to be that where the foetus is aborted and can survive, then if the mother wants it to live it must be treated as a premature birth and restored to her. If she does not want it to live she has no right that it be killed wastefully rather than used for experiments or transplants. The same is true of the embryo in vitro, except in this case there is no mother. No woman has a right that the egg she has donated be implanted. She has only a, perhaps contractual, right that it be implanted in her if she wants it.
Conclusion

It looks then strongly as though if the ends we purpose are themselves morally sound we may pursue them by experimenting on or with the human embryo and by using tissue, cells and organs from embryos to benefit the lives of persons in being. Further, there is no moral virtue in killing or allowing embryos to die when they could rather be used to benefit us all and there is less virtue in allowing human cadavers to go to waste, when we could, with, say, transplantation orders or the like, save very many lives.

As we have seen, the objections to these conclusions must show either that the embryo is the sort of creature that is morally entitled to the same concern, respect and protection as are persons or that, failing this, there are other moral reasons why we should not experiment on or take tissue from such embryos. We have seen that neither of these objections holds and we must now turn to the remaining question, that of whether, despite the moral acceptability of these practices, to embark upon them somehow involves stepping onto a slippery slope of depravity.

IV

THE SLIPPERY SLOPE

In the first part of this essay we reviewed a series of possibilities from the present to the reasonably foreseeable future and stopped short with Edwards's prognosis that in vitro embryology might well open the way to transplant procedures that would have surmounted the greatest risk, that of tissue rejection. We stopped however at a point which is artificially short although as we have seen, it is a point which is reached by morally justifiable paths. We must now explore the related questions of whether we are morally obliged to stick at that point and that of whether the gradient has become willy-nilly so steep that if we go so far we will be unable to prevent ourselves from going further.

We should perhaps start by getting a clearer look at what lies in wait for us when we leave the nursery slopes:

CLONING

Cloning human beings would involve removing the nucleus of the fertilised egg cell (which contains the hereditary genetic material) and replacing it with the nucleus of a cell taken from the adult whom it is wished to clone. The resulting embryo would be the "identical twin"33 of the adult from whom the replacement cell nucleus was obtained. It would exactly replicate the genetic

33 We should note that clones may not ever be the exact replicas of the cell donor since some genetic material is carried in the cytoplasm. (A cell consists of nucleus plus cytoplasm.)
make-up of the adult and so its tissue and organs would be "customised" to match exactly that of its adult "progenitor". It could then be grown to whatever stage was appropriate for development of the tissue or organs required for (or potentially required for) its adult "twin".

The possibilities now become both mind and morality boggling although it must be emphasised that these are not immediate possibilities and it is unclear how far off they are.

As we have seen, some tissue and some cells can be taken from the embryo in vitro. For the rest, the embryo would have to be grown, perhaps still in vitro if substitutes could be found for the mother's blood supply and other essential features of the womb, or perhaps in a surrogate mother. Here paths divide. Along one the foetus (and perhaps the neonate) would be grown until the organs or other tissue had reached a maturity sufficient for transplantation. Along the other, it might be possible to remove cells from the foetus as soon as they became distinct as potential organ tissue. It might then be possible to grow the organs themselves in vitro to the stage at which they could be used for transplantation. Both paths, of course, terminate in the death of the foetus or neonate.

There is one set of further possibilities we must consider and here the gradient, on what many will regard as a very slippery slope, becomes positively precipitous. The possibilities I have in mind while extreme are extremely interesting both for the light they shed on the issues involved and for the sharp focus they give to the argument. Let us then examine the terrain at the bottom of the slippery slope, or at least as far down it as is presently visible.

Organ Banks

One way in which adults could ensure for themselves a secure supply of appropriate organs for transplant when needed would be to clone themselves and grow the resulting clones, perhaps to adult size, for transplantation of organs as and when needed. The clone could be in all respects an identical adult and of course if it were it might well claim the right to be a recipient of the "original's" organs rather than a donor of its own. To overcome this "problem" originals might arrange for the brain of the clone to be destroyed as soon as it was differentiated in the embryo or enough of the brain to prevent the development of consciousness. The clone could be nourished and perhaps even exercised and in the event of complete disaster to the original body his or her brain could be transplanted to the clone rather than the organs transplanted to the original and life could continue. An endless supply of such clones at different stages of development could then keep the original going as long as its brain lasted. There might be a problem about the identity of the resultant beings or series of beings but they would (presumably) regard an identity crisis as less of a crisis than extinction.
The Mad Dictator Problem

A fear that is perhaps worth recording is that recently expressed by Oliver Gillie\(^{36}\) that these techniques might “open the way for a self-infatuated millionaire or a mad dictator to produce hundreds of copies of himself”. Such self-infatuated individuals would have to be mad to suppose that anything of value to them could be thus gained. For one thing “the best guess scientifically would be that the product of cloning would be less like the source than would be two identical twins”\(^{37}\) because both physical characteristics and psychological and social characteristics also would be exposed to different time frames.

GENETIC ENGINEERING

The techniques we have been considering also open the way to the possibility of influencing human evolution. But how and to what ends should this power be exercised? Clifford Grobstein puts the dilemma like this:

... many would be reassured to know that the intent of any intervention in human reproduction would be to benefit individuals and not to “improve” the species as a whole. Though these two are linked, in contemporary thinking the first is generally understood and accepted, the second is burdened by suspicion and fraught with uncertainties as to how “improvement” will be defined and by whom.

It would also be reassuring to know that defects that limit self-realisation are the legitimate target; that conservation and fuller fruition of humanity as we know it is the goal, not the “engineering” of new forms of human life.\(^{38}\)

Worries about the engineering of new forms of life may be real enough but the possibility of “specializing” in existing forms may be equally disturbing.

Artificial Parthenogenesis

Cloning may be possible with female as well as with male diploid nuclei, including a diploid nucleus from the egg donor. In the last case the product would be a female twin of the egg donor. By continued and exclusive application of the technique, an almost totally female and genetically homogenous society could be created and perpetuated. The number of required males, as in the case of breeding bulls, would only have to be sufficient to provide sperm to activate the eggs. Even that requirement could be eliminated if human eggs could be activated parthenogenetically. This occurs


\(^{38}\) Grobstein, (1982).
naturally in many animals but not regularly in any mammals. It can also be induced artificially in frogs and some mammals but with no normal offspring so far resulting in the latter case. If it could be accomplished externally, regularly and reliably on human eggs, it would open at least a formal option for a totally female society.39

This prospect might be very attractive to a certain stamp of feminist and disturbing as such a prospect would be to many, it is far from obvious that there are convincing moral arguments against the voluntary establishment of such a society. And if, for example, all the women in the world voluntarily decided that in future they would "bring forth women children only" it is not clear that anyone, let alone any man, would have the right to force them to do otherwise.

The resolution of the dilemmas raised by the possibilities of genetic engineering are far too large an undertaking to be attempted here, but it is important to bear such possibilities in mind when considering what the policy of society should be towards in vitro fertilization and the bio-technology it generates and utilises. For if we are on a slippery slope and it is towards such scenarios we are sliding, it is our attitude to them which will determine whether we set forth with skates or crampons.

It would perhaps be prudent to emphasise again that the possibilities we have just been considering are most certainly not yet even possible and perhaps may never be. But even fifty years is a long time in science, as the last fifty years have shown, and we should be clear as to what our policy should be in the face of such "possibilities". It will not be my purpose here to sift the cases one by one and review their general merits and defects. Some general conclusions however can safely be drawn.

SLIPPERY SLOPES AGAIN

The first is that slopes are only slippery if they catch us unawares and we have strayed onto them inadequately equipped. It is up to us to decide not what we can countenance but what we ought to pursue. We would be both irrational and immoral if we cut ourselves off from options we clearly perceive to be the beneficial products of the procedures now being developed because we fear that we will be insufficiently resolute to resist the dangers. We do not outlaw effective contraception because we fear that to practice population control is to step onto a slope that leads inexorably to the extinction of the human race.

The Principle of the Dangerous Precedent

In any event the idea that we can turn our backs on a slippery slope and thus avoid its dangers is an illusion. We are in fact only able to identify slippery

slopes when we are already on them. What we can always do is decide in which direction to go and constantly review our decisions in the light of new information and revisions in our thinking. The feared slippery slope is just a variant of the well-known principle of the dangerous precedent so effectively lampooned by Cornford at the turn of the century:

_The Principle of the Dangerous Precedent_ is that you should not now do an admittedly right action for fear you, or your equally timid successors, should not have the courage to do right in some future case, which _ex hypothesi_ is essentially different, but superficially resembles the present one. Every public action which is not customary, either is wrong, or, if it is right, is a dangerous precedent. It follows that nothing should ever be done for the first time.  

The artificiality of the dilemma of the so-called “slippery slope” is precisely as identified by Cornford. It is irrationally self-defeating if we declined to permit work which is in no way immoral and which can benefit us all, merely because we fear that at some future time we will not have the courage to object to work that _is_ immoral. The arguments of this paper indicate that it is not morally wrong to fertilise the human egg externally _in vitro_ nor are there sound objections to our permitting researchers to end the lives of spare embryos nor to experiment upon, nor use cells, tissue or organs from them, so long as this does not involve pain or suffering to the embryo. If we can thereby learn much that is of benefit to us and eventually use such embryonic material to repair or prolong the lives of children or adults, the lives of persons, then we should clearly do so.

Whether we should permit, for example, the growing of clones to adult maturity as living organ banks in the way described earlier, is a question we can address separately (though not here), and we are in no way committed to a particular answer simply in virtue of our assenting to work on the embryo. It may be difficult to find convincing arguments against the realization of such a possibility but again, the fear that we might not be able to find such arguments is not relevant to our assessment of the morality of _in vitro_ embryology.

**What Should We Do?**

One conclusion that the various commissions reviewing the ethics of _in vitro_ fertilization ought to come to is that no obstacles should be put in the way of work on the human embryo, provided that pain and suffering can be avoided. ‘Embryo’, for these purposes, should be defined in the same way as I have used the term in this paper, to cover all the stages of development from fertilization

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40 F. M. Cornford, _op. cit._, p. 23.
right through the nine months of normal growth to the point where, were the embryo developing in vivo, it would be born. This would be a sensible and safe first conclusion to reach for although “birth” is an arbitrary point of no moral significance, it is a point which errrs comfortably on the safe side. Nine months of development leave the human embryo far short of the emergence of anything that could be called a person, far short of the capacity for valuing its own life and all the capacities that would be involved in such valuing.

Permitting work on the human embryo up until the end of the third trimester of development would allow most of the current and reasonably projected research to proceed while leaving us time to review the moral and social implications of further developments. We should be clear, however, that the arguments we have been reviewing indicate that any moral objections to beneficial work on and use of even human non-persons who do not suffer in the process would be objections to the side-effects or extrinsic features of such work rather than objections to the work as such.

The cases that must be surveyed in order to map that terrain adequately, cases of the sort examined briefly at the beginning of this section, require a more detailed assessment than can be given here. It is not clear at first glance, however, whether such possibilities as living cell, tissue and organ banks which involve development beyond the third trimester, cloning, genetic engineering to “improve” human beings, artificial parthenogenesis and the like, would involve a slide or an ascent on the slope or axis of morality.42

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42 I am greatly indebted to Rodney Harris, M.D., F.R.C.P., F.R.C.Path., Professor of Medical Genetics, University of Manchester, for his detailed comments and suggestions. The errors that remain are, of course, mine. Thanks are also due to the Editors of The Philosophical Quarterly for many helpful suggestions.