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Some Notes on Genetic Engineering

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New discoveries give rise to new questions. As we have come to understand man's physical makeup better, not only have we grown in knowing what man is, but we have also asked more and more what he might become.

Questions in regard to genetic engineering are very numerous. Many have not yet been asked. This article will pose a few of those which are already being raised. It will also propose very tentative responses or in some cases merely further questions. Let me emphasize that the field of genetic engineering is largely uncharted territory. Moral analysis in this area must therefore be quite tentative.

At the same time, it is important to assert from the beginning that we need not do everything that it is possible to do. We need not (in the moral sense) build nuclear weapons, nor need we use them. I trust that it is self-evident that there are many things that it is possible to do which we *ought* not do. In this context, it is imperative that ethicists reflect beforehand in order to make at least provisional moral judgments about "remaking man." Ought we remake him? Will remaking him really destroy him? The consequences of genetic engineering are huge, sometimes unknown. Since man himself, not just his sexuality or his offspring, is at stake, we must proceed cautiously.

This is obvious in all life and death questions, but unfortunately contemporary experience proves that what is obvious is not always the operative principle in moral matters.

This article will touch on seven areas connected with genetic engineering. It makes no pretense at being exhaustive. Many other topics could be touched on. Even in the areas that the article does treat, much more could be said. It is for this reason that I have entitled the article "Some Notes."

1. Artificial Insemination

This question has little early history. Artificial insemination of human beings has been going on only since 1884. Interestingly, however, the history of the moral question in the Catholic Church has given rise to some fine statements on the unitive end of marriage. I will allude to these below.

In the late 19th century, Palmieri¹ and Berardi² approved artificial insemination. In doing so, they raised a question about whether or not the seed for the procedure could be obtained through masturbation. They offered the opinion that, properly speaking, such an act would not be masturbation since it was geared to procreation.

The first official Church teaching statement about artificial insemination came from the Holy Office in March, 1897. The question had been posed as to whether or not artificial insemination might be used. The answer was in the negative. But moralists disagreed in their interpretation of the response. Naturally, masturbation would be the usual means of procuring seed. Some felt that this was the reason why artificial insemination was condemned. But if seed could be collected in some licit way (masturbation being judged intrinsically evil), then would artificial insemination be permitted, at least when the woman's husband was the donor (AIH)? A number of reputable Catholic moralists (Noldin, Wouters, Vermeersch, G. Kelly)³ judged that AIH would be licit if seed could be procured by some licit means. Pius XII brought at least a temporary halt to this debate. He condemned all artificial insemination.

In 1949, in an address to Catholic doctors, Pius declared that artificial insemination is to be "absolutely rejected."⁴ He stated that the marriage contract has as its object not a child but natural acts destined for the generation of new life. This statement seemed clearly to exclude AIH as well as AID (contribution of seed by a donor). If any doubt was left, Pius further clarified the matter in November, 1951⁵ and again in 1956 in his Address to the Second World Congress on Fertility and Sterility.⁶

Pius' reasoning is significant. He points out that sexual relations are an expression of love, and in expressing love they are fruitful. Artificial insemination will produce a child, but not in the context of

sexual acts apt for the expression of love. In more biblical terms, in "becoming one flesh," married couples "increase and multiply." The two-fold significance of their sexual acts should not be "put asunder."

It is significant to note that the reasoning here is quite similar to the reasoning used in the prohibition of birth control in *Humanae Vitae*; namely, the unitive and procreative significance of the marital act should not be separated.

Today many theologians question the prohibition of AIH. Their reasoning for dissenting from the teaching of Pius XII is much the same as the reasoning in dissenting from *Humanae Vitae*. Such dissent tries to show how the unitive finality of sexuality is promoted by artificial insemination, just as the procreative finality is promoted.

For our purposes here, however, it is not necessary to enter into this discussion, since AIH is not in a substantial way used precisely for genetic engineering. The genetic engineering question revolves more around AID. But what is presented above about AIH will be helpful in understanding the historical background for several questions which we shall treat below.

Different from AIH, AID bears with it the further moral complication of the presence of a third party's seed. There can be cases where the concerns giving rise to AID are similar to those giving rise to AIH (e.g., where a husband is desirous, but incapable of, "giving his wife a child"). More commonly, however, AID in contemporary literature is thought of as a means of genetic engineering. If you select the right kind of donor, you might produce a preprogrammed man: smart, strong, etc. Select specimens of semen could be chosen, labeled, frozen, until the time of use arrives.

From a moral point of view, some tentative remarks in regard to AID as a means of genetic engineering are in order (I prescind here from the use of AID simply as a means of procreation, though some of the things said below are applicable):

a) AID tends to biologize (depersonalize) sex. One of the ways in which human freedom is most radically realized is through intimacy. Sexual relations are among the most profound signs of intimacy. Through them man expresses his love for another in a clear, self-trusting way. This is the moral context of human child-bearing. The child is a creation in love by two responsible parents. In the Christian understanding of things, this creation is meant to take place in an atmosphere of mutual love; conversely, marital love is geared to creativity. This central affirmation in the teaching of Pius XII still stands as a basic reason for opposing AID when it is used as a means of genetic engineering.

b) AID brings with it the intrusion of a third party into the exclusive spiritual-emotional-physical union we call marriage. The donor's seed is the sign of the presence of a third party. Motherhood does come about, but it comes into existence in a given marriage without

real fatherhood. One must certainly ask what psychological and emotional implications this may have for the husband in the marriage. Beyond this, the role of the donor is also quite depersonalized. The personal thrust of his own sexuality is obliterated (especially if his donations are anonymous). Intimacy is non-existent. His sexuality is all the more depersonalized if his seed is sold. (One might imagine a young man working his way through college by means of the money earned from selling his seed.)

c) AID as a means of genetic engineering is destructive of family. Today, family life is in crisis. There are more than 10 million broken marriages and, consequently, broken families. If anything, civil society and the churches should be seeking ways of strengthening family ties. AID fosters "fatherless" children, or anonymous families. If healthy family life is essential to healthy society, are not the advantages of AID purchased at a price which is destructive of man's broader goals?

d) AID constitutes a threat to man as such. One wonders, in principle, whether AID does not aim either at what is impossible or at what would be ultimately destructive of man as man. Man is both free and the object of external determination. He has a destiny which is free, but also at least partially accepted and not chosen. In principle, AID aims at eliminating some or all of the "accepted." But eliminating all determination is impossible. Since only partial elimination of determination is possible, then this would seem inevitably, in the sinful order of things, to lead to "races" (the "bred" and "non-bred"). Would not the result be increased prejudice, struggle for control, class wars, etc.?

e) AID bears the threat of massive external (state) control within the sphere of intimacy. Who decides what is to be done and what it is good to do? Certainly if AID is to be effective in producing a pure strain, more than individual decisions are needed. Ultimately, the state would have to issue detailed directives on sexual "relations" (in whatever form they might take).

f) AID bears with it many other questionable consequences. One must certainly seek to foresee all of the consequences of acts. As I stated at the outset, not everything that can be done ought to be done. In this regard one might ask many questions about AID. Is there an age factor which affects sperm and brings about defective offspring? If there is intermarriage among children with the same "fathers" (as seems inevitable if donors are anonymous), will this result in defective offspring? To avoid this, will it not be necessary to license donors, to identify them, etc.? Since there are many recessive genes, might not a multiplication of hidden genetic defects occur? Would the multiplication of anonymous donors bring about disintegration of family life? Basically, are the goals (values) of AID worth the risks (consequences)? More basically, what are the value-goals? Could they be achieved in other ways?

2. In Vitro Fertilization

With the birth of Louise Brown in Bristol, this has become one of the popular questions of the day. Actually, cases like the Brown case are not the object of this article (which focuses specifically on genetic engineering). The moral considerations surrounding the Brown case (and other cases in which a zygote fertilized in vitro is implanted in a womb) are similar to those involved in AIH or possibly AID. Several of the considerations presented below, particularly those revolving around the unsuccessful outcome of experiments prior to successful fertilization and implantation, are also most relevant.

Actually, if scientific techniques were improved, in vitro fertilization, combined with AID and super-ovulation, could bring about massive productivity of select types. These could be implanted in the wombs of willing carriers.

Mutatis mutandis, the same moral concerns mentioned in the first section, are applicable to the problem of in vitro fertilization for the purposes of genetic engineering. One must add to this the principle of Catholic moral theology that the zygote should be treated as human life from the time of fertilization (I prescind here from the question of whether blastocyst is the more critical moment for identifying fetal life as human). Today there is no possibility of bringing human life to term outside the womb. Therefore, most experimentation with in vitro human fertilization (for the purposes of genetic engineering) is for the future, not for the sake of the life actually involved. It could be described, consequently, as the non-free use of a person for future generations. This would be morally reprehensible.

Several common-sense rules suggest themselves here: a) we must never submit another human person to experimental procedures to which he cannot consent (or where his consent could not reasonably be presumed) when these procedures have no relationship to his own treatment; b) no such experiment should be conducted where *a priori* there is reason to believe that death or disabling injury will occur.

3. Cloning

It is now common knowledge (and the occasion for much science fiction) that the nucleus of an unfertilized ovum can be removed or destroyed and then replaced by the nucleus of a cell taken from the body of some man or woman. This produces a twin of the person supplying the nucleus. Contrary to some recent writing, there is no scientific evidence that a human person has ever been cloned successfully.

It should be immediately evident that cloning involves problems similar to those mentioned in part one above, but *a fortiori*. Cloning would not just biologize sex, it could eliminate it. Cloning tries to

guarantee carbon copies. But many questions arise: How much are the carbon copies like the original? How much freedom do they have? If freedom is diminished, are there not grotesque possibilities of domination?

One may also ask if cloning might not produce an evolutionary dead end. Evolutionary theory revolves around "natural selection." Might man's variability and adaptability be lost through cloning? Might the race lose the very thing which enables it to survive?

If one is interested in flights of the imagination, cloning could also eliminate men. All that is necessary to clone is an ovum, a nucleus and a womb, all female products. If backlash were to take place against today's chauvinist society, women could really take over! Of course, something similar could happen in the opposite direction. If with scientific advances wombs could be replaced by incubators, then only a very small number of women would really be necessary. Drugs could keep them tame (!) and superovulating. Men could then be cloned in great numbers. Every 20 years or so a fresh small group of superovulating women could be cloned. The women could be kept in different camps throughout the world so that no natural disaster could wipe them out. But enough of all that.

4. Genetic Disease and Surgery

This is a very different question. There are about 100 such identified diseases. If we can treat them, then it is imperative to do so, all other things being equal. The principles here are the same as for all corrective surgery.

Naturally, today much is unknown about the nature of genetic diseases and the ways of correcting them. Techniques are primitive. There is a high risk of mistakes. In all consideration of surgery, even apart from the question of genetic surgery, there must be a reasonable expectation of more good than harm. This is quite precarious today when talking about genetic disease and surgery.

In principle, therefore, genetic surgery is permissible, even desirable, but in practice it may be questionable. Similar principles would apply to genetic surgery that is not corrective, but is aimed at improving the race. Naturally, in the latter regard, many other moral questions would have to be asked about what values should be sought, who decides on them, what the risks are, etc.

5. Who Decides on the Ideal?

This question could better be phrased: what is the ideal and who decides on it? Is the ideal longer life? Intelligence? Strength? Self-improvement? Control?

One can raise questions about all of these goals. For example, do we

really want longer life? Would that make human life better or worse, given the present state of world population growth? One may ask whether achieving increased intelligence through AID or cloning would really benefit man. Would it produce real wisdom? Would there be corresponding development in the affective life of those cloned for this end? Could not a computer do much of the work we might expect of the superintelligent?

Control over decisions about the ideal is equivalent to control over the destiny of mankind. Should that be left to the state? C.S. Lewis once observed that man's power over nature is really the power of some men over other men, with nature as their instrument.

In cloning and much genetic engineering, increased control over the product is purchased by increasing depersonalization of the process. Is this really worth it?

6. What To Do with Mistakes?

Many mistakes would be likely to result from genetic engineering. That is the usual by-product of experimental processes. The results could be monsters and subhuman phenomena of various sorts. Some warnings are in order here. Great precaution is needed in dealing with human life. Procedures during the space program and moon landings illustrated this. Long years of preparation went into these programs before human beings became involved. One does not risk human life in the precarious states of experimentation, yet experiments in genetic engineering are already doing this. If one holds the Catholic position that from the time of fertilization the zygote deserves respect as human life, then such experiments are all the more irresponsible.

All experiments should have reasonable hope of success. Mistakes must be avoided as far as possible. Once there are mistakes, we must decide on their humanity (a very difficult question). If they are human, then they deserve care.

A forceful argument can be made that the inevitable mistakes alone are a sufficient argument for abstaining from cloning.

7. Animal-Human Combinations

One might also speak here about human-machine combinations, or cyborgs.

In principle, to fabricate a man with diminished freedom seems reprehensible. It would also be an historical step backwards (we might think of slavery, serfs, "drones" of different types). This would seem to apply to both "animal-human" combinations (which we might find it handy to have around as serfs or, to recall Joseph Fletcher's⁸ awful suggestion, to test radiation-contaminated areas to see if they are safe for the rest of us) and to human-machine combinations (which might

be very intelligent or very strong, but non-affective and perhaps even minimally bodily).

One may certainly also ask if it is not purely and simply wrong to create non-affective human beings.

As Karl Rahner⁹ points out, there is an instinctive moral sense which often cannot be adequately articulated by human reasoning. Of course, we should try to articulate such moral instincts. Nonetheless, just as there are faith-instincts, which, at least for a period of time, remain obscure, so also there are moral-instincts which in any given era are not fully explicable. The instincts in much contemporary ethical literature¹⁰ on genetic engineering are very cautious and frequently negative. Though we cannot (yet) explain these fully (as is obvious from the incompleteness of the remarks above), it may still be wise to follow them!

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