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## IN VITRO FERTILIZATION AND IMPLANTATION

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*In vitro fertilization raises many complex questions, each of which can be examined in rigorous logical detail. As an introduction to these individual considerations, however, it is necessary to review the technique and place it in the large context of the general medical, personal and family concerns involved. The following article by Donald DeMarco reviews the basic questions, outlines the opposing views, and suggests a resolution of the prem which properly takes into account the fully integrated and personal nature of man. The last footnote provides an update on in vitro techniques since this article was written.*



BY THE CLOSE OF 1982, ABOUT 120 HUMAN BEINGS HAD BEEN BORN WHO WERE ORIGINALLY conceived outside their mothers' bodies in petri dishes. Most of these children were conceived in three countries: in England, 63 in Patrick Steptoe and Robert Edwards' private clinic alone; 40 at Australia's Monash University in Melbourne; and 11 from several different artificial fertilization facilities throughout the United States.<sup>1</sup> Some gynecologists have predicted that by 1985 thousands of women will have delivered children who were conceived through in vitro fertilization. Dr. Patrick Steptoe, who engineered the world's first in vitro baby-Louise Brown-foresees in the decade of the eighties clinics throughout the world offering in vitro conception to infertile couples for less than \$1,000 per couple.

The reaction on the part of society and government has been both mixed and confused. Shortly after the birth of Louise Brown, a Gallup poll reported that 60% of both men and women "favored" in vitro fertilization. *Parents' Magazine*, in its August, 1978 issue, printed the results of a Harris poll which revealed that 85 % of the women surveyed believed that in vitro fertilization is an acceptable procedure for couples otherwise unable to have children. The following month, McCall's magazine ran a heartwarming article entitled, "Our Miracle Named Louise."

Yet governments and certain professional members of society have not been nearly so supportive of in vitro fertilization. In the United States, since 1975 no grant applications for IVF-related research has been considered by the National Institutes of Health, the federal funding agency for medical research. In England, speaking on the broad area of IVF research to the annual meeting of the British Medical Association, Michael Thomas, chairman of its central ethics committee, stated: "The medical profession has to look at itself in the mirror. We must make sure that we are not doing something that will make the nation tell us we were idiots." And in Australia, Justice Michael Donald Kirby, chairman of the Australian Law Reform Commission, declared:

Let it not be the epitaph of our generation that we proved ourselves brilliant in the dazzling field of scientific endeavor but so morally bankrupt and legally incompetent that we just could not bother or did not have the courage to sort out the consequences for our society and for the human species.

journalist aptly expresses it, “a tempest in a test tube.” They involve the integrity of marriage and the family, the integrity of the sexual act, the moral obligation of parents and society to protect the well being of their offspring, and concerns that transcend the present human community and touch upon the future of the species.

The present discussion examines the technique of in vitro fertilization, assesses its need, and explores the procedural and substantive problems that are at the core of the controversy.

## THE TECHNIQUE

The first step in the process of in vitro fertilization is to obtain a fertilizable egg from the body of the woman. This is accomplished by a technique called laparoscopy. In the more commonly employed method used by Steptoe and Edwards, a laparoscope—a long, jointed metal microscope with a miniature flash light which serves as a viewing device—is inserted into the woman’s body via a small incision in the navel. This allows the doctor to locate an egg that is about to be released from a ripe follicle. Through another incision, an aide holds the ovary in place with forceps while the doctor inserts a hollow needle with his other hand and extracts the egg and draws it through an attached aspirator tube. Dr. Steptoe is able to accomplish this entire process in about 80 seconds.

Following removal from the body, the egg is placed in a petri dish in a nutrient solution and subsequently exposed for about 12 hours to a few concentrated drops of spermatazoa, after which it is transferred to fresh media. If fertilization takes place, the embryo is monitored for a normal growth curve in culture. If the embryo is judged to be growing normally, it is then considered suitable for transfer to the woman’s uterus. At the eightcell (3rd day) or the sixteen-cell stage (4th day), the embryo is placed in the uterus through a catheter or tube inserted through the cervix which is held open with

a speculum. If implantation takes place, the fetus begins to progress in the normal manner.<sup>2</sup>

While the success rates in extracting and fertilizing eggs is roughly between 80 to 90 per cent, the chance of any one fertilized egg or embryo attaching itself to the lining of the uterus is considerably lower. In their report to the Royal College of Obstetricians and Gynecologists, Steptoe and Edwards reported that, as of January 1979, they had attempted 32 such implants. Four had been successful but two aborted spontaneously, one at 11 weeks gestation (reported to be abnormal), the other at 20 weeks (reported normal except for prematurity). In addition to Louise Brown, Alastair Montgomery, born in January of 1979, gave the procedure a 6.25% success rate in terms of embryos that were placed in the uterus who were brought to term. If the success rate, however, is computed in terms of the percentage of in vitro fertilized eggs brought to term, it drops appreciably. It has been estimated that Steptoe and Edwards discarded 99.5 % of all fertilized ova produced in their laboratory over a period of 12 years because of various problems including obvious abnormality and development

beyond the optimum stage for implantation.’ The members of the in vitro fertilization team at the Norfolk, Virginia, clinic admitted that they expected a success rate of 25 % at best, although they have not achieved that high figure. Canada has three IVF clinics, but has not as yet reported a successful pregnancy and birth.

All things considered, given the present state of the art, the most likely eventuality for a childless couple who seeks to have a child through in vitro fertilization is that they will remain childless.

## THE NEED

Approximately 10% of couples are infertile, though estimates range as high as 18%. Dr. Alvin Gold-



farb, president of the American Fertility Foundation, estimates that there are 650,000 married women in the United States who are infertile because of a tubal pathology. Corrective surgery could result in full term pregnancies for, at the very least, 30% of these women. Thus, apart from financial considerations and the presence of desire to have children, about 455,000 infertile women might envision in vitro fertilization as their only way of having children of their own. However, not all these women will be suitable candidates for IVF since many who have blocked oviducts also have associated disordered ovaries which make it impossible for a doctor to obtain eggs from them. In Canada, David Armstrong of the University of Western Ontario, who has convened a conference on in vitro fertilization, estimates that there are 25,000 Canadian women who might benefit from IVF.<sup>5</sup>

These figures, despite continuing progress in laser surgery to repair blocked oviducts, will probably increase, rather than decrease, because of certain developments in current society. Among these developments would include: 1) the pandemic of venereal disease with its attendant increase in pelvic inflammatory disease; 2) the increase in late childbearing; 3) tubal disease related to the widespread use of intra-uterine devices; 4) the large number of tubal ligations performed as a method of sterilization, only a small fraction of which can be reversed through surgery.<sup>4</sup>

An indication of the extent to which there is a felt need for in vitro fertilization services may be found in the fact that in 1980 the Norfolk clinic received requests from 5,000 women seeking IVF despite the fact that the clinic had been open for only a few months, had not reported a single success, and charged a minimum of \$4,000 for the first in vitro fertilization attempt.

The felt need for in vitro fertilization raises two important ethical questions: 1) does an infertile married woman, or anyone for that matter, have a right to have a child?; 2) in responding to a woman's or couple's request for IVF, is the medical profession responding to a *disease* or a *desire*?

An individual person does not have a right to have a child since having a child involves the cooperation of two people. One individual does not have the right to expropriate from another what is needed in order to produce a child. Society generally condemns the type of action exhibited recently by an unmarried Los Angeles

woman who impregnated herself with a computer scientist's sperm which she took, under false pretenses, from a California sperm bank that calls itself 'The Repository for Germinal Choice.'<sup>5</sup>

At the same time, it is dangerous to argue that even a married couple has a right, in the strict sense of the term, to have a child. A child is a person and no person has a right to another person. We do not want to reduce certain people-children in this case-to objects. Asserting a right to have another person implies this reduction.<sup>6</sup> Psychotherapist Rollo May states that in our contraceptive culture "no longer does 'God' decide we are to have children; we do. And who has begun to comprehend the meaning of that tremendous fact?" May speaks of the nameless, pervasive guilt parents have about their chosen, planned children that is attached to the calculated way in which they had them, and the tremendous psychic weight these children must carry.<sup>7</sup>

Children are neither objects, slaves, property, nor extensions of their parents. They are gifts conceived in a moment of intimate self-surrender between husband and wife. IVF, given the great amount of control and calculation and separation that is required, is in sharp conflict with intimacy, self-surrender, and gift. Leon Kass has expressed it this way:

Ultimately, to consider infertility (or even procreation) solely from the perspective of individual rights can only undermine - in thought and in practice - the bond between childbearing and the covenant of marriage.<sup>8</sup>



Kass goes on to express other concerns associated with the notion that there is a right to have children, including the exploitation of women and their bodies, as well as the practice of child buying and selling.<sup>9</sup>

If people do not have a right to have another person, a child, then a doctor has no moral justification to produce one for them. Nonetheless, a doctor is morally justified in treating a diseased condition in order to help render the body more capable of begetting children. In this case the doctor's concern is a proper one, the integ-

rity of the body, and not an improper one in which he responds not to a disease, but to a desire.<sup>10</sup>

Several years ago a particular woman became the center of controversy when she had a healthy breast removed surgically because it interfered with her golf swing.<sup>11</sup> The pertinent issue here is not whether what she did was censurable, but whether what her surgeon did was medicine. Was he treating a disease or a desire?

Similarly, when a married couple requests IVF, is the doctor asked to treat a disease or a desire? If, for example, the doctor uses a laser technique to repair a blocked oviduct, he is treating a diseased condition with the aim of restoring it to its normal function. On the other hand, if he employs an IVF technique on the same woman, even if he is successful, he does not restore the woman's diseased condition to a state of health. She is still infertile; she still has a blocked oviduct. In this instance, the doctor is not practicing medicine as much as he is gratifying a desire. And the woman is not so much a patient as she is a consumer. The doctor is treating not the cause of her problem, the blocked oviduct, but its effect: childlessness. Moreover, he is using a child as a means to produce an end which is the gratification of her desire to have a child. His surgical intervention is not in the interest of health, that is to say, it is not therapeutic. It does not conform to any of the essential types of therapeutic treatment; it is neither diagnostic, curative, alleviatory, or preventative.

The advocate for IVF finds himself in a moral dilemma. If he recognizes that IVF is treating a desire, he finds himself in conflict with traditional medical ethics. On the other hand, if he believes it is treating a disease, he must depersonalize the child involved. When Paul Ramsey asks whether the IVF child is a "prosthesis for his mother's condition?", he is alluding to this dilemma.<sup>12</sup> The only way to legitimize IVF therapeutically, from the point of view of the patient's health, entails the reduction of the child conceived to the status of a possession or property.

Traditional medical ethics has taught that the goal of medicine is health. As Leon Kass has pointed out, when medicine's powers were fewer, its goals were clearer. From the fact that only a surgeon is allowed to practice surgery, it does not follow that every surgical procedure is medically justified. Surgery is medically justified when it takes place in the interest of a patient's health. IVF is

not medically justified because it operates independently of a goal of health.

The desire to have a child is one of the most profound and most worthy desires human beings can have. Nonetheless, this desire should not be construed as a right, nor can it legitimize medical intervention. There is a crucial distinction between helping an infertile woman and helping a woman with her infertility. The medical profession cannot be expected to assume the task of making people happy. At the same time, medicine can make great technical advances within the context of traditional, health-oriented ethics. Dr. Joseph Ballina, for example, head of the Laser Research Institute of New Orleans, has reported to the International Congress of Gynecological Laser Surgery an 80% success rate in repairing blocked Fallopian tubes. Of 65 women having blocked tubes, 80% became pregnant following tubal surgery by Dr. Ballina's new laser technique.<sup>13</sup>

## PROCEDURAL PROBLEMS

What are the moral premises that are generally persuasive today? Daniel Callahan, director of the Institute of Society, Ethics and the Life Sciences, asked this question while reflecting on the moral discussion contained in the first ten years of his institute's journal - *The Hastings Center Report*. There are three, Callahan finds: 1) individual liberty (as long as no harm is done to another); 2) the application of a risk-benefit analysis in matters of uncertainty; 3) the principle that it is better to attempt to do good than to try to avoid harm.<sup>14</sup>

These premises taken together, according to Callahan, provide a perspective that is severely limiting, one that prevents us from posing larger questions about the future of human happiness, the most appropriate direction for science to take, and the best ends to which human freedom should be directed. They foreclose the possibility of attempting to integrate wider questions into the analysis. At the same time, however, Callahan dismisses the broad ethical perspectives of Leon Kass and Paul Ramsey, whom he regards as the most articulate opponents of the broad sweep of genetic engineering of which in vitro fertilization is but one example. "They are talking in an unfortunately dead and unintelligible language," writes Callahan.<sup>15</sup> For Callahan, then, one side of the procedural dilemma is inadequate, while the other is unintelligible.

William May of Catholic University also recognizes the reality of this procedural dilemma. He sees one side, represented by Robert Francoeur and Joseph Fletcher, arguing for a form of rational, bio-technical advance that threatens the sanctity of life. Yet the other side, represented by Kass and Ramsey, is identified (though unfairly, in May's view) as "antediluvian," the querulous and worrisome fruit of a "mystical" or "metaphysical" frame of mind.<sup>16</sup>

The root of the problem may lie in the fact that the advances of the rational-technological approach tend to evaluate everything from the standpoint of applied reason producing a better product. On the other hand, the more traditional-metaphysical side goes beyond reason to include transrational dispositions such as love and faith, and beyond a concern for a human product to include a concern for the integrity of a human activity such as the sexual act which is the natural way of invoking new life. Hence, those who support the traditional-metaphysical view may seem unintelligible to the rational-technologists simply because a purely rational perspective cannot understand what it cannot see.

## SUBSTANTIVE PROBLEMS

Apart from the procedural problems, there are the concrete, substantive problems that affect the embryo and the subsequent child, the parents, the family and society. Nonetheless, these substantive problems are not entirely separate from the procedural, theoretical problems.

### **Involving the Embryo**

In vitro fertilization involves a high rate of "wastage," that is, destruction of human embryos. In 1975 Steptoe and Edwards published a report on their early in vitro fertilization research, admitting that they had failed in at least 200 attempts to effect embryo transfer." While techniques have improved since 1975, it is inevitable that there will continue to be "wastage." Moreover, some researchers argue that laboratory experimentation (and its attendant "wastage") is necessary in order to improve the technique of embryo transfer. Dr. Rene Soupart of the Vanderbilt School of Medicine received permission and funding from the United States government in 1979 to begin a three year experimental project that would involve fertilizing about 450 eggs, studying them for about a week, and then destroying them.<sup>18</sup> Dr. Soupart died in 1981, however, and never began the project.

At the heart of the "wastage" controversy is the question of the nature of the human embryo. The human embryo that is conceived in a petri dish is just as human as one that is conceived in its mother's body. There can be no question that the human embryo is a member of the human species. Thus, Paul Ramsey declares that we "must regard experiments in in vitro fertilization as ab initio inherently immoral, because the physician must be willing to discard mishaps at any point in that span of time which do not come up to the standards of an acceptable human being."<sup>19</sup> On the other hand, R. G. Edwards argues for the liceity of such experimentation from rather dubious premises: 1) because "fertilization is only incidental to the beginning of life" (though, we must add, crucial to the beginning of individual life); 2) because "nuclei can potentially sustain the development of an embryo" (here Edwards ignores the salient fact that the nucleus of a somatic cell and a human embryo are different in essence)' 3) because many persons implicitly accept the abortion of early embryos since IUD's almost certainly expel unimplanted embryos from the uterus; 4) because of the prevalence of eugenic abortion (these last two points are illustrations of the fallacy that an action is good simply because it is done).<sup>20</sup>

Bernard Haring reflects a more temperate judgment when he writes:

The very probability that we may be faced with a human person in the full sense constitutes, in my opinion, an absolute veto against this type of experimentation.<sup>21</sup>

Andre Hellegers and Richard McCormick concur with this judgment and suggest that embryo wastage is really a form of abortion. They write:

The evaluation of nascent life in these early days is indeed a problem. But that does not mean the problem can be decreed out of existence by simply going ahead. Where human life is at stake and we have doubts about its evaluation, does not prudence dictate that as a general rule life enjoys the benefit of our doubts.<sup>22</sup>

### **Involving the Developing Child**

The number of manipulations in an unnatural surrounding that is involved in the processes of in vitro fertilization and embryo transfer present real, though unknown hazards to the developing human. This fact must be rigorously considered in terms of compatibil-

ity with the minimal principle of medical ethics, “Do no harm.” Aware of the real possibility of something going wrong in the development of the world’s first in vitro baby, Louise Brown, Dr. Steptoe required her parents to promise they would abort their baby if there was even a suspicion that it was deformed. Steptoe and Edwards kept a close eye on the developing child throughout her mother’s pregnancy.

Mindful of these dangers, Nobel laureate James Watson has suggested that the physician attending the birth of what he calls “a product of IVF” should have “the right to terminate [the] baby’s life should it come out grossly abnormal.<sup>23</sup> Bernard Haring draws the conclusion that IVF must be opposed chiefly because it is “manipulation . . . of the embryo itself, with no safety and with numerous hazards imposed on another being, the child to-be.”<sup>24</sup>

We do know that manipulating animal embryos seems to cause them no harm, though, as Dr. Richard J. Blandau, a reproductive biologist at the University of Washington School of Medicine points out, “who would be concerned over any deficiency in creative ability in a cow or sheep?”<sup>25</sup> However, research with animal models may not tell us what we need to know in order to insure the safety of humans subjected to the same kind of manipulation. University of Pennsylvania biologist Luigi Mastroianni advises that “although animal models are useful in establishing important basic knowledge, one cannot confidently make inferences from the laboratory animal to *Homo sapiens*. There are substantial differences in fertilization even among closely selected laboratory species.”<sup>26</sup>

### **Involving Harm to the Parents**

Leon Kass sees in vitro fertilization as a “degradation of parenthood”;<sup>27</sup> Paul Ramsey goes one step further, regarding it as the destruction of parenthood.<sup>28</sup> What we do know is that with in vitro fertilization the natural process of begetting a child is shifted toward an artificial process of manufacturing a product. This shift inevitably introduces factors that depersonalize and mechanize human procreation, on the one hand, and sunder and violate the two-in-one-flesh intimacy of the married couple, on the other. In addition, it trivializes a process that, in its natural mode, is one of the most profound and awesome mysteries of human existence.

Catherine Rankin is the first Canadian woman to have children through IVF, although the procedure was

carried out in England at Dr. Steptoe’s clinic. On March 25, 1982 she gave birth to fraternal twins. More recently, in explaining the procedure to a Grade 13 science class, she was pleased to hear a boy state, “That’s it? That’s all there is to it?” Comments Mrs. Rankin, “When you explain it to people it really is ho-hum. It’s a big deal because it’s not accessible.”<sup>29</sup>

Leon Kass warns that “mastery drives out mystery.”<sup>30</sup> It is important to note that he does not use the word “mystery” as a cover for our ignorance, but to denote an aspect of reality that is not reducible to rational analysis. To drive out mystery, then, is to drive out reality. This same thought was expressed by C.S. Lewis several years earlier in *The Abolition of Man*: “Analytical understanding must always be a basilisk which kills what it sees and only sees by killing.”<sup>31</sup> We destroy the mystery, the dignity, the sacredness of things so that we can see things more clearly, rationally, and scientifically. Thus, human procreation must become “ho-hum” and along with it, human parenthood. But we must ask, however, whether such scientific progress should not be better understood as moral regress. In choosing to treat our most sacred and most human activities as mere raw material, do we not take a perilous step closer to becoming raw material ourselves?

Already, we liken ourselves too much to machines. Consider how readily young women submit to abortions, fully confident that their reproductive machinery will remain intact to service them whenever they want to have a child later on. “The entire rationalization of procreation,” writes Paul Ramsey, “can only mean the abolition of man’s embodied personhood.”<sup>32</sup> In vitro fertilization demands sundering flesh from spirit in an area where the integrity of parenthood demands they be one, and surrendering that flesh to the manipulation of technicians. Inevitably, something important, though unseen, stands to be harmed in the process. And what stands to be harmed is human parenthood. In vitro fertilization exteriorizes a process that is meant to be an intimate and inseparable part of a profoundly personal expression of love. “Is there possibly some wisdom in that mystery of nature,” asks Leon Kass, “which joins the pleasure of sex, the communication of love, and the desire for children in the very activity by which we continue the chain of human existence?”<sup>33</sup>

### **Involving the Family and Society**

By removing the origin of the child from the

personal context of conjugal love, as IVF does, a decisive step is taken which necessarily depreciates that love. Love that is thus “de-bodied,”<sup>34</sup> to borrow Richard McCormick’s expression, is lacking in what we might call the full weight of human love, all that love can be. To exclude the bodily aspect of human love is to weaken love to some degree. And to weaken this love, which is the essential bonding act of the family-uniting parents with children and children with their parents, as well as each other-is to weaken the family. And since the family is the basic unit of society, what weakens the family also weakens society. To compromise the family in any way is to undermine that natural arrangement which offers ordinary people the best opportunity for growing and developing as human beings.

In a more specific vein, the developing technique of freezing embryos for long periods of time before implanting them into the uterus offers the possibility of drastically altering the normal age span that exists between family members, and creating compound relationships in which a sister can also be a mother or a mother can also be an aunt. Alan Trounson and Carl Wood at Monash University in Melbourne have been freezing embryos fertilized in vitro in liquid nitrogen at -196C. They are thus getting ready, as they themselves express it, “if and when she [the mother] wants another child by in vitro fertilization.”<sup>35</sup> Theoretically, many years can elapse before a frozen embryo is thawed and implanted, thus creating the possibility of a daughter carrying her mother’s child and giving birth to her own brother or sister. As another example, a woman might wish to donate her embryo to her infertile sister who would give birth to her own niece or nephew. Confusing family relationships in this way invites psychological chaos. Leon Kass warns that, “confusion and conflict would seem to be almost inevitable.”<sup>36</sup>

The threats that in vitro fertilization represent in terms of dislocating parenthood, confusing family relationships, and so on, is actually welcomed by some critics. Joseph Fletcher, for example, says, “Why shouldn’t we share our reproductive sources just as we share our educational and economic ones?”<sup>37</sup> For Fletcher, the scientifically contrived dissolution of the family into an amorphous and anonymous social family is in keeping with progressive humanness.

## CONCLUSION

The desire on the part of science to control mat-

ter, and the desire on the part of infertile couples to have children - no matter how valid and laudable-are subject to moral limits.” These limits must be recognized if we are to treat each other justly and protect ourselves from exploitation, degradation, and undue harm. The evidence indicates that in vitro fertilization is: 1) exploitive of another human-the child-to-be-since its mechanism tends to treat that child not as a gift but as a product; 2) degrading to the two-in-one-flesh unity of parents by deflating the importance of the flesh as a vehicle of love in the formation of new life; 3) harmful because it imposes undue hazards (on an unconsenting human being) through series of manipulations in an unnatural surrounding.

People do not have a right to have a child, since no one has a right to another person. In marital conjugal intercourse, new life is invoked in a moment of mutual self-giving and self-surrender on the part of husband and wife who are prepared to accept the responsibilities that attend the reception of this new life. New life, therefore, should be a gift that is the incarnation of marital love.

Finally, scientific reasoning and rational control are severely limited as a means of fulfilling man and ensuring his well being. Man is the sum of his parts which include, in addition to reason, love, emotions, faith, freedom, and flesh. The attempt to define human activity solely in terms of rational activity is one of the curiosities of our time, a case of science usurping the place of a broader, more inclusive philosophy of man. We find in the writings of Joseph Fletcher a particularly clear example of this attempt to scientize man. His enthusiasm for rationalizing the process of human procreation is without equal. He writes:

Laboratory reproduction is radically human compared to conception by ordinary heterosexual intercourse. It is willed, chosen, purposed and controlled, and surely these are among the traits that distinguish *Homo sapiens* from others in the animal genus, from the primates down. Coital reproduction is, therefore, less human than laboratory reproduction. . . .<sup>39</sup>

Rational control does not make man moral. Man may employ reason for immoral ends, as human history has plainly shown. A human act is not the same as a moral act. What makes a human act a moral one is not its degree of rationality, but the fact that it promotes the good of man. Considering the evidence, it would appear that in vitro fertilization does not promote the good of man, and therefore does not qualify as a truly moral activity.<sup>40</sup>

## NOTES

1Jackie Carlos et al., "Beyond the Limits of Life," *Macleans*, November 15, 1982.

2There are many detailed descriptions of this technique. See Albert S. Moraczewski, O.P., "In Vitro Fertilization and Christian Marriage," *Linacre*, November 1979 (Fr. Moraczewski's description is based largely on notes prepared for the DHEW'S Ethical Advisory Board by Prof. R. V. Short, Medical Research Council, Unit of Reproductive Biology, from a presentation made by Dr. P. C. Steptoe and Dr. R. G. Edwards at the Royal College of Obstetricians, January 16, 1979). See also Eugene Diamond, "A Call for a Moratorium on In Vitro Fertilization," *Linacre*, November 1979; Anne Taylor Fleming, "New Frontiers in Conception: Medical Breakthroughs and Moral Dilemmas," *The New York Times Magazine*, July 20, 1980.

3Diamond, p. 296.

4Diamond, pp.296-7

5AP wire service story in the Kitchener-Waterloo Record, July 20, 1982, p. 29. See Cornelia Morrison Friedman, "Making Abortion Consultation Therapeutic," *The American Journal of Psychiatry*, November 1973, Vol. 130, No. 11, p. 260. The author speaks of "The highly narcissistic rather grandiose young woman who decides to have a baby just because she wants one and is not in the least embarrassed to describe her motivation in this way."

6Moraczewski, p. 314.

7Rollo May, *Love and Will* (New York: W. W. Norton, 1969), p. 120.

8Leon Kass, "Making Babies - the New Biology and the 'Old' Morality," *The Public Interest*, November 26, Winter 1972, p. 20.

9Kass, p.37.

10For discussions on the difference between desire and disease see Harmon L. Smith, "Genetics and Ethics: Reaffirming the Tragic Vision," *Linacre*, August 1973; Leon Kass, op. cit.; George Will, "Abortions as Commodity, Not Medicine," reprinted in *The Human Life Review*, Fall 1978, pp.73-4.

11George Will, p. 73.

12Paul Ramsey, "Shall We 'Reproduce?': The Medical Ethics of In Vitro Fertilization," *JAMA*, 220 (10) June 5, 1972.

13"In Vitro Lab Approved," *National Right to Life News*, January 1980, Vol.7, No. 1, p. 23.

14Daniel Callahan, "The Moral Career of Genetic Engineering," *Hastings Center Report*, April 1979, Vol. 9, No. 2.

15Callahan, p. 9.

16William May, *Human Existence, Medicine and Ethics* (Chicago: Franciscan Herald Press, 1971), p. 58.

17The New Biology: *In Vitro Fertilization* (Toronto: The Right to Life Association, 1980), p. 3.

18Ibid p. 16. See also Anne Taylor Fleming, pp.48-9.

19Ramsey, p.1347.

20R.G. Edwards, "Fertilization of Human Eggs In Vitro: Morals, Ethics and the Law," *Quarterly Review of Biology*, March 1974, Vol. 49, No. 1, pp. 13-4.

21Bernard Haring, *Ethics of Manipulation* (New York: Seabury Press, 1975), pp. 198-9.

22Andre Hellegers and Richard McCormick, "Unanswered Questions on Test Tube Life," *America*, August 12-19, 1978, Vol. 139, No. 4, p. 76.

23James Watson, "Child from the Laboratory," *Prism [AMA]* May 1973, Vol. 1, No. 2, p. 13.

24Haring, p. 200.

25Fleming, p. 48.

26Luigi Mastroianni, Jr., "Reproductive Technologies: IV. In Vitro Fertilization," in Warren T. Reich, ed., *Encyclopedia of Bioethics* (4 vols.: New York: Free Press-Macmillan, 1978), IV, p. 1449.

27Kass, p. 49. See also William Smith, "The Test Tube Baby," *The Human Life Review*, Fall 1978, Vol IV, No. 4.

28Paul Ramsey, *Fabricated Man* (New Haven & London: Yale University Press, 1970), p. 130.

29Margaret Cannon, "The Continuing Act of Love," *Macleans*, November 15, 1982, p. 59.

30Kass, p. 51.

31C. S. Lewis, *The Abolition of Man* (New York: Macmillan, 1965), p. 90.

32 Ramsey, *Fabricated Man*, p. 89.

33 Kass, p. 49.

34 Richard McCormick, "Genetic Medicine: Notes on the Moral Literature," *Theological Studies*, September 1972, Vol. 33, No. 3, p. 551.

35 Clifford Grobstein, "The Moral Uses of 'Spare' Embryos," *Hastings Center Report*, June 1982, Vol. 12, No. 3. Two thawed embryos that Trounson tried to implant did not take.

36 Kass, p. 36.

37 Quoted by Taylor, p. 52.

38 See Sean O'Reilly, *Bioethics and the Limits of Science* (Front Royal, Virginia: Christendom College Press, 1980).

39 Joseph Fletcher, "Ethical Aspects of Genetic Controls," *New England Journal of Medicine* 285 (1971), p. 781.

40 1983 was a highly eventful year on the IVF front. The first American twins conceived in vitro were born, as were the first European IVF triplets. Canada had its first IVF baby, delivered on Christmas Day. The world's first IVF quadruplets spent most of their gestational period in 1983 and were born in the first week of 1984.

In May, Dr. Alan Trounson of Australia's Monash University announced that after 12 failures, his team had achieved the first human pregnancy from an IVF embryo which had been frozen (in liquid nitrogen at -321 °F). In this particular case, the embryo had been frozen for four months before it was thawed and inserted into the uterus of the woman.

Although the number of IVF babies throughout the world swelled to an estimated 500 by year's end, scientists were looking to other ways of helping infertile couples to have their own children which posed fewer medical risks and difficulties. One undesirable feature of IVF involves the use of drugs and the need for surgery on the woman in order to obtain fertilizable eggs. It has also been discovered that there is an abnormally high incidence of premature delivery associated with IVF. Thus, attempts were made to transfer an embryo from a woman who had conceived in utero to a gestational mother, thereby avoiding some of the difficulties connected with IVF. After repeated failures in 1983, the first embryo transfer child was born in California in early 1984. An organization called Fertility and Genetics Research, Inc. currently estimates that 50,000 women will be eligible and willing to choose "embryo transfer" each year. Yet there are innumerable problems, moral and medical connected with this method.