This material has been provided by Asbury Theological Seminary in good faith of following ethical procedures in its production and end use.

The Copyright law of the united States (title 17, United States code) governs the making of photocopies or other reproductions of copyright material. Under certain condition specified in the law, libraries and archives are authorized to finish a photocopy or other reproduction. One of these specific conditions is that the photocopy or reproduction is not to be “used for any purpose other than private study, scholarship, or research.” If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of “fair use,” that user may be liable for copyright infringement. This institution reserves the right to refuse to accept a copying order if, in its judgment, fulfillment of the order would involve violation of copyright law.

By using this material, you are consenting to abide by this copyright policy. Any duplication, reproduction, or modification of this material without express written consent from Asbury Theological Seminary and/or the original publisher is prohibited.

Contact
B.L. Fisher Library
Asbury Theological Seminary
204 N. Lexington Ave.
Wilmore, KY 40390

B.L. Fisher Library’s Digital Content
place.asburyseminary.edu
IMAGE OF GOD
OR
IMAGE BY MAN

A Thesis
Presented to
the Division of Theological Studies
Asbury Theological Seminary

In Partial Fulfillment
of the Requirements of the Degree
Master of Arts in Theological Studies

Approved by: [Signature]
Approved by: ______________________
Approved by: ______________________

by
Kevin Emerson Lageer
May 1992
Throughout history, the Holy Bible and the Judeo-Christian definitions developed from it, formed the basis of human identity for most of the civilized world. Until recent centuries, this identification and differentiation from all other creation was seldom questioned. There is an obvious inherent difficulty here arising from human finitude. Due to our inability to change ourselves, it is difficult to envision a human being as anything other than what a human being has been in this creation. Prior to the present point in time, human beings and the intrinsic processes connected with them have been virtually unalterable.

Genesis 1:26-28, whether explicitly or implicitly, provides us with our basic understanding of what humankind is and is supposed to do in terms of duties. The definitions of humanity which have been given in the Bible were sufficient knowledge for the operation of life until only a few decades ago. Any differences were accepted as givens; something beyond that which humanity could control. What was created as male and female was seldom if ever questioned. It was not until the time of the Enlightenment and the thinking of John Locke and David Hume, that especially far-reaching theories of human nature began to develop. But these too, as with all previous attempts at delineating the
contents of human nature, have been subjective and conjectural. However, the progress of genetic science in the early 1900's was about to change this pattern.

It was in the early years of the twentieth century that Francis Crick and James Watson discovered what have come to be known in lay terms as the "building blocks of life". Deoxyribonucleic acid is a coded protein found within every cell of every biological organism on earth, including human beings. The codes that are found within this protein chain are the inner identifying sources of the exterior manifestations and operations of both that particular cell, but ultimately the entire organism. It is the relationship between the possibilities of genetic science and the Judeo-Christian definitions of the nature of humanity that are the focus of this thesis.

The first chapter will consist of an exegetical and historico-theological examination of the Biblical understanding of the term "image" as used in Genesis 1:26 and elsewhere. Chapter 2 will consist of an examination of two creational commands which have the most bearing on the main issue in focus and which provide some parameters to both this study as well as the fulfilling of the rDNA task.

Chapter 3 is a scrutiny of the structures and the way in which we think about several different infrastructures of human society, with special emphasis being given to the child and the family. Ultimately, the question under review is, "What is the correlation between the Biblical concept of
the image of God in mankind and recombinant DNA technology, and perhaps more importantly, does this technology possess the ability to alter the image of God in human beings?"

Chapter 4 forms the convergence of the theological and the scientific/technical aspects of the study.

Some conclusions will be drawn regarding acceptable research and technology in light of the Biblical understandings. As well, some areas of further study will be highlighted.
IMAGE OF GOD
OR
IMAGE BY MAN

A Thesis
Presented to
the Division of Theological Studies
Asbury Theological Seminary

In Partial Fulfillment
of the Requirements of the Degree
Master of Arts in Theological Studies

by
Kevin Emerson Lageer
May 1992
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE OF CONTENTS</td>
<td>iii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>v</td>
</tr>
<tr>
<td>PART 1</td>
<td>1</td>
</tr>
<tr>
<td>CHAPTER 1</td>
<td>1</td>
</tr>
<tr>
<td>The Foundations of &quot;Imago Dei&quot; in Genesis</td>
<td>1</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Exegetical Analysis: Genesis 1:26</td>
<td>4</td>
</tr>
<tr>
<td>Exegetical Analysis: Genesis 5:3</td>
<td>5</td>
</tr>
<tr>
<td>Exegetical Analysis: Genesis 9:6</td>
<td>6</td>
</tr>
<tr>
<td>Historical Theological Analysis of Imago Dei</td>
<td>7</td>
</tr>
<tr>
<td>Documentary Hypothesis Vs. Unitary Reading</td>
<td>7</td>
</tr>
<tr>
<td>Documentary Hypothesis Reading of Imago Dei</td>
<td>8</td>
</tr>
<tr>
<td>Unitary Reading of Imago Dei</td>
<td>13</td>
</tr>
<tr>
<td>Theological Interpretations</td>
<td>16</td>
</tr>
<tr>
<td>Theological Interpretations</td>
<td>16</td>
</tr>
<tr>
<td>Barth and Brunner</td>
<td>20</td>
</tr>
<tr>
<td>Evaluation of Interpretations</td>
<td>25</td>
</tr>
<tr>
<td>Conclusions and Principles</td>
<td>30</td>
</tr>
<tr>
<td>CHAPTER 2</td>
<td>36</td>
</tr>
<tr>
<td>Creational Commands</td>
<td>36</td>
</tr>
<tr>
<td>Chapter</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>3</td>
<td>Image OF God and rDNA Research</td>
</tr>
<tr>
<td></td>
<td>The Limits of &quot;The Good&quot;</td>
</tr>
<tr>
<td></td>
<td>The False Concept of Risk/Benefit Analysis</td>
</tr>
<tr>
<td></td>
<td>The Moral Views of Parent/Child Relationships</td>
</tr>
<tr>
<td></td>
<td>The Moral Views of Others/Society</td>
</tr>
<tr>
<td></td>
<td>Moral Views of the Future</td>
</tr>
<tr>
<td>4</td>
<td>Contemporary Views of the Image</td>
</tr>
<tr>
<td></td>
<td>CONCLUSION</td>
</tr>
<tr>
<td></td>
<td>BIBLIOGRAPHY</td>
</tr>
</tbody>
</table>

A Creational Implication - Freedom: Genesis

1:27 ........................................ 36

A Creational Command - Authority: Genesis

2:15 ........................................ 44

PART 2  ...................................... 50

CHAPTER 4  ................................... 121

Contemporary Views of the Image  ................. 121

CONCLUSION .................................... 136

BIBLIOGRAPHY ................................... 143
ACKNOWLEDGEMENTS

First, I thank the Lord for this opportunity to study and grow in knowledge and grace. The time spent and material studied in the preparation of this thesis has given me new directions of interest and work.

Secondly, I would like to thank my parents, Willard and Ferne Lageer for their assistance and cooperation in allowing me to set up office in their home. I would also like to thank Allan and Marjorie Hartwig for their assistance and patience throughout the duration of this entire exercise.

Third, a large "Thank-You" to my wife Karen and my daughter Jordanna for their combined patience during the past few months. Both the desertions and the intrusions were helpful and appreciated. Thank you for your lack of pressure through this long ordeal.

Last, but by no means least, thank-you to a valuable friend and confidante in the person of Ivan Franck. You afforded me much of your valuable time both in discussion, and reading of the initial drafts of this thesis. Your encouragement during the difficult "seventh inning stretch" and the reminders that "this too shall pass" were greatly appreciated.

Kevin E. Lageer
Duntroon, 1992
PART 1
CHAPTER 1
The Foundations of "Imago Dei" in Genesis

Introduction

One of the most basic questions that mankind has ever asked is, "Who am I?" While the importance of the question and the influence of the answers varies from period to period through the course of history, nothing seems to get closer to the heart of any individual than questioning one's own ultimate identity.

It is difficult to exaggerate the importance of the doctrine of man. It has, of course, always been true that one of the most important questions to which the philosopher addresses himself is, What is man? ... Various thinkers have given various answers to the question "What is man?", each one with far-reaching implications for thought and life.¹

For the Christian, this issue is equally important, if not more important than for the non-Christian, but it is often phrased differently. One of the most common phrases in Christian jargon is, "the Image of God".

What differentiates Adam and Eve from the rest of creation is that they were created in the image of God. For twentieth-century man this phrase, the image of God, is as important as anything in Scripture, because men today can no longer answer that crucial question, "Who am I?" In his own naturalistic theories, with the uniformity of cause and effect in a closed system, with an evolutionary concept of a mechanical, chance parade from the atom to man, man has lost his unique identity. As he looks out upon the world, as he faces the machine, he cannot tell himself

¹ Anthony A. Hoekema, Created in God's Image (Grand Rapids: Eerdmans, 1986), 1.
from what he faces. He cannot distinguish himself from other things.²

For individuals in our day, this question will most often arise in relation to some medical or health related issue, either on behalf of themselves or someone they are closely associated with.

While current society's concern over the image of God in man³ is open for debate,⁴ for the Christian, it never loses its primary importance. It is the fundamental question of all theological and anthropological study.⁵ Indeed for John Wesley, before he can address the question of the new


³ Throughout this thesis, there will be much discussion concerning humanity at large. In view of the central topic of this thesis, it will be very difficult to completely eliminate 'sexist' language. In many languages with the exception of English, there are specific words which refer to humanity at large without male or female references. I would greatly desire to be fluent in German, and be able to properly use the much more encompassing term 'mensch', which we can only translate man, but which in the German has no male or female connotations. As much effort as possible will be made in this thesis to avoid the use of "man" in reference to the human race, however, justification for the use of "man" is based upon the fact that the foundational discussion of this thesis is centered on the creation of man as a species before the differentiation between the male and female as groupings within the species.

⁴ There are large sections of most societies in the world who would be just as happy if the subject never arose, but for the average North American, the question of "Who am I?" has risen to new levels of importance over the past ten years, as opposed to the previous question of importance, "What is ultimate reality?" Cf. Schaeffer, Complete Works, Vol. 2.

⁵ In the anthropology section of most theology text books, the Imago Dei is the first major subject, or the second if creation as a whole is dealt with.
birth, he must first address the question of the origin and image of man.  

The verses of primary interest for this first chapter are found in Genesis 1:26,27. It will be the aim of this chapter to arrive at some type of definition to aid in our understanding of the phrase "image of God" in man. The first step in formulating a definition will be to examine the two most important terms found in Gen. 1:26, "גָּדְלָה" and "יָדָהא". From here, a cursory study of the use of these words in other verses will be executed. Subsequent to the exegetical analyses, it will be necessary to examine the current theories of the origins of the Primal History in an effort to determine if a difference of theory viewpoint changes the basic interpretations of the central text. In order to broaden the study, it is prudent and necessary to examine some theological definitions of the "image" including the views of both Brunner and Barth. In conclusion, a list of principles will be gleaned from the chapter.

---

**Exegetical Analysis: Genesis 1:26**

The first phase of the exegetical examination will focus on the initial occurrence of the concept of image in the Bible. Subsequent references will be used to both broaden and focus the resulting definition.

Our central passage is as follows,

> And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. (Genesis 1:26)

> So God created man in his [own] image, in the image of God created he him; male and female created he them. (Genesis 1:27)

In some senses, it is a very simple passage, while in other senses, it is most profound and even cryptic. The two Hebrew terms are דִּיָּם and הָיוֹם. Many of the earlier commentaries and discussions on this particular passage spend a good deal of time on the opening cohortative of 1:26. This discussion will follow the lead of the more recent commentaries and forego the investigation of the meaning of the cohortative without limiting a complete understanding of the central interest.

---

7 All Biblical references taken from The Online Bible, Version 5.0 (Elmira, ON: Woodside Bible Fellowship, 1990).


The first term, נָֹפְלָפֶּל, seems to be the more basic and foundational of the two terms. The root and cognates of this term are used 16 times throughout the Old Testament. Five times it is used of man as created in the image of God. The word basically refers to a representation or a likeness. Often in actual practice, this term would be used in reference to the image made a ruler of him/her self and placed in the farthest reaches of his kingdom as a reminder to his subjects of his continued rulership in spite of his physical absence. Although it is not stated specifically, it is assumed by many scholars that the Hebrew children were faced with a נָֹפְלָפֶּל in Daniel 3:1. Several different words are used in the Old Testament to refer to idols, some of which refer to size, while others are most likely simply derogatory terms, but this term is the most common and encompassing. נָֹפְלָפֶּל refers to the image as a representation of the deity.10 It is important to note here that not all sculpture was forbidden, only that which was to be used in an idolatrous manner.

The second term of interest is the word נָֹפְלָפֶּל. It has the following root meanings, "in the likeness of", or "like as", but is also translated "is like", "similitude", or "fashion". This word is used 22 times in the Old Testament, with thirteen occurrences in Ezekiel (1:5, 10, 13, 16, 22, 26, 28; 8:2; 10:1, 10, 21, 22; 23:15). It is important to note that nowhere else in the Old Testament, outside the book of Genesis, do these two terms appear in parallel or are in any way connected with each other.

Exegetical Analysis: Genesis 5:3

Genesis 5:3 is the next most important reference containing one of these terms. "And Adam lived an hundred and

thirty years, and begat [a son] in his own likeness, after his image; and called his name Seth:" (Genesis 5:3). Moses here uses the same type of phrasing in reference to Adam and Eve's procreation of a son as he used of God's creation of man in the first instance. (It is interesting to note that the reference only speaks of Adam begetting the son, with no reference to Eve.) This indicates man's creative ability patterned after God, although his creative capabilities are tempered by mortality, and are not ex nihilo. The most important point of this reference, however, is the fact that whatever it was that God gave to in creating him, he was able to pass on to his own offspring. While this hereditary factor does not encompass the whole of the image, it is a vital factor. This point is further highlighted in the next reference of importance in this study.

Exegetical Analysis: Genesis 9:6

By the time one arrives at the ninth chapter of Genesis, rules for living in society are being set up by God. The rule that is of most importance for our purpose is found in Genesis 9:6, "Whoso sheddeth man's blood, by man shall his blood be shed: for in the image of God made he man." (Genesis 9:6) It is important that the only reason given by the author as a warning against killing any man is that man was made in the image of God. It is the image in himself that makes man worthy of the possession of life. "And this much we may fairly infer from hence, that 'the image of God,' wherein 'man was' at first 'created,' whereinsoever it consisted, was not utterly effaced in the time of Noah. Yea, so much of it will always remain in all men, as will justify the punishing murderers with death."¹¹ It is nothing less than the image of God, bestowed upon man at creation and reproduced from generation to generation, that is to protect man from death by the hand of his fellow man.

Historical Theological Analysis of Imago Dei

Documentary Hypothesis Vs. Unitary Reading

For the last three quarters of a century, the documentary hypothesis has been the predominant view of the majority of theologians regarding the Old Testament. This seems to be an outgrowth of the presumed correctness of the Darwinian theory. A fundamental presupposition this theory is that the latest version of any process is the best.

This fundamental presupposition has infused many other aspects of modern life and thinking. This presumption has been propounded in all areas of science, medicine, agriculture, and it has even subtly invaded our views of animate life including humans themselves. It has also entered the realm of religion and biblical studies. The fundamental belief of this advancement theory (which became known as the documentary hypothesis as labelled by Wellhausen, one of its foremost proponents) is that the original authors of the Primal History could only combine theories, stories and myths in an editorial fashion. The main task was blending them together into a coherent, readable and hopefully believable whole. According to the proponents of this theory, the original story was not considered complete enough in some manner, and it was felt that other details and editorial comments were needed. While they will concede that the breaks are not always obvious, in most instances, differences in style can be discerned.

Because it would be going against the fundamental presupposition of the Documentary Hypothesis (that newer is always better), the following proposition (after the rise of the Documentary Hypothesis) was seldom allowed to be stated: that the original autographs could have been written by one author; a consummate artist at telling stories and blending details. In the overbearing din of documentary hypothesis research, we must ask, "Was the still small voice of unitary
reading ever given a hearing?" However, for the purpose of this discussion, does a decision between the documentary hypothesis versus a unitary reading make any substantial difference to the interpretation of the central verses that form the heart of the doctrine of the Imago Dei? And such will be the focus of the balance of the chapter.

Due to the overwhelming amount of research in the tradition of the documentary hypothesis, this investigation will be limited to the writings of Gerhard von Rad and Martin Noth, and the commentary work of Westermann. The majority of their writings are centered around studies in Genesis and Old Testament theologies. The first endeavour will be to gain a fuller understanding of their conceptions of the Imago Dei. The latter portion of this section will then be concerned with determining an understanding of the Imago Dei from a unitary reading interpretation in an effort to ascertain any differences between the two approaches.

**Documentary Hypothesis Reading of Imago Dei**

Martin Noth summarizes his overall approach in the opening chapter of *Pentateuchal Traditions*. The following lengthy quote, will serve well to lead us into the thinking and understanding of one immersed in the documentary hypothesis.

The growth and formation of the large body of traditions now found in the extensive and complicated literary structure of the Pentateuch was a long process, nourished by many roots and influenced by manifold interests and tendencies. In the course of this development, traditions which doubtless were circulated and transmitted orally at first were probably written down in time, for reasons that are no longer known to us and to an extent that can no longer be determined with certainty. In any event, later on they were brought together in large literary works and these in turn, through the purely literary labors of so-called redactors, were finally compiled into the large corpus of the transmitted Pentateuch. It is the task of a "his-
tory of Pentateuchal traditions" to investigate this whole process from beginning to end. . . . Beyond this, however--and here is the essential point--the decisive steps on the way to the formation of the Pentateuch were taken during the preliterary stage, and the literary fixations only gave final form to material which in its essentials was already given. Therefore, to understand properly the structure and content of the Pentateuch as a whole and in its details, one must attempt to penetrate into the early stages of the history of its traditions.12

Certain literary devices are used as aids in coming to an understanding of the message of the Pentateuch. They have become signposts serving as signals to the reader of changes in direction or ideas. The first of these Noth refers to as 'bracketings'. Noth perceives five independent themes forming the backbone of the Pentateuchal traditions. These themes are "guidance out of Egypt", "guidance into the Arable Land", "promise to the Patriarchs", "guidance in the Wilderness", and "revelation at Sinai". While we don't have the time or space here to elaborate on either the outline or the substance, a cursory reading of Noth's understanding of this process would quickly alert one to the fact that there is a very complicated "cutting and pasting" of the stories and perceived traditions as given in the Canon. von Rad gives us some sense of this understanding when he states,

It is to the undying credit of H. Gunkel that in his great commentary on Genesis he separated the original narrative units from the larger whole and analyzed them with a distinctive aesthetic charisma. These individual traditions were of very different kinds. . . . But that these very old traditions are for the most part sagas is a fact, the background of which we can investigate no further. What does this fact, which today is

neither new nor scientifically disputed, and yet concerning which so much lack of clarity still prevails, mean for the exegete?\textsuperscript{13}

What it has meant is a century of scholarly work based on a theory. Thus while we have a basic understanding of von Rad's view of the Old Testament canon, he does make this further clarification, "It is certainly misleading if we apply it [saga] to the present forms of the Old Testament traditions, for from a literary point of view we have here narratives which have reached a high degree of artistry and which venture to depict God's ways in sacred history by means of constantly new pictures."\textsuperscript{14} Westermann too is convinced of the refined over-lays that he perceives make up the Primal History of the Old Testament. He states, "Separately from the Patriarchal History, the Primal History (chs.1-11) was also formed out of individual stories that were once transmitted independently, as several parallels between the stories demonstrate convincingly."\textsuperscript{15} Each of these scholars sees the development of the Primal History as happening in successive stages, none of which could be clearly distinguished or delineated. They are assured that the development was a process of generations of oral traditions being refined to the point where actual writing took place. This writing however was still not the words which we have in front of us. Indeed the writing itself progressed through many generations and revisions before there developed what we possess and use as the Old Testament canon. With this as background, we will in turn, examine


\textsuperscript{14} von Rad, \textit{Genesis}, 37.

von Rad's and Westermann's interpretations of the Genesis 1:26 passage.

von Rad opens his commentary with the following,

Anyone who expounds Gen., ch. 1, must understand one thing: this chapter is Priestly doctrine--indeed, it contains the essence of Priestly knowledge in a most concentrated form. It was not "written" once upon a time; but, rather, it is doctrine that has been carefully enriched over centuries by very slow growth. . . . What is said here is intended to hold true entirely and exactly as it stands. 16

In spite of von Rad's views on the sources of the Primal History, he maintains an orthodox view of the image of God in man. He notes that the image "is not to be limited to any part of man"; that it is to be found "in the totality of his being." 17 In reference to the physical versus the spiritual, he states, "Therefore, one will do well to split the physical from the spiritual as little as possible: the whole man is created in God's image." 18 As von Rad moves to the reality of the creation of man in God's image, he assumes a functional definition in reference to the image in man.

When, however, one has traced in a general way the distribution of weight in the Priestly account of man's creation, one will admit that the text speaks less of the nature of God's image than of its purpose. There is less said about the gift itself than about the task. This then is sketched most explicitly: domination in the world, especially over the animals. This commission to rule is not considered as belonging to the definition of God's image; but it is its consequence, i.e., that for which man is capable because of it. . . . The decisive thing about man's

16 Rad, Genesis, 47.

17 Rad, Genesis, 59.

18 Rad, Genesis, 58.
similarity to God, therefore, is his function in the non-human world.\(^{19}\)

He also notes that the idea of man refers not simply to the male alone, but rather to the male and female; there is a sexual distinction that is evident in the image.

In trying to determine the meaning of "image", Westermann says that,

\begin{quote}
It does not mean a particular human quality; it is not an isolated assertion about human beings, but rather concerns the purpose of their creation. The Creator wants to create a being analogous to himself, to whom he can speak, who will listen and speak to him. This remains true despite all human differences; every person is created in the image of God.\(^{20}\)
\end{quote}

After explaining the simple meaning of the verb in the command of the next verse, Westermann concludes, "His rule serves the well-being of his subjects. This is what is meant here by humanity's rule over the rest of creation."\(^{21}\)

The logical implication for Westermann here is that, "When this is exemplified by rule over the animals (cf. Ps. 8:6), then it is because the personal element in humanity is most involved here; humanity can remain most fully human through ruling animals, as we see in passages describing the shepherd (Ps. 23; John 10)."\(^{22}\) Thus, in addition to ruling over animals, existence as male and female and procreation are added as conditions to fill out the picture of what it means to be fully human.\(^{23}\) However, if the foregoing is true, then one could conclude that sheep-herding and lion-

\begin{footnotes}


22 Westermann, \textit{Genesis}, 11.

\end{footnotes}
taming make one more human than does baking, welding, or playing golf.

**Unitary Reading of Imago Dei**

For the past couple of decades, there has been a growing voice of dissention in a scattered few departments of Biblical studies against the documentary hypothesis. Those who have raised their voices in suspicion of the documentary hypothesis, have done so at the risk of ridicule from peers and loss of stature in the exegetical world. Two of those who have done just this and in a most polite but forceful way are Isaac Kikawada and Arthur Quinn, in a co-authored work entitled *Before Abraham Was*. They have very artfully constructed the picture that would result from a unitary reading of Genesis 1-11. Commentators that have followed this pattern of thinking, from different traditions, would include Umberto Cassuto, Victor P. Hamilton, and Robert Alter. In light of the fact that this is not a survey of the interpretation of Gen. 1:26, nor a definitive determination of authorship or composition, it will

---


26 "In a book that is patently anonymous, and where all original texts have long since disappeared, it is most likely that a project to determine Genesis' authorship and mode of composition is doomed from the start." Hamilton, *The Book of Genesis*, 37.
suffice to overview Hamilton and Umberto Cassuto for actual interpretations.

In relation to our specific interest, Hamilton generally follows the most popular interpretations. He notes that in neighbouring societies, quite often the king was referred to in written and spoken language as "the image of God", but such a designation would be withheld from the common labourer. Such may be the case in Gen. 1:26. The author of Genesis is simply referring to mankind by using royal language, indicating that, "In God's eyes all of mankind is royal." And further than this, "All of humanity is related to God, not just the king. Specifically, the Bible democratizes the royalist and exclusivist concepts of the nations that surrounded Israel."\(^{27}\)

Hamilton goes on to note the obvious fact that this verse is not intended to define the image of God in man, rather it states such as a fact. "Gen. 1:26 is simply saying that to be human is to bear the image of God. This understanding emphasizes man as a unity. No part of man, no function of man is subordinated to some other, higher part or activity."\(^{28}\) This stated fact serves no more than to establish the relationship between the creature and the Creator.

The balance of the verse establishes the intended relationship between the remainder of creation and man. Again the author seems careful to use royal language. The intended meaning of מָלַע in this instance is "to rule" rather than "to tread down" (as in Joel 4:13 and Ezek 34:4). When it is used in relation to a human king and his rule, the normal nuance of the verb is ruling with compassion and the best interests of those being ruled in mind. "The master is not

\(^{27}\) Hamilton, The Book of Genesis, 135.

\(^{28}\) Hamilton, The Book of Genesis, 137.
to rule over his servants with harshness. . . . What is expected of the king is responsible care over that which he rules. . . . Man is created to rule. But this rule is to be compassionate and not exploitative. Even in the garden of Eden he who would be lord of all must be servant of all.\textsuperscript{29}

Cassuto's interpretation of the passage can be summed up in the following,

There is no doubt that the original signification of this expression in the Canaanite tongue was, judging by Babylonian usage, corporeal, in accordance with the anthropomorphic conception of the Godhead among the peoples of the ancient east. Nevertheless, when we use it in modern Hebrew, and say, for instance, 'all that has been created in the Divine image', we certainly do not associate any material idea with it, but give it a purely spiritual connotation, to wit, that man, although he resembles the creatures in his physical structure, approaches God in his thought and in his conscience. It is clear, therefore, that the meaning of the phrase changed in the course of time; it was corporeal to begin with but subsequently it became spiritual. . . . When we consider the lofty conception of God that is reflected in our section, we are compelled to conclude that the change referred to antedated its composition, and that the expression is used here in a sense similar to (if not actually identical with) that which it has in Hebrew today.\textsuperscript{30}

As can be readily seen from the foregoing, Cassuto too, tends to see the image as residing in the spiritual aspects of mankind, thus making the assumption that mankind's spir-

\textsuperscript{29} Hamilton, The Book of Genesis, 138. Several of late have placed blamed for the current pillaging of the environment directly on Gen. 1:26, but this is only possible as a result of misinterpreting the verb being used; interpreting "radah" to mean "tread/trample under foot" rather than "rule with concern/compassion". Cf. Hamilton, 138, fn. 19 for examples of proper exegesis and discussion of ecology.

tual qualities are his/her most "God-oriented" qualities. His interpretation is another example locating the image in one particular aspect or action of mankind. Theological Interpretations

Attention must now be focused on the somewhat more difficult aspect of this study. It is the technical interpretation of this phrasing that becomes very broad. Throughout history the interpretations of the phrasing in Gen. 1:26 have fallen into five different categories:31

1) Roman Catholic theology maintains a distinction between the two terms, one referring to structure, the other referring to function or the moral image that, unlike the first, was damaged in the fall.

2) The more important word is "image", but to avoid the implication that man is a precise copy, the less specific and more abstract "likeness" was added.

3) There is no distinction, and the words are interchangeable; the two words are so intertwined that nothing is lost by the use of both or the omission of either word.

4) "Likeness" is more important and is defined and limited by the use of "image".

5) The word likeness rather than diminishing the word image, actually amplifies it and specifies its meaning. Man is not just an image, but rather a likeness-image. He is not simply representative but representational. Likeness guarantees that man is an adequate and faithful representative of God on earth.

Calvin, Luther, Wesley

It seems evident from the foregoing that no one way of interpreting the phrase has prevailed through time. In line with the Catholic thinking of the first point above, Calvin says the following:

31 Harris, T.W.O.T., 1:192.
...although some obscure lineaments of that image are found remaining in us; yet are they so vitiated and maimed, that they may truly be said to be destroyed. For besides the deformity which everywhere appears unsightly, this evil also is added, that no part is free from the infection of sin.\(^2\)

And again we find the same sort of mindset from Luther,

Therefore that image of God was something most excellent, in which were included eternal life, everlasting freedom from fear, and everything that is good. However, through sin this image was so obscured and corrupted that we cannot grasp it even with our intellect. Although we utter the words, who is there who could understand what it means to be in a life free from fear, without terrors and dangers, and to be wise, upright, good, and free from all disasters, spiritual as well as physical?\(^3\)

As can be attested by one more quote, it appears that most of the older commentators believed that the image of God in man was, at the least, badly damaged at the Fall.

The Reformed and the Lutherans agree, against the Roman Catholic (and medieval scholastic) idea of a donum superadditum (q.v.), that the imago divina was not superadded to human nature, but was a donum, or gift, belonging to the original human constitution and intrinsic to it, a donum concreatum (q.v.). They also agree as to its nearly complete loss and the present inability of man to regain any of the lost gift by his own efforts. They disagree, however, as to the precise identification of the Imago.\(^4\)

---


\(^3\) Martin Luther, Luther's Works: Lectures on Genesis, Chapters 1-5, ed. Jaroslav Pelikan (St. Louis: Concordia, 1958), 65.

\(^4\) Richard A. Muller, Dictionary of Latin and Greek Theological Terms: Drawn Principally from Protestant Scholastic Theology (Grand Rapids: Baker, 1985), 143-146.
The final statement here has become the more central concern of the more recent commentators, the issue being the underlying meaning of the image. However, this too tends to fall into historical categories.

The position that commentators and theologians very often take seems to be defined in relation to either the rest of creation as a whole, or to the animals as a part of that same creation. This later developed into the structural and functional aspects of the Imago Dei. Aquinas developed the position that saw the image of God in man being entirely located in man's ability to reason. Man's ability to even ask "Who am I?" set him apart from the rest of creation. In reaction to this type of thinking, Orr defines it differently again,

Negatively, it is plain that the image [of man] does not lie essentially in material form.

Positively, therefore, this image, or resemblance to God, must be supposed to lie primarily in man's nature, and secondarily, in the relation which through that nature he sustains to the lower creation, and to the world as a whole. It must be looked for, therefore, in that higher constitution of his being which makes him spiritual. It is in the powers and activities of man as personal spirit that we are to seek his affinity to God and resemblance to Him. The image of God intended in Scripture, in other words, is a mental and moral image. It is to be sought for in the fact that man is a person--a spiritual, self-conscious being; and in the attributes of that personality--his rationality and capacity for moral life, including in the latter knowledge of moral law, self-determining freedom, and social affections; highest of all, in his capacity for fellowship with God."

Throughout history the most popular interpretation at any given time vacillated between the structure of man, that

---

is, how God actually created him, and the function of man, or the activities that man could accomplish that made him different from the rest of creation, but supremacy has never been gained by either position.

Man is the image of God by virtue of his spiritual nature, of the breath of God by which the being, formed from the dust of the earth, became a living soul. The image of God consists, therefore, in the spiritual personality of man, though not merely in unity of self-consciousness and self-determination, or in the fact that man was created a consciously free Ego; for personality is merely the basis and form of the divine likeness, not its real essence. This consists rather in the fact that the man endowed with free self-conscious personality possesses, in his spiritual as well as corporeal nature, a creaturely copy of the holiness and blessedness of the divine life.\(^\text{36}\)

John Wesley also picks sides in his evaluation of the Imago. He states that God created man

not barely in his natural image, a picture of his own immortality; a spiritual being, en-cuued with understanding, freedom of will, and various affections;—nor merely in his political image, the governor of his lower world, having "dominion over the fishes of the sea, and over all the earth;"—but chiefly in his moral image; which according to the Apostle, is "righteousness and true holiness" (Eph. 4:24.) In this image of God was man made.\(^\text{37}\)

There are problems with both positions when taken separately. If the structural position is believed to be the most correct position, difficulties arise both in the areas of follow-up as well as interpretation. An accusation made against the structural position in the area of interpretation is that if man possesses the image of God without

\(^{36}\) Keil & Delitzsch, Vol. 1, 63-64.

\(^{37}\) Wesley, Works, 6:66.
any relational responsibilities, he is not much different from God.

James Orr, cited above was a strong proponent of the structural posture. In his classic work entitled *God's Image in Man*, he very neatly erects a Biblical structuralist pose in objection to monistic, materialistic, evolutionistic, and other views of the nature of mankind. Orr finds the image to exist in the rational constitution, the dominion and the moral resemblance to God which has been marred by sin, realized in Christ and restored in redemption. While he attempts to cover all of the bases that constitute the image of God in mankind, either it doesn't occur to him or he is uncomfortable to directly declare that the image of God simply is man.

**Barth and Brunner**

The theologians of the early twentieth century take a different approach. Barth and Brunner developed what came to be referred to as a dynamic model of the image which in essence, is also a functional model. For both of them, the image of God in man is only fully accomplished and fulfilled when mankind is in relation to someone else. The task of being fully human can only be executed by being in contact with other beings.

However, it is unjust to group both Barth and Brunner into exactly the same category. It will be helpful to note at this point that both Brunner and Barth deny the historicity of Adam and the fall of man into sin.38 Because of their wide-ranging effect on modern theology, prudence dictates an examination in detail of the views of both Barth and Brunner on the image of God in man, beginning with Barth.

---

38 However, this is not to say that they deny the present sinfulness of mankind. To give up the idea of 'a Fall' would be to abandon the Biblical faith as a whole. Hoekema, *Image of God*, 52.
Barth disagrees strongly with all attempts to locate the image of God in man in any of the areas historically deemed as correct. He does not believe that the image is found in man's ability to reason, nor is it defined in terms of structure, disposition, capacities, etc. Barth looks for the image in a different location. After citing Gen. 1:27 he says, "Could anything be more obvious than to conclude from this clear indication that the image and likeness of the being created by God signifies existence in confrontation, i.e., in this confrontation, in the juxtaposition and conjunction of man and man which is that of male and female...?"  

For Barth, the fact that mankind was created male and female envelops the image of God in man. Not only is man to find confrontation between man and woman but also between man and man. This type of relationship between man and man is the same type of relationship that is found between God and man and is therefore to be labelled as the image. The relationship between God and man is covenantal fellowship and the relationship between man and man is fellowship. "That real man is determined by God for life with God has its inviolable correspondence in the fact that his creaturely being is in a being in encounter--between I and Thou, man and woman. It is human in this encounter, and in this humanity it is a likeness of the being of its Creator."  

Because Barth did not believe in the historical fall of man, neither did he believe anything is lost by man, including the image of God in man. "Further, Barth holds that the capacity for I-thou fellowship between God and man and

---


40 Barth, Church Dogmatics, III/2:203.
between man and man is an essential and unlosable aspect of human existence." And further,

Since his constitution derives from this God, from Him who is faithful and does not repent of His goodness, it is therefore unshakable. It can, of course, be disturbed and perverted by human sin, but it cannot be destroyed or rendered nugatory. Hence man remains man even in his deepest fall, even in the last judgment of death; and even in death he is still man within the hand and power of God." 

While Barth does use some vague sentences to explain a type of subjective change or transformation within an individual by the Holy Spirit, it must be concluded, on the basis of his own definition of the image of God, that the image of God is not really capable of renewal. For the image is defined in purely formal terms: the ability to exist in confrontation with God and others; the capacity of hearing God as a thou and responding to him as an I, and the capacity of doing the same with fellow human beings. But if this capacity is an ineradicable aspect of man, and if it is understood as a mere capacity or ability as such, regardless of how it is used, one fails to see how it can be subject to improvement, renewal, or transformation. 

We can here commend Barth for an interesting corrective or at least a different approach to the formal view of the image. It was stated at the outset that Barth's view was dynamic. While it is a functional view based on the idea of covenantal fellowship, it is also a structural view based on the fact that the image in man could not have been violated in a non-existent fall, and thus has no requirement of being improved or perfected.

---

41 Hoekema, *Created in God's Image*, 50.

42 Barth, *Church Dogmatics*, III/2:347.

43 Hoekema, 51.
While the similarities abound, there are variations between Barth's views on the image of God in mankind and the views of Brunner. Remembering that the historicity of both Adam and the Fall of man are rejected by Brunner as well, he is still able to label mankind as sinful. While Brunner, like Barth also rejects the image of God in man as being located in his/her ability to reason, he does allow the use of reason as "the means whereby man is able to fulfill his true function: that of having loving fellowship with God." Herein do we find the heart of Brunner's doctrine of the image, but the purpose of God's creation of man provides the initiative. "God, who wills to glorify Himself and to impart Himself, wills man to be a creature who responds to His call of love with a grateful, responsive love." Humans are created the way they are and possess what they do in order that they might be in loving fellowship with God. "Love, therefore, is at the heart of Brunner's understanding of man and of the purpose for his existence: God loves us and desires us to love him. God does not wish from man the response of an automaton or of an animal; he desires the response of a free person, since only such a person can truly love him." As originally created, mankind possessed the freedom (in the proper, Biblical sense of freedom within Divine principles) to love God. Loving God was mankind's responsibility. Men and women, as responsible, free individuals, possess the responsibility to give an answer back to God. They may deny their responsibility to God, but they can not escape it. This constitutes the formal image of God in man

---

44 Hoekema, Created in God's Image, 53.


46 Hoekema, Created in God's Image, 53.
according to Brunner, but it is not an abstract concept. Brunner uses this label of "formal image" to refer to the impossibility of an individual human to escape out of his/her own humanity. "A rose is a rose by any other name." The humanness of the human can not be changed. The formal image possesses real content such as freedom, reason, conscience and language, and as in Barth, this aspect of the image can not be lost; it is not abolished by man's sin.

The material aspect of the image is the story of the New Testament. It tells of mankind seeking the glorification of self rather than of God, and it is this self-glorification or the providing of the wrong answer to God that has resulted in man's loss of the material image of God. This is the part of the image that was affected by the Fall. The supreme story of the New Testament is the restoration of the image through the life and work of Jesus Christ. He is the example of the right answer.

Jesus Christ is the true Imago Dei, which man regains when through faith he is "in Jesus Christ." Faith in Jesus is therefore the restauratio imaginis [restoration of the image], because he restores to us that existence in the Word of God which we had lost through sin. When man enters into the love of God revealed in Christ he becomes truly human. True human existence is existence in the love of God.47

Consequently, the recreation or redemption of the Imago in the material sense presupposes the retention of the Imago in the formal sense.

Brunner's view of the image exposes some very valuable points. First, it is another dynamic view which sees mankind's existence in relation to God. Second, love forms the central focus of the Imago rather than reason or intellect. Third, he readily acknowledges the extremely damaging effects of sin on the image. Fourth, he makes a very good

47 Brunner, Doctrine of Creation, 58.
effort to retain both aspects of the image. And fifth, he insists that in a very real sense, fallen man still possesses the image of God.\footnote{Hoekema, Created in God's Image, 57.}

Evaluation of Interpretations

However, difficulties still lie in the presuppositions which both Brunner and Barth accept. The greatest difficulty lies in their inability to accept the historicity of Adam and the Fall of mankind. The entire focus of Paul in Romans 5 is the juxtaposition of the first Adam and the second Adam; how the one (and all mankind in relation) can be both condemned and justified on the basis of another individual's actions. A second difficulty exists in their definition of sin and mankind's sinfulness. If there was no historical fall which is mankind's rebellion toward God, then the questions of when, where, and how mankind became sinful, must be asked. A third difficulty arises when Brunner insists that the one aspect of the image has not been affected by sin. The basic question has to do with the pervasiveness of sin. Is it possible that there is something in mankind which was not touched by sin? By logical implication, Brunner's definition of the image must allow for some aspect of the image in man to be in a perfect state.

It is evident from the foregoing that both Barth and Brunner made conscious attempts at combining both the structural and functional aspects of the Image in their theologies of humanity. In some ways they have succeeded, however, their presuppositions create difficulties in both the structural and functional interpretations of the image of God in man.

In order to better evaluate their arguments, a critical examination of the functional position itself needs to be undertaken. If the functional position is assumed to be the correct position, then there are certain aspects of the
textual evidence that appear to be ignored, as in the following words of von Rad. "The statement about the image of God in man contains no direct explanation about the form which specially constitutes it; its real point is rather in the purpose for which the image is given to man."49

Perhaps the most important of the textual evidences has to do with the positioning and order of the narrative. A careful examination of Gen. 1:26,27 will reveal that the image of God in the creation of man was the primary idea revealed in the narrative. The functions and relationships of mankind have not yet been established or defined. First, God issues the command to create a being in their image, then the function of that particular creation is delineated. Even before a man or a woman does anything or relates to anyone, indeed, even before birth, he/she possesses the image of God. While Hoekema establishes the foregoing critique, he too decides that the functional aspect of the image is of primary importance.

The image of God in man must therefore be seen as involving both the structure of man (his fits, capacities, and endowments) and the functioning of man (his actions, his relationships to God and to others, and the way he uses his gifts). To stress either of these at the expense of the other is to be one-sided. We must see both, but we need to see the structure of man as secondary and his functioning as primary. God has created us in his image so that we may carry out a task, fulfill a mission, pursue a calling. To enable us to perform that task, God has endowed us with many gifts--gifts that reflect something of his greatness and glory. To see man as the image of God is to see both the task and the gifts. But the task is primary; the gifts are secondary. The gifts are the means for fulfilling the task.50

49 Von Rad, Old Testament Theology, 144.

50 Hoekema, Created in God's Image, 73.
While the task (God's task?) is obviously primary in God's sight and mind, God was first concerned with giving mankind the gifts that would enable him to fulfill the task. "H. Orton Wiley writes convincingly that since there was a declaration of the divine purpose in humanity before even the creative fiat was executed, this image must belong to his inmost creaturely constitution." Thus in the creation of mankind, the gifts are primary; however, in the functioning of mankind the task is primary. It is important not to lose the emphasis of the first half of the quote however. Both aspects of mankind need to be kept in equal balance. An over-emphasis of the functional aspect of man results in other difficulties that will become more apparent latter in this discussion.

An earlier critique of the structuralist position implied an assumption of divinity within creation. This needs to be examined more closely. This critique can only arise from an improper conception of structure. Many have stated that the image in man includes all of the attributes of God (with the exception of those attributes which are sometimes referred to as the absolute attributes) only in a finite form. For an illustration, consider the several places around the country where there are recreation parks recreating in miniature much larger edifices and world renowned land marks. While these miniature models may faithfully recreate the real-life object in every detail, they will not fulfill in every degree the function of the original; the steps will not hold the weight, the wings will not create the proper draft, nor will the motors create combustion to move the model. While humans as creatures may possess many of the actual attributes of the original Creator, they possess them with limits.

Charles Carter, A Contemporary Wesleyan Theology, vol. 1, (Kansas City: Nazarene, 1941), 205.
However, if both positions (structural and functional) are given equal standing, some previous difficulties are resolved. First, if the image is as strongly located in the structure of the individual as in the function, we avoid the difficulty of having to re-label (and most often mislabel) individuals who have difficulties or find it impossible to relate to other individuals, e.g. encephalic children, senile elderly, and the fetus. With the use of a stronger emphasis on the structural image of the individual, society can better avoid the declassification of these individuals that often leads to a diminishing of personal identity and personal rights, usually leaving them with an inferior status in society. While it is true that they may have diminished functional capabilities at societal and interpersonal levels, this is not a guarantee that they possess a diminished image.

Secondly, if the structural aspect of the image of God in man is given a measured increase of emphasis, there would tend to be less limiting of the individual's abilities. More opportunities would be allowed to any individual to attempt and accomplish their own tasks as a result of a more conscious understanding of the fulfilling of the image through relationships. "The Christian, therefore, has a sociological base which is extremely strong. As humanists are fighting today against prejudice, they have little philosophical base for their battle. But as a Christian I do: no matter who I look at, no matter where he is, every man is created in the image of God as much as I am." Erickson summarizes these two points in a convincing manner,

Because all are in the image of God, nothing should be done which would encroach upon another's legitimate exercise of dominion. Freedom must not be taken from a human who has not forfeited this right by abusing it

52 Schaeffer, Complete Works, 2:35.
(the list of those who have abused their freedom would include murderers, thieves, etc.) . . . Beyond that, however, it means that depriving someone of freedom through illegal means, manipulation, or intimidation is improper. Everyone has a right to exercise dominion, a right which ends only at the point of encroaching upon another's right to exercise dominion.\textsuperscript{53}

In these regards, Hoekema quotes Herman Bavinck quite extensively and with good reason. Bavinck has a very clear and concise concept of what the image of God in man should mean.

Man does not simply bear or have the image of God; his is the image of God.

From the doctrine that man has been created in the image of God flows the clear implication that that image extends to man in his entirety. Nothing in man is excluded from the image of God . . . And he is that image totally, in soul and body, in all faculties and powers, in all conditions and relationships. Man is the image of God because and insofar as he is true man, and he is man, true and real man, because and insofar as he is the image of God.\textsuperscript{54}

Hoekema goes on to quote Bavinck in explaining what he actually means by 'in his entirety':

Herman Bavinck, however, clearly affirmed that man's body is included in the image: Man's body also belongs to the image of God. . . . The body is not a tomb but a wondrous masterpiece of God, constituting the essence of man as fully as the soul. . . . it belongs so essentially to man that, though through sin it is violently torn away from the soul

\textsuperscript{53} Erickson, \textit{Christian Theology}, Vol. 2, 517.

\textsuperscript{54} Hoekema, \textit{Created in God's Image}, [Bavinck, \textit{Dogmatiek}, tr Hoekema, 2:595-96], 65.
[in death], it is nevertheless again united with the soul in the resurrection.\(^{55}\)

"When we think of man in connection with the various relationships in which he functions, we are confirmed in the conclusion that the image of God in man does not concern only a part of him (the 'soul' or the 'spiritual' aspect) but the entire person."\(^{56}\)

Conclusions and Principles

The following points can be made from our study.

First, from the words themselves, "\(\text{יְהֹוָה} \)" or "\(\text{נָבֹא} \)" we can tell that mankind was created as a copy or mirror image of God. This is the highest honor that could have been awarded to any of God's creation; to be an image of the Creator; a revelation of what God himself is like. This is the foundation of the prohibition which we find in Ex. 20:4ff. Humanity's position of imaging God on the earth may be a possible reason for God's forbidding humankind from making other images for use in worshipping God. For humanity to create such idols or images would be an abdication of the role assigned to humans to be images of God in the creation. A further commentary on this prohibition is found in the Gospels,

...although the expression "image of God" does not appear, it is crucial to a full understanding of Mark 12:13-17. The issue was whether to pay taxes to Caesar. Having been brought a coin, Jesus asked whose image (\(\epsilonἰχρων\)) appeared on it. When the Pharisees and Herodians correctly answered, "Caesar's," Jesus responded, "Render to Caesar the things that are Caesar's, and to God the things that are God's." What are "the things that are God's"? Presumably, whatever bears the image of God. Jesus then was saying, "Give your money to Caesar; it has his image on it, and


\(^{56}\) Hoekema, Created in God's Image, 68.
thus it belongs to him. But give yourselves to God. You bear his image, and you belong to him." Commitment, devotion, love, loyalty, service to God—all of these are proper responses for those who bear the image of God."

We also noted the representational character of mankind. Mankind is to represent God in the manner of an ambassador from a foreign country, or as a representative of the king in the furthest reaches of his own country.

From our three references (Gen. 1:26,27; 5:3; 9:6) and from the analysis of several theologians of various doctrinal persuasions, we can safely establish the following three points. First, the Imago Dei resides within man, although it is not tied to any one aspect of man. That is, it is not solely and completely tied to the existence or condition of the body; it is not solely related to one's actions, relationships, or vocation. Second, the Imago Dei is resident in all of mankind regardless of sex, race, nationality, intellect or abilities. Third, the Imago Dei is present in all mankind, regardless of individual acknowledgement of God.

In a biblical theology, Gen. 1:26-28 may therefore stress certain features of the biblical view of man:

1) Man in his entirety is the viceroy of the earth. He is to be to the earth what Yahweh is to the entire universe. His life is to be a microcosm of the macrocosm of divine life.

2) As such man is the 'son' of the Great King (cf. Lk. 3:28). Man is made for filial fellowship with the divine and intended to express the family-likeness in righteousness, holiness and integrity.

3) All men and women (not only kings, or occasionally also priests) are thus created. The doctrine of the image of God is the foundation for human dignity and for the biblical

---

Erickson, *Christian Theology*, 515.
As a consequence of the foregoing, it can be said that although the image of God does not reside in any one particular aspect or attribute of mankind, neither does the image of God reside in any arbitrary combination of attributes. From the text itself, as well as from the theologians who have been examined, it is possible to determine, rather, that the image of God is not in man, but rather IS man; that mankind, in its entirety, is the image of God. This is not to say, as do some, that the image of God can only be found in mankind corporately, for this would deny the individuality of the image of God in each individual. Nor is this to say that the image of God can be completely identified from only one individual. "We could even put it this way: whatever is in God--his virtues, his wisdom, his perfections--finds its analogy and likeness in man, though in a finite and limited form." The end of all of this is that "we must not look down upon the contributions of different groups of people from various nationalities and races."

A proper appreciation of the doctrine of the image of God, therefore, should rule out all racism--all denigration of races other than our own, as if they were inferior to us. God made all human beings in his image, and all of them can enlighten and enrich us. "The idea of man as made in the image of God demands . . . today a deliberate transcending of national and class barriers."

---


59 Hoekema, *Created in God's Image*, 100.

60 Hoekema, *Created in God's Image*, 100.

One of the logical implications of the preceding is that the individual human body also bears the image of God. If mankind, in both its corporate and individual entirety is the image of God, the individual body can not be ruled out as also containing some part of the image of God. This is one aspect of the image that has often been ignored, or worse, denied, by many theologians of days both past and present. James Montgomery Boice in his excellent commentary on Genesis finds the image of God identifiable with personality, morality (including here freedom and responsibility) and spirituality. In none of these categories however does he include the individual human body, and in fact even delimits the human body as part of the image of God in man. "Although man shares a body with such forms of life as plants or flowers and a soul with animals, only he possesses a spirit. It is on the level of the spirit that he is aware of God and communes with Him." In sharp contrast and more inclusive again is the view of Hermann Bavinck which was quoted earlier, "The body is not a tomb but a wondrous masterpiece of God, constituting the essence of man as fully as the soul." Hoekema states simply that "when we think of man in connection with the various relationships in which he functions, we are confirmed in the conclusion that the image of God in man does not concern only a part of him (the "soul" or the "spiritual" aspect) but the entire person."

It was noted earlier that an either/or position was most often assumed by theologians when it came to discussion of the image of God in humanity. However, it seems more

---


64 Hoekema, 68.
plausible both from scriptural text and logic to stress both function and structure equally. The fact is that neither can exist in complete fulfillment without the other. If structure is emphasized, the danger is that man exists as the image of God, in and of him/her self, with an obvious abdication of responsibilities. If on the other hand, function is emphasized, it is only as men and women act and relate to one another and to God that they really become human, with the obvious danger of leaving men and women in nothing more than a simple utilitarian existence unless they are in relation, to another person. i.e., Barth.

Hoekema argues for the combination of both the structural and functional, or broader and narrower aspects of the image of God in man, but in the end still stresses function over structure. While it must be acknowledged that the purposes of God in the universe are obviously the ultimate task, how can the task be approached or acknowledged by mankind unless the gifts were not first acknowledged and developed? In other words, the structure must be recognized first in order for the task to become apparent and addressed.

A condensed form of the fundamental principles which could be harvested from this chapter are as follows:

1) God is the sole designer and creator of His own image in the creation of mankind.

2) All individuals, regardless of race, color, or abilities are created equal in terms of respect and opportunity by God because they possess the image of God.

3) The image of God is not located or identifiable with any one aspect of any individual or corporate society. Rather it is located in mankind in his/her entirety (including structural markers and functional activities) both as individuals and corporately. Thus while no one individual or even society can completely reveal the image of God in
mankind, parts of his image are revealed in every individual and in every society.
CHAPTER 2
Creational Commands

A Creational Implication - Freedom: Genesis 1:27

The outcome from the foregoing discussion is that the Image of God in man is man. As may be evident from the previous chapter, there are alternative issues, various emphases, and discussions ad infinitum that could more than fill the rest of this thesis. However, in light of the focus and purpose of this discussion, there are two issues that demand attention. Neither of these issues have specific parameters outlined in scripture. This will make the discussion of these issues somewhat more subjective, but no less mandatory. The first of the two issues to which I now turn is that of freedom.

Freedom has been a very important concern through the ages and is no less so in our day. Many differences of opinion, some of which become legal battles, arise from different understandings in relation to the concept of freedom. The differences of interpretation and value of rights and freedoms between groups and individuals could account for many societal difficulties. Those who use this and similar concepts, whether arguing law or social issues very often assume that personal freedom is the un-obstructed ability to carry out one's own wishes or desires. Inherent in these arguments, whether conscious or subconscious is an absence of the concept of limits (with the possible exception of 'not hurting anyone else'). Everything from dictionaries to common conceptions finds any notion of limits to be foreign to a proper understanding of freedom.  

65 According to Funk and Wagnalls Standard Desk Dictionary (pub. Lippincott & Crowell, 1980) 255, among other meanings are included the following, "... 5. Liberty to move or act without outside interference, coercion, or restriction. 6. Liberty of personal choice, action, or thought. 7. Release or immunity from any stated thing or condi-
Personal freedom has been one of the cornerstones of American society, politics and law since the country's inception. In case after case, it was the freedom of religion clause in the original deed titles that caused many Europeans to come to these shores in the first place. Indeed, the perception is possible that personal and individual freedom is perilously close to being a religion in its own right. We frequently talk of individualism as having infiltrated the church to the point that it begins to interfere with the fellowship and discipline of the church. It is likely that this type of personal aggrandizement lies at the root of Paul's condemnations found in 1 Corinthians 1:12. Freedom of time and freedom from responsibilities has become the driving force behind much of western economics. Many average working people "live for the weekend" when they are free of authority and responsibility.

It is at this point that we find ourselves at odds with the Biblical understandings, interpretations and assumptions concerning the concept of freedom. More precisely, the Hebrew understanding of freedom is quite different from our own common perceptions. In a passage very closely related to the one we examined earlier, we find God giving to the first man, one of the most all-encompassing roles ever possessed by a human.

Gen 1:26 And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.

65(...continued)
Gen 1:27 So God created man in his own image, in the image of God created he him; male and female created he them.

Gen 1:28 And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.

Gen 1:29 And God said, Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in which is the fruit of a tree yielding seed; to you it shall be for meat.

Gen 1:30 And to every beast of the earth, and to every fowl of the air, and to every thing that creepeth upon the earth, wherein there is life, I have given every green herb for meat: and it was so.

From these verses alone, it would appear that man was given limitless sanction to do as he wished in the newly created world. However, as in the first chapter, there are differences between the Biblical understanding of a word and modern interpretations. Modern day connotations of "rule" involve the idea of an authoritarian, hierarchical power structure. The verb 'to rule' has been given the idea of being able to impose one's will upon other people, possessions, and materials. Many ancient and modern novels and plays deal with the concept of absolute power corrupting absolutely. Many political and economic examples of this could be examined, both historical and modern.

However, this is not the concept which we should impose on the usage of the term in the Hebrew scriptures. The Old Testament concept of 'to rule' has more to do with the monarch ruling over the masses with their best interests and well-being at heart than with present hierarchical power concepts. It does not include the advancement of one's self in either power or possessions at the cost of the well-being of another person, regardless of the fact that they may or
may not be one's political or economic subjects. Consequently, in what would appear at first glance as a rulership of absolute freedom for the first man, on further investigation is revealed as a rulership of great responsibility with limits.

As we examine the Old Testament further in its overall understanding of the term "freedom", we discover that there are several terms connected with the idea of freedom. This plethora of original terms increases the difficulty of arriving at a good and proper English translation and understanding of the Hebrew concept.

There appears to be four different Hebrew roots used in the Old Testament for the concept of freedom. The first root (נָּשָׁה) is used almost exclusively of freedom from slavery. Within Hebrew society, extensive laws were set by God regarding the treatment and length of service that could be required by a master of a slave.

Another root (מָנָה) has more primary meanings of "being poured out" as a libation in either a positive or negative sense. However there is a more technical or forensic use of the term meaning "freedom" or "exemption from obligations". "The adjective מָנָה and its variant מְנָה refer to persons declared innocent, free, or exempt from charges or obligations, or to innocent blood (that is, shed blood of an unoffending or innocent party), as well as 'clean hands,' a figure for innocent behavior. (Cf. the familiar Ps 24:4)"

---

66 Some may cite Solomon and other Old Testament rulers as evidence of authoritarian rule, and this is not to be denied. However, in many of these cases, there are other pertinent circumstances, not the least of which is the commandments of and obedience to God.

67 Harris, T.W.O.T., 1:312-13.

68 Harris, T.W.O.T., 2:598.
A third root (נָפַשׁ) carries with it four different meanings. Two of the four have to do with some aspect of freedom. One is "to set free, let out" (Prov. 17:14) and the other is "to set free/exempt from duty" (1 Chron. 9:33; 2 Chron. 23:8).69

There are still other roots whose meanings are involved or included with the concept of freedom. For the purposes of this discussion, we can draw the following conclusions regarding the Old Testament concept of freedom. The Hebrew concept basically involves the idea of freedom from a particular master or a specific set of obligations. By far the largest number of uses of "freedom" and its cognates in the Old Testament deals with a freedom from a usually bad situation. However, inherent in the reality of freedom from a specific situation is landing in another situation which imposes it own set of limits and demands.

In the New Testament, the concept of freedom takes on a decidedly narrower range of meanings. The main root ελυθερός accounts for more than half of the occurrences of the English word "freedom" in the New Testament. It has basic meanings of "free", "be free", "set free", "liberty", and "freeman" in contrast to being a slave. There is also another root that pertains to this idea. Πολιτεία is used in reference to the political freedom which a citizen may or may not possess.70 Paul uses this sense of the concept twice in his letters.

By the time of the New Testament authors, freedom had become a much more debatable topic. During the age of the New Testament, the concept of freedom had taken on some

69 Harris, T.W.O.T., 2:722.

different ideas. As the concept is used in the New Testament, we find the meaning changing depending on the sense in which it is being used. If the idea is contained in a civil clause, it means "one who is not a slave, or one who ceases to be a slave, freed." If the concept was being included in a moral sense, it usually had reference to being "free from the yoke of the Mosaic Law." In generic usage, it contained the ideas of "free, exempt, unrestrained, not bound by an obligation."

In the political realm, the concept of freedom was freedom within the law of the land which in turn establishes and secures it. "As an embodiment of the claim of the politeia, law protects freedom against the caprice of the tyrant or the mass. But freedom means alternation of government as free people both rule and are subjects. Democracy achieves this best by allowing the same rights to all citizens."

However, a more refined concept of freedom was developed by the Stoics. Within the politeia, there was even more than political freedom. There was also the freedom of the individual under the law of nature. True freedom could be found by retreating within; withdrawing from all external and internal pressures including the dominant fear of death. "Those who seek flight in inwardness enjoy the freedom of impassibility and in so doing fulfil what they are as parts of God, or children of God, or God himself."

---

71 On-Line Bible, Computer Bible, version 5.00.02 (Elmira: Woodside Bible Chapel, 1991), word definition #1658.

72 On-Line Bible, def #1658.

73 On-Line Bible, def #1658.

74 Kittel and Friedrich, T.D.N.T., 224.

75 Kittel and Friedrich, T.D.N.T., 225.
It is against this thought background that the New Testament writers had to contend.

The NT idea of freedom thus follows on from the OT. The gift of freedom is bound to the giver. "For all things are yours . . . and you are Christ's and Christ is God's" (1 Cor. 3:21, 23). This subjection is at the same time an alliance. Its realm even extends to the supernatural power and rulers which are robbed of their absolute authority, because they have been conquered by Christ and can no longer separate man from Christ (Rom. 8:38; Gal. 4:3,9; 1 Cor. 15:24). The impenetrable horizon becomes transparent in the light of this freedom.  

Without the acknowledgement of God as the center and origin of the universe, we can only face a lost existence. The only way we can face our own existence is to subject our own will to that of another. We can only achieve self-control by letting ourselves be controlled. "Concretely, €λευθερία in the NT is freedom from sin (Rom. 6:18ff), the law (Rom. 7:3-4; Gal. 2:4), and death (Rom. 6:21-22; 8:21). It is freedom from an existence that in sin leads through the law to death." It is only through the application of the death of Christ that we can gain true freedom.

The liberation of man does not lie within the realm of his own capacities. It does not come about by man's reflection on himself, an act of the will, or by any deed of this sort or that. For this reason there is in the NT no summons to contend for freedom. It is already given in what Christ has done for us (Gal. 5:1). . . . But for man it only becomes a present reality, when he opens his life to the call of the gospel (2 Cor. 5:20ff.). . . . True freedom exists only where the Holy Spirit works in a man, becoming the principle of his life, and where man does not block his

---


77 Kittel and Friedrich, T.D.N.T., 225.
What does all of the foregoing mean? Again, we can return to Colin Brown, for he sums it up best by saying,

What does freedom mean? In contrast to the secular Gk. mind, the NT sees man as basically unfree (Rom. 6:20; 2 Pet. 2:19; Jn. 8:39). It denies him all possibility of being able to free himself and order his life, as if he were not in bondage. Man's perennial efforts to take himself in hand, however he attempts it, lead to the greatest bondage in which man misses what he was meant to be (Matt. 16:25; Jn. 12:15). Man's true freedom does not consist of the unfettered power to direct his life, either in a political or in a Stoic sense. It lies in life with God, lived as it was originally intended by God for man (Rom. 6:22; Gal. 5:1,13; 1 Pet. 2:16). He only gains this as he denies himself (Matt. 16:24). Paradoxically, the free man does not belong to himself (1 Cor. 16:19; 9:19; 1 Pet. 2:16). He belongs to him who has set him free (Rom. 6:18, 22; Gal. 5:1), "who for their sake died and was raised" (2 Cor. 5:15).  

In Romans 6:15-23, Paul talks in a very detailed manner regarding sin, righteousness, freedom and slavery. He is very specific about the fact that commitment, or slavery to either sin or righteousness is freedom from the other. If one is enslaved to sin, then that one is free from the practice of righteousness, or obedience to the Law. The opposite is also true. The accusation could come back that there is no difference in the end between enslavement to sin and enslavement to righteousness. However, to finish off the argument, Paul notes that the end result of enslavement to sin is death while the result of enslavement to right-

---


teousness is eternal life, the proof of which is the risen Christ.

All of this should reveal to us that there is no such thing as absolute freedom for the human. The end result is that for every action or commitment there is an opposite reaction or payment. Freedom in the modern sense of the word is an illusion. It must be acknowledged that there may be a state of complete freedom, but it can be such for no more than a temporary period of time. Sooner or later, there will be some type of consequences to pay. Much of this has been proven in various ways, especially in the sciences.

A Creational Command - Authority: Genesis 2:15

Two issues were spoken of at the beginning of this chapter as requiring attention. The second of these issues is the Creation commandment to "subdue". While the meaning of this term has not changed significantly between its usage in Genesis and the present day, there does appear to be a difference in understanding regarding the relationship between those doing the acting and that which is being acted upon.

Gen 1:28 And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea and over the fowl of the air and over every living thing that moveth upon the earth.

The verb "to subdue" comes from a primitive root (הָנָּלָל) having the following range of meanings: "subdue, bring into bondage, keep under, force." There are at least six different Hebrew words used which are translated with the same English term, "subdue". Quite often this family of terms was used in reference to the overcoming of an enemy. The Hebrew term is used a total of eighteen times in thirteen references. When these references are displayed beside each other, it becomes apparent that the meaning of the term
became decidedly more focused towards the end of the Old Testament.

In Gen 1:28, we find almost universal interpretation of וְיָשָׁב with the English term "subdue". The Akkadian meaning of the related term is "to tread down," or "to knead, stamp, press". The understanding given to the term during the time of the Patriarchs and throughout the Old Testament is "to make to serve, by force if necessary." The reference in Genesis deals with bringing the whole of creation into subjection. In 2 Chronicles 28:10, the first reference to the subduing of people can be found, and when the term is used in Micah 7:19, it has specific reference to the subduing of sin. It is becomes more obvious that the term has more direct reference to the will of the party being acted upon and less focus on the party doing the acting. Herein is a subtle but primary requirement for a proper, Biblical understanding of the Hebrew term וְיָשָׁב.

When the western world thinks of the actions and attitudes connected with the term, a concept of forced subjection or domination is conjured up not unlike the Biblical understanding. However, there is a elusive but important difference in the understandings of the functioning of the term. What is assumed in the modern use of the term is that the will of the actor is supreme and unhindered. In certain economic and socio-political views, the Genesis reference quoted earlier is often accused of being the foundational philosophy for western, free-market capitalism. The pillaging of the environment is seen by many economists and ecologists as the inevitable outcome of the command of this verse, which would be true and the result if no other prin-

---

80 Eg. KJV, NKJV, NIV, NASB.
81 Harris, T.W.O.T., 1:430.
ciples were taken into account; like the principle of limited freedom discussed earlier.

In some recent theological interpretations of both this passage and the broader context, the implication is given that subduing the creation is actually a programmatic development of the creation. Creation is waiting and eager to be developed. The development of creation is actually a cultural mandate that will find its end in the building of the city (the epitome of cultural development) which is described in Revelation 21:1 - 22:21.

In a book entitled The Transforming Vision\textsuperscript{62}, in which the author's' primary purpose is to build a coherent Christian worldview, the authors adopt such an interpretation of Gen. 1:28. As they lay the foundation for their arguments, they endeavour to look at many of the same issues that we have thus far dealt with. At this present juncture, they find the command to subdue the earth is really a command for culture and continuous cultural development.

They begin by asking, "What does it mean to subdue the earth?" They answer this by saying that "we are to cultivate" the garden. In doing so, they make a direct correlation between Gen. 1:28 and Gen. 2:15 that may not necessarily be warranted. Such an interpretation of Gen 2:15 is not nearly so clear and precise as the first reference. The term used is יָעַב. It has a much broader range of meaning which is evidenced by the numerous ways that it is translated.\textsuperscript{63} In the Old Testament, יָעַב and its derivatives occur


\textsuperscript{63} The translation and term used are as follows: KJV = dress; NKJV = tend; NIV = work; NASB = cultivate; OnLine = dress.
in excess of twelve hundred times.\textsuperscript{84} "Work, serve" are offered as possibilities for \(\text{לְמָנָה} \) itself. Derivative meanings include "slave, servant, work, labor, service, service (household servants), servitude, bondage."\textsuperscript{85} While the New American Standard Bible has taken significant steps towards a literal translation, it appears at this point (Gen. 2:15) that this focus has been blurred. Walsh and Middleton (through the use of the NASB) have translated \(\text{לְמָנָה} \) that has elsewhere been translated as "work" or "till" with "cultivate".

The T.W.O.T. says this about these more recent translation attempts of this verse,

\begin{quote}
Despite recent interpretations of Gen 1:28, which have tried to make "subdue" mean a responsibility for building up, it is obvious from an over all study of the word's usage that this is not so....The use of the word assumes that the party being subdued is hostile to the subduer, necessitating some sort of coercion if the subduing is to take place. Therefore, "subdue" in Gen. 1:28, implies that creation will not do man's bidding gladly or easily and that man must now bring creation into submission by main strength. It is not to rule man. However, there is a twistedness in humanity which causes us to perform such a task with fierce and destructive delight. Try as we might, we cannot subdue this. But it can be subdued and this is the promise of Mic. 7:10, "He will subdue our iniquities."\textsuperscript{86}
\end{quote}

Fundamental to an overall understanding of the term is the idea of forced service. Walsh and Middleton presume cultivate to be the primary sign of "being human" and that cultivation is the building up of the garden and the world

\begin{footnotes}
\textsuperscript{84} Harris, \textit{T.W.O.T.}, 2:639-40.

\textsuperscript{85} OnLine Bible. Definitions adapted from Strong's Analytical Concordance.

\textsuperscript{86} Harris, \textit{T.W.O.T.}, 1:430.
\end{footnotes}
into the Royal City. However, this seems to bestow more upon the general meaning of the term than is warranted. In a strict, literal sense, the language of 2:15 would suggest that man was placed in the garden to serve the garden. Adam and Eve were to "till" and "dress" it, not to serve themselves, but to maintain the creation of God, and thus to serve him. Consequently, the use of the term cultivate in Gen. 2:15 provides a more holistic commentary on how humanity should act in the creation. It paints a picture that highlights humanity's responsibility toward the rest of creation. Humanity is to cultivate in creation using the good of the creation as a whole as measurement.  

To conclude, there are many concepts that could be examined as equally relevant which would serve to define the context of this discussion in a fuller way. However, it is these two issues of limited freedom and the consequent freedom to subdue within limits that seems of paramount importance for this present discussion. It is the Biblical interrelatedness of these two concepts which could provide some guidelines for the use of recombinant DNA research and technology.

It is affirmed that we as human beings in the image of God have been given freedoms, but they are not unlimited freedoms. We have also been commanded to subdue the earth, however, both of these issues should interact with one another. We have been given limited freedoms to subdue the

---

87 Walsh and Middleton perceive the command to cultivate as being the fundamental command to humans as they live in the creation. Consequently, fulfilling the command to cultivate is worked out in the actual building up and refining of the 'rough hewn' garden of Genesis 1 into the purified city of Revelation 20-22.

88 Walsh and Middleton continue to develop this theme by calling for a cultivation or salvation of the creation equal to the salvation of the human soul. Cf. Walsh and Middleton, The Transforming Vision, Part 4, 147-186.
earth, but it is not "subduction" at any cost. The subduing of the earth should avoid the infringement of other non-human, created beings when possible and should not invade the freedoms and/or welfare of another human being. Thus we find the two Biblical principles of freedom within limits and the command to subdue providing a partial barrier which should help to define the role and aims of genetic research and technology.
PART 2
CHAPTER 3
Image OF God and rDNA Research

In the first section of this paper, the core of the discussion revolved around a Biblical understanding of the unique identity of humankind. We tried to gain a fuller understanding of what both God and the Biblical writer had in mind with the use of the phrase "image of God" in Gen. 1:26,27. Our major discovery was that no one attribute or term can be used to properly and fully identify humanity. It is a combination of actions, attributes and potentialities that more closely identify humanity in sum total.

In the second section, we examined two key imperatives and responsibilities that arise as a result of humanity's position within the structure of the world. A Biblical understanding of freedom as a resulting privilege and responsibility in the creation was elaborated. Also in the second part, the command to "subdue" the earth was surveyed. It was noted in this connection that the modern understanding of idea of "subdue" is lacks an important part of the Biblical concept.

With all of this as background, the most modern issue of recombinant DNA (rDNA) research, techniques and resulting issues needs to be examined. The most fundamental question in this regard has to do with our ability to alter the make-up of the individual human. The following quote serves to highlight the scope and divisiveness of the DNA issue.

All of this--both risks and benefits--is conjecture; facts about recombinant DNA are next to nonexistent. Yet after nuclear power, and possibly the SST, recombinant DNA is the most torrid science policy issue around, rending academic departments, pitting Nobel laureates against one another, and setting scientists against their communities and against the Congress of the United States.
It is a nice irony that it was the scientists who brought it up in the first place.⁸⁹

Obviously, this is a somewhat dated quotation, but the tone of the debate hasn't changed much since 1977. While there are more and better facts and documentation regarding recombinant DNA, the issue is still as "torrid" as ever it was.

Alongside the intensity of the debate, there is also the complexity of issues. It would appear that no one genetic case is going to be like another in terms of technicalities.

Once these theoretical questions are settled, the questions of practice arise: Will science ever be able to specify genes that make a person more likely to be smart, ambitious, emotionally stable, etc.? Here complexity rears its ugly head. There are three billion genes in the human genome, and they can interact in astoundingly diverse ways. To take the simplest case: children of dwarves who inherit one normal gene and one dwarf gene turn out more normal than those who inherit two dwarf genes. So a child who inherits only one gene for Huntington's disease will be better off than one who inherits two bad genes, right? Wrong. Each case is different.⁹⁰

But alongside the technical difficulties of actually performing rDNA, there are the differences of understandings and attitudes of those involved, both the patient and the healthcare worker.

Suggesting that someone lacks sufficient knowledge or wisdom to engage in an activity the person knows how to perform thus means that the individual has insufficient knowledge of the consequences of that activity or insufficient wisdom to cope with those consequences. But if this is the rational kernel


of the admonition against playing God, then
the use of gene splicing technology is not
claimed to be wrong as such but wrong because
of its potential consequences. Understood in
this way, the slogan that crossing species
barriers is playing God does not end the
debate, but it does make a point of fundamen-
tal importance. It emphasizes that any real-
istic assessment of the potential consequen-
tes of the new technology must be founded upon
a sober recognition of human fallibility and
ignorance. At bottom, the warning not to
play God is closely related to the Socratic
injunction "know thyself": in this case,
acknowledge the limits of understanding and
prediction, rather than assuming that people
can foresee all the consequences of their
actions or plan adequately for every eventu-
ality."

As with any new discovery, two things need to be ac-
knowledge and constantly recalled. The first is that cau-
tion in all manner of procedure and proclamation of findings
and/or expectations needs to permeate the process. Second,
time needs to be allowed for the majority of society to
"catch up" with the scientific world in relation to possi-
bilities and findings. Forging ahead by the scientific
community without allowing adequate time for evaluation and
correction is a denial of the fallibility of humans, sci-
tific enquiry notwithstanding.

The fundamental question being asked is the following,
"If deoxyribonucleic acid forms the building blocks of what
makes an individual human that particular human, and if we
possess the knowledge and techniques to alter, with calcu-
lated precision, those building blocks (DNA), are we alter-
ing the identity and maybe worse, the destiny of that par-
ticular individual?" Such shall be the focus of the balance
of this inquiry.

---

91 Thomas A. Shannon, ed., Bioethics (Mahwah: Paulist,
1976), 404.
I am indebted to Allen Verhey for the broad outline which I have incorporated here. In an article entitled "The Morality of Genetic Engineering"\textsuperscript{92}, he notes some of the difficulties which he has perceived in the public debate over genetic engineering to date.

Some general notes can be made in regards to the manner in which arguments are carried out relating to bioethics. "First, the debaters have often employed rhetoric which is morally irresponsible and publicly unhelpful. . . .

Second, in the public discussion the profound and ancient questions are seldom candidly raised. The public debate has instead focused on two issues: freedom and weighing risks versus benefits. . . .

Third, it is not accidental that the public discussion has ignored more fundamental questions and has focused instead on the two issues of freedom and the calculation of risks and benefits."\textsuperscript{93}

He labels this directed argumentation as minimalist, or a "thin theory of the good." In other words, the proponents of rDNA technology are only raising questions which seem to highlight the positive side and effects of rDNA research. "The impartial principles of freedom and utility neither raise nor countenance a reply to questions about the sort of persons we would be and become or about the kind of society we would be and become."\textsuperscript{94} In other words, freedom (in the modern understanding) and utility do not provide adequate questions or answers for the more formidable and important questions of what is humanity and what will it become if the process of rDNA is allowed to go on unhindered.

He goes on in the article to articulate some of the ways in which this directed argumentation predisposes the

\begin{flushright}

\textsuperscript{93} Verhey, 126-27.

\textsuperscript{94} Verhey, 128.
\end{flushright}
public to particular ways of thinking or not thinking when it comes to rDNA technology.

We will achieve the moral power to limit and guide this revolution only by owning some more profound convictions about what it means and what it takes for nature and human persons to flourish and then by living with integrity, not just with impartial rationality...

Besides talking about freedom and utility, we must begin to talk about more profound moral questions, our disposition toward the future, our disposition toward technology, our disposition toward nature, our disposition toward parenting, and our disposition toward each other."

It is from a portion of these final categories then that the balance of this chapter will take its lead.

The Limits of "The Good"

One of the irritations to many people who are involved with questioning DNA research has to do with the way in which it is argued. Very often in the articles that are published both for public consumption as well as in those articles that are printed for use by academics and technologists, there is little room left for critical inquiry. The overwhelming majority of journal articles connected in any way with rDNA technology and/or research, deal exclusively with the good that humankind will accomplish with a thorough understanding of DNA. This is not to say however, that these good accomplishments are not without their difficulties in and of themselves. In each of the individual processes, such as rDNA and Huntington's disease or rDNA and prenatal correction for disposition towards Tay-Sachs, there are issue specific difficulties. However, there are more fundamental issues about the whole of rDNA technology which should be addressed first. "When recombinant DNA research is proposed to the public, for example, the proponents make

95 Verhey, 128.
considerable use of Bacon's links between knowledge and power and benefit. The research leads to knowledge: knowledge leads to power; and power makes it possible to do all sorts of good, . . ."  

It is at this point in most journal articles that either one specific or several genetically related diseases are highlighted, showing the obvious potential that rDNA possess for the cure of said disease(s).

The obvious next step in the academic/journalistic process is for opponents to critique such an optimistic outlook on rDNA. "But when certain dangers are pointed out, when risks are highlighted, then the advocates retreat to the freedom of inquiry, the right to know, presuming that right has no connection in the tradition with power or well-being."  

Since its inception, science has claimed to be a value-neutral investigation of the material world. However, this can no longer be the case with rDNA. The link between curiosity or investigation, knowledge and power are imperceptible parts of the whole fabric of science. "Since Bacon, these three--knowledge, power, and benefit--have often been assumed to be one piece, of one fabric, but they are distinguishable and it is important in the biological revolution to raise the questions of knowledge, power, and benefit separately."  

If the arguments of the proponents of rDNA are accepted, these three are inseparably linked.

"The research leads to knowledge: knowledge leads to power; and power makes it possible to do all sorts of good, to 'bacteriafacture' insulin, to solve the energy shortage, to clear up the environment, and so forth. But when certain dangers are pointed out, when

---

96 Verhey, 129-30.
97 Verhey, 130.
98 Verhey, 129.
risks are highlighted, then the advocates retreat to the freedom of inquiry, the right to know, presuming that right has no connection in the tradition with power or well-being."

In his evaluation of the proponents line of reasoning, Verhey states the following, "To engage in this research is not simply to exercise a right to inquiry but to exercise a freedom to create unprecedented forms of life." Verhey assumes that if a shift in public discourse is made from freedom of inquiry to freedom to create new life forms, then the burden of proof also shifts and falls upon those who would create those life-forms, and indeed those who would profit from the creation of those life forms.

However, Verhey's jump from a right of inquiry to a right to exercise a freedom to create "unprecedented forms of life" should be questioned. He jumps from the 'right of knowledge and inquiry' to 'life forms' without affording rDNA therapy and its possible benefits any place in his argument. If it was possible to deal only with the polarities of the issue, then Verhey's argument may stand. However, there are intermediate steps and discoveries such as the "bacteriafacture" of insulin, not to mention the cures for Tay-Sachs, Down syndrome, and leukemia to mention a few, that must stand between the polarities for consideration. It is difficult to perceive of any rDNA procedure designed to alleviate some form of disease or ill health as the creation of an unprecedented life form.

There have been several new abstractions introduced which have served to boost the standing of "the good". In an effort to justify the investment in rDNA, new rational-

---

99 Verhey, 130.
100 Verhey, 130.
101 Verhey, 130.
izations are continually being introduced to put the population's collective mind at ease. One of these newer concepts has to do with the right to a natural life span.

The competing rights which ground these opposing arguments are the right to life and a specific autonomy right of bodily privacy. However, in the case of abortion for a genetic condition which is incurable and will cause great suffering and an early death, another right should be considered. This is the right to a natural life span free of preventable suffering. Just as the right to life imposes a duty on others not to take that life and the right to bodily privacy imposes an obligation on others to respect one's choices in this regard, this additional right imposes a duty on others to prevent suffering and a reduction in life span when this is possible.\(^{102}\)

The highlighted portion cannot be as abruptly assumed as it is here. There needs to be more foundational argument in order to make this stand. As a whole, if this argument is accepted, its use must also be allowed for 'termination' of the suffering, the terminal and the elderly.

If this argument is taken to its logical extension, it will become impossible for the courts and/or the medical system to draw a line beyond which life should not be taken. It has been reported recently\(^{103}\) that "the average life expectancy of a left-hander is 9 years less than a right-hander." In the logical extreme, this could mean that parents have a "duty" to perform rDNA surgery if they discover that their child is left-handed since this means a reduction in lifespan.

Another large area where "the good" is becoming confusing is that having to do with the natural and health. The


initial point of reference has been skewed by our constantly changing ideas of what is natural and what constitutes good health.

As a means of eradicating genetic diseases, it would appear to be nothing more than an extension of the general medical project of curing diseases by removing their causes. Moreover, the prospect of altering the genetic endowment to improve the range of human capacities blends indiscernibly with medicine's interest in ameliorating disabilities, pains, and deformities.\(^{104}\)

The phrase "...improve the range of human capacities..." needs to be held up for critique. Heretofore, medicine has been solely concerned with moving a patient from ill health or a lack of health back to a state without impairment, not from a healthy state to a state of "super-health". At present, it would appear that rDNA possesses the power to move one from a state of ill health to health as well as from a state of health to a state of "super health". This distinction has not been sufficiently proclaimed in the current media.

This illuminates the state of confusion which exists over a proper definition of adequate health. What little is known of the Human Genome has revealed that every individual possesses seven to nine "deleterious" genes. These are genes that are "weak" and could "predispose" one to that given disease or illness. At the other end of the scale are the infants who are born with severe genetic defects. If "it is becoming more accepted legally that offspring may seek a recovery for damages when they are born with a genetic defect that could have been avoided by abortion or by contraception (Holder 1981) [and] conceiving a child or allowing a pregnancy with known genetic defects to go to

term harms the future person who will be born,¹⁰⁵ where will it be possible to draw a line? Engelhardt's suggestion is that "those engaging in genetic engineering should not employ their techniques unless it is likely that they will produce offspring with fewer defects than those produced by the uncontrolled endeavors of the usual cottage industry of child production."¹⁰⁶

How humans are to be treated, through the use of rDNA, will be drastically affected by a proper understanding of the inter-relatedness of true humanity and true freedom. As a clearer vision of what true humanity really consists of as well as the responsibilities of true freedom comes into focus, so too will the proper uses of rDNA come into clearer focus. While Engelhardt uses an adequate definition of human, he does not possess an adequate definition of freedom. In a section entitled "Being a Person and Being a Human", Engelhardt implies that one is variable, while the other is not. He uses Yoda and Jabba the Hut of Star Wars fame as examples. While children and adults alike would envision one as a good person and one as an evil person, no one would call them humans. He continues

Genetic engineering makes this point in a somewhat transformed fashion. Humans, since they are persons, need not remain human. One can imagine humans over time so transforming their characteristics that one would wish to advance new classificatory taxa to replace Homo sapiens--perhaps Homo fabricatus I, Homo fabricatus II, and so on. . . . If one is willing to entertain a sufficiently long-range fantasy regarding the human future, it is difficult to imagine that humans will not in fact refashion themselves in major ways. . . .


¹⁰⁶ Engelhardt, 286.
These bodies are, as already noted, the blind deliverances of random mutations and selective pressures that have adapted to environments in which our ancestors lived. As persons, however, we can envisage what it might be like for our bodies to be better adapted to our current environment.\(^{107}\)

The result of an anthropocentrically oriented humanity is that it has only its own realm of operations to use as a point of reference.

Another result of an anthropocentric or common view of humanity is that there are only human attributes to govern humanity's actions. "One is left with the canons of prudence and care, since there is nothing sacrosanct about the particular deliverances of evolution, which we find currently in human nature. However, this itself is instructive. It underscores the character of the creative task of persons, which remains indefinitely open."\(^{108}\) This argument recalls our second chapter.

Engelhardt assumes that the gift (and/or ability) of creativity has unlimited bounds. He assumes that anything is open for re-creation through the creative capabilities of humankind. Engelhardt evidences his wholesale adoption of Darwin's evolutionary principles when he states that "at first glance, genetic engineering would appear to be quite attractive. It offers the prospect, however futuristic, of being able to refashion our bodies so as to avoid genetically based diseases and perhaps in addition to make further improvements over the blind deliverances of evolution."\(^{109}\) If one limits one's self to the material world only, then the obvious assumption is that what now exists is the result

\(^{107}\) Engelhardt, 292.

\(^{108}\) Engelhardt, 293.

\(^{109}\) Engelhardt, "Persons and Humans:," 282.
Engelhardt concludes his article by saying that there are no overbearing reasons to maintain human nature as it is, uncontaminated by manufactured genes or by genes from other species. Human nature as a cluster of inherited capacities is no more inviolate than it is secure from mutations. We as persons cannot step outside of genetic constraints, but we can change or alter those constraints. Over the long run we are likely to do that and in so doing revise human nature better to meet the goals of persons. Then the issues will not be simply moral, but aesthetic as well. We will need to remember to do not only what is good, but also what is beautiful.\textsuperscript{110}

There is another tendency that provides some severe difficulties when "the good" of genetics is the only evaluative criteria. This tendency is a desire to allow for a deistic creation according to humanity's sense of evolutionary rules. Michael Ruse wonders, given the present fantasy prospect of complete ability in genetic engineering, therapy and design, "What, if anything, would be an improvement? Suppose a genetic fairy godmother did appear, prepared to wave her wand over any human feature and to grant any change,\textsuperscript{111} what changes could we make (in terms of design) that would make us better than we are? Ruse argues from an evolutionary point of view, citing the fact that there have always been mutations of genetic material in the genetic make-up of humankind. The assumption is that evolutionary

\textsuperscript{110} Engelhardt, "Persons and Humans:," 294. It is interesting to note that Engelhardt assumes that any changes which are made in the human genome will automatically be better and that he feels that we are not only capable of handling the moral decisions involved in such changes, but we will also be capable of handling the aesthetic decisions as well; but again the question must be asked, "According to whose standards?"

\textsuperscript{111} Michael Ruse, "Genesis Revisited: Can We Do Better than God?" Zygong 19, no. 3 (Sept 1984): 305.
mutations in the genetic realm are always good and that the
most recent mutation is "better" than the previous mutation.
Ruse has consumed the deistic evolutionary model to the
following extent.

Our notions of true and false and of right
and wrong have been caused by the natural
selection of random variations. This is not
to say that that which has evolved is that
which is true or right. It is to say that
the only sense of truth or right which we
have comes from evolution. Hence to ask that
we think or feel otherwise than we do is to
ask for that which cannot be conceived and
that which cannot be desired. In the long
run, our ideal of perfection has to be human,
because human ideals are all we have. Stated
theologically, the author of Genesis said we
are made in God's image. I really do not see
how else God could have made us.112

It is a grand leap for a theologian to go from evolution in
the middle of the paragraph to theological, biblical truth
by the end of the paragraph.113

Others have picked up on this theme, and they are not
always from a religious background, per se.

Still, what is likely to begin soon as at-
tempts to cure genetic disease by substitut-
ing functioning genes for malfunctioning
ones--a laudable goal--will very probably
lead in the not-too-distant future to the
ability to direct the evolution of all living
things on this planet, our own included. We

112 Ruse, 315.

113 Some have spoken of the human purpose in the world
as encompassing the role of co-creator alongside God. A
valid case can be made for a role of this type, however the
following two conditions need to be invoked in this employ-
ment role. "1) we must have sufficient knowledge of the
natural processes and the technical skill to affect them
purposively; and 2) we must have sufficient awareness of the
Creator's purposes to bring our human purposes into harmony
with them." Ronald Cole-Turner, "Genetic Engineering: Our
Role in Creation," The New Faith-Science Debate, Ed. John M.
Mangum (Minneapolis: Augsburg-Fortress, 1989), 72.
are fond--perhaps excessively fond--of attributing to ourselves godlike powers. But control of evolution is surely the quintessence of deity, and it can hardly be too early to start reflecting on what it might mean to accept such a challenge. Or to bear such a burden.\textsuperscript{114}

While the quote is obviously dated, the tone of the message still rings true. Powledge's estimation of the possessed power to manipulate DNA may sound grandiose, however, the more science and technology have discovered in the field of rDNA, the more prophetic her statement appears.

In light of all of the above, i.e., the new justifications, the confusion over health, the improper understanding of freedom, the resulting shifting reference points and the attempt at forcing deistic actions into human ways of thinking, genetics, and in turn, medicine in general will be set adrift. Paul Ramsey in his book, \textit{Ethics at the Edges of Life: Medical and Legal Intersections}, argues that as a tradition, medicine can not supply a proper moral base for answering all of the difficult questions that rDNA is going to place before society. Stanley Hauerwas in a review of that same book states,

\begin{quote}
The tradition [of medicine] can only destroy itself once it has qualified its commitment to the sanctity of each human life. . . . The twists and turns made to qualify the effects of abandoning our tradition's basic commitment to each person only lands us in contradictory or unmanageable ethical positions. He further argues that once we have opened the gate to quality-of-life decisions to determine the appropriate care of another, we often end up giving the wrong reason for doing the right thing.\textsuperscript{115}
\end{quote}

\textsuperscript{114} Tabitha M. Powledge, "You Shall Be As Gods," \textit{Worldview} (Sept 1977): 47.

Since the inception of the art of medicine, one of the fundamental tenets has been to "Do no harm," and conversely to "Do good." In the actual words of the covenant, "I will apply dietetic measures for the benefit of the sick according to my ability and judgement; I will keep them from harm and injustice."\(^{116}\) In the early days, this meant prescribing only such aids and treatments as would give comfort or cure the obvious illness. There was seldom if ever any thought given to the fact that what was prescribed for the good of the patient could have bad side effects, but such is the case on a very regular basis today.

Daniel Callahan notes that neither Paul Ramsey nor Leon Kass have been able to mount "generally persuasive arguments" (which is different than a good argument) against genetic engineering primarily due to their starting points which no longer carry adequate cultural weight.\(^ {117}\) What he is saying is that their arguments do not contain the kind of emotive power to entice the public to act or not to act. While the fault lies on both sides of authorship and readership, the result is still the same. Callahan goes on to ask the question, "Are there any moral premises in our society that are generally persuasive?" Of special concern in this division of the current chapter is his third premise.

The third principle is that it is always better to attempt to do good than to try to avoid harm. More than that, a failure to pursue the good ("benefits") is taken to be a form of doing harm, a sin of omission; hence the principle "do no harm," contrary to its original meaning, is not taken to be a positive mandate to attempt to do good. This

---


principle has been a powerful impetus to researchers both in the in vitro fertilization and the recombinant DNA debates.\textsuperscript{118}

What Callahan is saying is that no longer is it simply good enough to do something satisfactory on behalf of the patient. The imperative to "do no harm" has come to mean do everything positive that is possible, more commonly known as extreme/extraordinary means. Both the medical community and the public at large, have adopted this mindset to the extent that malpractice suits can be won if it can be proven that the attending health care professionals did not carry out extraordinary means.

Science, medicine and technology have progressed to the point that doing good can result in harm. The issue then becomes one of the greater good outweighing the lesser harm. A common example of such in this day would be chemotherapy in an effort to heal from cancer. There is no question that the radioactive nature of chemotherapy does good in routing out cancerous cells, however, it also does marked damage to the body as well. This issue becomes even more acute in the field of genetics. Not only is it a question of the good over the harm, but we have to question the good. Testing now known as genetic probes are causing the difficulties.

There is currently little, if any, justifiable application of DNA probes for rare untreatable metabolic or related disorders in population screening—either for newborns or mothers, since truly therapeutic interventions (unlike abortion) for newly targeted genetic diseases are still remote and without a family history of the disorder in question, the chance of finding an at-risk couple are infinitesimally low.\textsuperscript{119}

\textsuperscript{118} Callahan, 9.

There is no question that being able to detect diseases before they manifest themselves in obvious illness is half the battle in curing the illness, however, why test for something for which there is no "real" therapy? Many of the diseases for which DNA probes are used have no known therapy.

The obvious harms that can result from such testing are myriad. The effects of the knowledge that one possesses a deleterious gene are as yet quantitatively unmeasured. It takes only a short period of observation to understand the stress and anxiety that an individual is under who has just recently witnessed the death process of a parent who has suffered from Huntington's disease. The same is true of those awaiting the results of a DNA test probe. Humaneness towards fellow individuals would dictate both the speed and the accuracy of DNA test probes. Current studies are attempting to evaluate the usefulness of DNA probes. "These studies should address not only the accuracy of proposed tests, but their clinical worth... If studies demonstrate that patients diagnosed by genetic testing fare worse than those never identified, both marker and proposed therapy are indicted."\(^1\)

Marc Lappe makes two more very important addenda to the use of gene probes. First he notes in a different way that they are not unlike looking at one picture frame of an entire roll of movie film. Without looking at the other frames, the knowledge of the one is virtually useless. Secondly, he notes that the results of a gene probe can in no way reveal how the gene will express itself. "Nevertheless, because of a deep-seated need for certitude, many persons are likely to perceive a positive gene probe test as an indicator of biologic destiny. If this proves

---

true, probes may acquire a misleading status in our medical armamentarium as indicators of a new kind of biological determinism.\textsuperscript{121,122}

While it is obvious that "do good" has it's obvious meaning in trying to help a fellow human being, it is also obvious that it is no longer so simple. It would do the medical community and all those interested in the dilemmas facing the medical world to heed Reinhold Neibuhr's general societal principle as an equal warning for genetic discovery.

Every advance in the fulfillment of human aspirations creates problems at an entirely new level. An urgent example in the world of medical ethics is the host of moral dilemmas issuing from the new life-prolonging and resuscitative devices. We are still novices at resolving the legion of problems that accompany these otherwise beneficent technologies.\textsuperscript{123,124}


\textsuperscript{122} "A credo of medical care has been that the earliest diagnosis of a condition is the most desirable. . . . Pre-symptomatic diagnosis of Huntington disease and other highly penetrant, devastating, late-onset diseases also seems rightly to provoke research and trials of promising agents. Early diagnosis has its dark side, however. The ability to identify and treat many common conditions risks establishing a populace of 'diseased' individuals and increasing medicalization of daily life. Failure to adhere to a suggested therapeutic regimen may then result in individual guilt and self-recrimination, or worse, a 'blaming of the victim' by others through effects on insurance premiums or more subtle forms of stigmatization. . . . Conceivably, many genes predisposing to 'undesirable' traits may also have as yet undiscovered beneficial effects, like the protection afforded by sickle cell trait against malaria." Kathleen Nolan and Sara Swenson, "New Tools, New Dilemmas: Genetic Frontiers," \textit{The Hastings Center Report}, vol. 18, no. 5 (Oct/Nov 1988): 43.

The False Concept of Risk/Benefit Analysis

In many of the discussions and articles concerning DNA research, there is much time spent on a risk/benefit analysis of a given procedure. This is especially the case in microethics, where the physician and patient (or surrogate) are involved in weighing the benefits (often of some unproven or untried procedure) over against the risk (very often a limited quality of life--whatever that may mean--or possibly death). However, there are some fundamental problems with this type of thinking.

The first task in this section should be to establish some definitions in order to clarify the issue that is center stage. In connection with this particular aspect of medical ethics are such terms as beneficence and nonmaleficence, risk and benefit. The first of these terms to be defined is beneficence, which may seem quite straightforward in its meaning.

Obviously, health care services should act in such a way as to benefit the person receiving the service. . . . frequently health care personnel are trapped in weighing probable results. This principle states simply that the total procedure should be one where the benefit outweighs the nonbenefit. . . . Cer-

124 (...continued)
124 "Moreover, despite our advances a vast impenetrability cloaks almost all prognostication about human traits and conditions. In fact, the language of 'contingency' itself reveals a wobble in the lofty trajectory of the new human molecular genetics: for diseases of low or uncertain penetrance or for which expression is determined in part by other factors, genetic forecasts remain statistical, predictions not predeterminations. Peering into a given individual's future to predict the development of some currently undetectable condition represents a heretofore unheard-of capability, but the power of probes to forecast the future is forever limited by the power of genes to cause it." Kathleen Nolan and Sara Swenson, "New Tools, New Dilemmas: Genetic Frontiers," The Hastings Center Report 18, no. 5 (Oct/Nov 1988): 45.
tainly, with so little experience, genetic engineering will face this issue for many decades. The benefits may be obvious, but the nonbenefits could be totally unknown.  

An example may help to clarify the difficulty. Chemotherapy has it obvious drawbacks made manifest by hair loss, nausea, and so on. However, these negatives are outweighed by the greater good that the drug performs in killing only cancerous cells within the body.

Another term for clarification is nonmaleficence. This is simply the principle that damage may not be done to the person receiving health care. . . . After all, maleficence contradicts the purpose of health care. . . . Experimental types of procedures need to be measured against the possibility of doing more evil than good. And one is never sure how far to extend the issue of nonmaleficence. That is, what is good for the patient may not be good for society or for the immediate family.

A case in point here would be what came to be known in Canada as the "Nancy B." case of the winter of '91-'92. A quadriplegic from the neck down and requiring complete life support, she petitioned the court for the right to have her life support disconnected. What may have been supportive of her in eliminating her own personal misery was not so clearly good for society in that it belittles the value of the unproductive citizen. The precedent which has been reinforced in this particular case is that the will of individual is of foremost importance, regardless of the cumulative effect of such a decision on society.

A concept which has arisen already and will continue to do so throughout this segment is that of "the unknown." Exploring new frontiers in genetics is far different than

---


126 Snyder, 210.
exploring uncharted space. Space is for the most part, discovery through travel. Genetics is discovery through actions and the effects of those actions, even individually much less compounded, could have dramatic effects beyond our broadest imaginations.

The unknown aspects of genetics has already been examined, but in virgin territory there are competing claims and counter-claims. "As is true with all other new procedures in medicine, therapeutic studies of gene therapy in human patients will be performed with imperfect knowledge when technical uncertainties and imperfections are outweighed by clinical needs." The picture becomes even more complex when another geneticist is added. There are almost always two views to every opinion or story and this is no less the case with scientists and their resulting "competent" views of the dangers or lack thereof of rDNA.

Scientists contribute to the public's confusion by failing to recognize the mixture of fact and value in their own opinions. When an expert calls a risk "over-blown" or "terrifying," he is combining his estimate of probability with his values toward risk-taking. Philosophers tell us we can never completely unravel the interwoven threads of fact and value; but in practice we can and must make distinctions.

Studies in the past have shown that familiarity limits fear and unfamiliarity increases fear. The gap between the public's understanding and contact with genetics first hand and the scientists understanding and constant handling of data and material is wide enough. It is going to be magnified by the scientists own confusion, counter claims and

---


modifications of studies. The conflicting messages that the public may or may not hear are going to make risk/benefit analysis in the microethics situation that much more difficult. Verhey comments further that "the conflicting claims of the scientist are fascinating. . . . The scientists do not have different information or different scientific methods; they have different perspectives, different dispositions, different convictions."¹²⁹ In other words, it should be remembered that scientists have differing personal beliefs and agendas the same as all other individuals. These differing convictions and ambitions cause them to arrive at contrasting and possibly even contradictory positions regarding the use of and profit from mapping and understanding the human genome.

One of the consequences of this unknown is the necessity of doing safety research, that is

since we do not know enough about recombinant processes to make reliable estimates about their danger, we must do safety research which, ironically, involves doing hazardous experiments. A reasonable approach might be to construct a few special laboratories where, under extremely cautious controls, safety question would be pursued. This suggestion has a subtle difficulty: programmed research tends to lose the power to ferret out the unexpected, and as DeWitt Stetten, the deputy director of NIH pointed out, the biggest dangers of recombinant DNA are those we have not yet thought of. Science is not a linear process; its power to clarify and weed out depends on a pluralistic, cyclic approach in which competing hypotheses are debated, refined, and tested.¹³⁰


¹³⁰ Dismukes, 25.
Thus, while the competition, complexity and counter claims may confuse the public, it does serve to elucidate and eliminate the incongruities that arise.

Another piece of the puzzle that serves to make risk/benefit analysis more difficult is the lure of profits. Much has been stated elsewhere concerning the recently new found compatibility between the academic institutions involved in genetic research and the industrial/manufacturing sector involved in the same endeavours.

If the issue of aggression control appears too complex or politically difficult, one might substitute less inflammatory examples, such as genetically engineering individuals to be better adapted to asbestos, vinyl chloride, and benzine in their environment. One need only to see some allure of benefit in order to engage earnestly in examining what the possibilities of harms and benefits could be.132

The scenario in focus here is that of a large company or multinational corporation which may, for many reasons, find it more economically feasible to change the employee rather than to scale manufacturing processes for pollution prevention. It is obvious that the attraction of profits clouds the risk/benefit analysis even more. The lure and greed which profits produce should offer sufficient reason for society to demand full disclosure on all genetic discoveries.


The next obvious course of action would be the creation of a governing body with wide ranging powers either from within or without the scientific community. This governing body would have to be able to suspend research pending proof of safety, proof of benefit and proof of any number of a list of criterion. Key Dismukes raises our critical awareness of any type of self-governing body.

However, it [legislation] leaves the director of NIH with conflicting responsibilities: he must both promote an area of research and simultaneously regulate it. The Atomic Energy Commission's performance should make us aware of the difficulties inherent in this kind of situation. Charged for thirty years with both developing nuclear power and safeguarding the public, the AEC failed to adequately explore possible hazards before committing us to a major development program.\(^{133}\)

The formation of some type of a governing body from within the scientific community would put it in constant conflict with itself. The pre-eminence of the scientist or the policeperson would be in constant conflict.

This would leave one other major group available for some type of involvement in the ongoing genetic project. If a committee of interested individuals from various vocations and professions was constantly and completely updated about the imminent possibilities and capabilities, they may adequately serve such a post. This combination too would have difficulties however.

The tensions between scientific freedom and public involvement must be balanced. To anticipate and delimit hazards requires the best efforts of a vigorous scientific enterprise. That in turn requires the freedom of scientists to challenge the consensus, with data and argument. We require not just the scientist's data, but also his way of asking questions. It is somehow both ironic and

\(^{133}\) Dismukes, 25.
appropriate that the insight of science must be one of our major tools for preventing misapplication of its technologic off-spring. 134

Perhaps a better risk/benefit analysis could be developed if a better understanding of the result and consequences were published. As was stated earlier this is part of the unknown.

Mapping and sequencing the human genome could, of course, lead to screening on an almost unimaginable scale--not only for certain diseases and traits, but also for tendencies toward certain diseases, such as cancer or manic depression. When all genetic traits can be deciphered in a genetic code (something that will require far more than a simple map of location), we will enter a new realm--taking not simply a quantitative step, but a qualitative one. Exactly what the consequences of such a step will be are not entirely foreseeable. 135

And thus the discussion has come full circle. The unknown, the source of our fears is holding the public's approval at bay. 136

134 Dismukes, 30.


136 From Footnote #4 in W. French Anderson's article, "Human Gene Therapy: Why Draw a Line?... ." I do not believe that the widespread public uneasiness about human genetic engineering that I have found in talking with diverse groups throughout the country over the past 20 years is founded solely in worries about cancer, toxic [690-691] side effect, or random mutations. People smoke, drink, overeat, use drugs, drive recklessly, pollute the environment with mutagens, etc., with only moderate expressions of concern. Anxiety about genetic engineering strikes deeper than this. And even though individuals cannot usually express in words why they are nervous, they know that they are. An element here is that, as studies of risk perception have shown (Fischhoff et al., 1981), the public tends to underestimate familiar risks and overestimate risks that are unfamiliar, hard to understand, invisible, involuntary, and/or potentially catastrophic. Recombinant DNA and gene (continued...)
Another aspect of the benefit side of this equation has to do with the benefit of altering defective genes. There is relatively no question that identifying and correcting a defective gene for Tay-Sachs or Lou Gehrig's or Alzheimer's is a laudable activity. However, suppose in doing a gene probe of an individual, the probe shows deleterious genes for Alzheimer's, heart disease and an immunity weakness. Do all of the identified defects need to be 'corrected' before the person can be considered healthy? If the answer is affirmative, then it must also be assumed that no individual can be considered perfectly healthy.

It is in any case an established fact that every human being is the carrier of genetically determined defects. Respect for damaged life in the serene relationship between parents and the expected child should then perhaps best be able to be supported by a true fundamental attitude of solidarity in responsibility: 'We are all fellow mutants.' With this we find ourselves in the midst of ethical evaluation.

Thus, without an absolute definition of humanity, the unhealthy, the defective, and the unproductive categorizations of people will continue to grow ad infinitum. And with only

\[\text{\textsuperscript{136}(...continued)}\]


\[\text{\textsuperscript{137}}\] David Suzuki, et al., have raised the issue that there are no guarantees that altering one specified gene will not somehow affect another gene, either positively or negatively, at another point on the genome. We find ourselves again in the midst of the unknown yet having to proceed.

constantly shifting social mores to provide the guidelines, a utilitarian view of human individuals will be the only and inevitable result. The individualism of the modern world will continue to grow. Future generations will continue to foster a love of self without any regard for the next door neighbour. In reviewing Paul Ramsey's book *Ethics at the Edges of Life: Medical and Legal Intersections*, Hauerwas states the following:

He [Paul Ramsey] argues that if we are to value as God values, then care is required since otherwise we sunder the relation between love to God and love to neighbor. Thus from a religious perspective there is no reason to say that the six months of life of a victim of Tay-Sachs disease is of less worth to God than the seventy years before the onset of degeneration in a healthy person.\(^\text{139}\)

While Hauerwas' evaluation may raise other questions which are not of particular concern here, it does show that, awareness of denigrative views of humanity need to be pointed out and the elimination of such views must be attempted.

With differing views of humanity in mind, evaluations need to be made in regards to risk/benefit equations. The bottom line questions in all of this are, "Who is really at risk?" and "Who really stands to benefit?" Daniel Callahan makes the following observations.

There is the principle of risk-benefit analysis: in matters of uncertainty, risks and benefits are to be compared and moral action determined by the outcome of the equation. (Technically, of course, risk-benefit analysis is supposed to be only a methodology; but at times it appears to have the status of a moral principle.) It is this principle that has dominated the recombinant DNA

debate, and its application which has led to a relaxing of the earlier guidelines. At the end of this listing, Callahan is able to note that virtually nothing has stopped research in genetic engineering. However the same can be said for most of the scientific endeavour during the twentieth century. Since its inception with the likes of Bacon, et al., science has seldom been dissuaded from the agenda that scientists have set for themselves.

The logical next step in this process of risk/benefit analysis is the formulation of probability statements based on the experts' understandings at the time. Probability statements are the only perceivable way of applying the risk/benefits factors as determined by genetic scientists. However, this too has its limits as the Presidential Commission on genetic engineering points out.

Yet it is important to understand the unavoidable limitations of technical expertise. On the one hand, there are the limitations of the experts' knowledge; on the other, there are the limitations of technical knowledge itself, no matter how thorough. Experts in genetic engineering can provide the most accurate available data, from which probability statements can be formulated. But neither geneticists nor scientists experienced in risk assessment have any special expertise about evaluative and conceptual uncertainties. An expert might conclude that there is a 5% probability that a certain harmful outcome will occur, but that knowledge is not sufficient for deciding whether such a probability is an acceptable degree of risk. Nor can scientific expertise answer the question of whether the burdens of risk would fall disproportionately upon some people, for this is a moral, not a scientific, question. This is not to say, of course, that scientific experts should not make moral judgments or

---

that if they do they ought to be ignored. But the limitations of expertise must be clearly understood. "

But all of this still does not answer the bottom line questions posed earlier, nor have the terms risk and benefit been defined (by design).

In most articles and books on risk/benefit analysis, the philosophical basis is utilitarian based. In a majority of macroethics discussions, the genetic plan and process creates a difference of opinion as to who should have to defend their respective position first, i.e. those who endorse rDNA or those who oppose it. Regardless of where this burden finally lands, the arguments that are used on both sides of the equation are typically utilitarian arguments surrounding the supposed risks and benefits of genetic technology. However, such arguments involve vast territories of ambiguities precisely because the results of any given genetic procedure are unknown and as a consequence, the usefulness of a particular argument is limited. Allen Verhey again provides direction.

"First, utility calculations or assessments of risks and benefits often ignore a basic moral question, the question of distributive justice. . . . Second, the terms "risk" and "benefit" are not parallel. Risks compare with hopes. Benefits compare with harms. Risks and hopes deal with uncertainties and probabilities. Harms and benefits deal with assured results. . . . Third, the uncertainty of some risks and some benefits must be acknowledged. We may not know the risks until we have taken them. The issue then is not just whether certain well-defined risks are worth taking but whether we can get to know what the risks really are morally. . . . Or to put it more elegantly, the probability of harm may turn out to be small, but the magni-

tude of the possible harm is very great. In the face of the sort of uncertainty we face with recombinant DNA, I suggest that with respect to weighing costs versus benefits the burden of proof should be borne by the genetic engineers. If we cannot know the risks until we do genetic engineering, and if we may not do genetic engineering until we know that it is safe, then the pace of the biological revolution ought to be slowed.\(^\text{142}\)

Verhey covers a substantial amount of territory in this quote, and it would be helpful to explore his declarations in more detail.

His first assertion suggesting some model of distributive justice would go a long way in assisting with the provision of answers for our bottom line. "The final principle is that of justice. Putting it in its clearest form, the resources of health care ought to be equally available to all persons in the society. As John Rawls has put it, when that is not true, the inequity must be shown to be for the benefit of those who have the least command over the resources available."\(^\text{143}\)

Verhey's second assertion has to do with the actual definitions of the terms risk and benefit. Few have realized that they are not perfectly co-opposite terms. The very way that the terms "risk/benefit" are used tip the scales in favour of genetic engineering. Discussion is predisposed to talk of "cures" as factual in reference to benefits and to talk about the harms of genetic technology as though they were only risks.\(^\text{144}\)

The third contention speaks for itself. These declarations help to provide substantial balance in the face-off

\(^{142}\) Verhey, 130-131.


\(^{144}\) Verhey, 130-31.
between the individual and the progress of genetic engineering. The dignity of the individual is maintained without completely disavowing the use of genetic technology. The by-words are caution and assurance.

The Moral Views of Parent/Child Relationships

Another area that requires our attention and examination is that of the relationship of the parent to the child and vice versa, as well as other aspects and people which become involved in the genetic reproductive process. However cursory it may be, it would first be judicious to examine the effects and possibilities of genetic technology on the reproductive process. There are also some other aspects and attitudes which should be observed as well. In an ever increasing way there are also other people involved in the life-creating process that were never dreamed of in previous times. How these people talk and act in the very important and difficult decision to have children requires serious examination. Of final and probably ultimate importance in this specific area are the views on parenting and children which western societies hold.

In the area of parenting and children, it would be reasonable to peruse the probabilities and possibilities that genetic engineering may or may not have on the reproductive process. If this statement sounds somewhat indecisive, it is due to the fact that, at this point in time and probably for a few years to come, it is difficult to determine the extent and reliability of genetic technology in the reproductive process.

In some of the literature relating to this reproductive genetics, there has been some obvious antagonism towards the standard process of creating new life.145 The Presidential

---

145 Probably most notorious in this regard are the terms of Joseph Fletcher, "Indicators of Humanhood:" op cit 3 "...sexual roulette...", et al; H. Tristram Engelhardt, Jr. (continued...)
Commission offers its modern interpretation of sexual reproduction in the following, which includes the phrases 'stark alternatives' and 'natural lottery'.

If gene therapy or gene surgery becomes available, parents could have more control over their children's characteristics. They will no longer face the stark alternatives of either playing the hand their child has been dealt by the "natural lottery" or avoiding birth or conception. Instead, they could prevent some genetic defects through gene surgery on the zygote and remedy others through gene therapy before the genetic defect produces irreversible changes in the child.\textsuperscript{146}

The current process of ordering a new car may be quite similar to the future process of producing life. When looking for a new automobile, there are pages of options which may be considered in order to tailor one's purchase to one's budget, driving styles, and taste. If rDNA develops to the point where individual genes can be addressed and manipulated, the "production" of a child may come about as a result of a "sales order". Nevertheless, it is unlikely that the process is ever going to be this simple since the same gene that contributes to your hooked nose may reduce your chances of tooth decay, for all we know, or even limit your fluency in foreign languages. So you can't order everything from the trait menu, and you sometimes can't order even one item without worrying about a bunch of others. Now the question is, do you care more about your kid's nose or her linguistic facility? And if

\textsuperscript{145}(...continued)

"Persons and Humans:" , op cit, 282 "...blind deliverances of evolution..."; Marc Lappe, "Genetic Knowledge" op cit 1 "..."backwoods licentiousness"..."; and other phrasings including one that stands out, "cottage industry of reproduction."

there's any downside at all, should society let you choose?\textsuperscript{147}

We have to ask ourselves what this says about how we view our children; as commodities to be modified like a stock portfolio, or as images of God, valuable in and of their own existence and how they were naturally created.\textsuperscript{148, 149}

While it is true that "natural" creation provides its own set of defects in any human being\textsuperscript{150} there is no guarantee that the correction of one specifically identified gene is not going to affect numerous other genes.

It seems safe to say that one important duty of a parent is to prevent or ameliorate serious defects (if it can be done safely) and that the duty to enhance favorable characteristics is less stringent and clear. Yet the new technological capabilities may change people's view of what counts as a defect. For example, if what is now regarded as the normal development of important cognitive skills could be significantly augmented by genetic engineering, then today's "normal"


\textsuperscript{148} This term has in focus the sexual reproduction of an individual without any intervention in the genetic makeup of that individual.

\textsuperscript{149} "This issue and the rapidly approaching ability to accomplish such tasks could very easily result in the following scenario. "As one example, the ability to completely screen embryos could lead to a market in "high grade embryos" that could be bought and sold. They could also be gestated by contract or surrogate mothers, and the resulting child delivered to the purchaser of the embryo. This could lead not only to putting specific price on all human characteristics (such as height, intelligence, race, eye color, etc.), but also to viewing children as commodities that have no rights or interests of their own, but that exist to further the interests of parents and future societies." George J. Annas, "Who's Afraid of the Human Genome?" The Hastings Center Report 19, no. 4 (July/Aug 1989): 20.

\textsuperscript{150} Cf. The Limits of the Good above.
level might be considered deficient tomorrow. Thus ethical uncertainty about the scope of a parent's obligation is linked to conceptual uncertainty about what counts as a defect.\textsuperscript{151}

Once again an anthropocentric viewpoint creates the "conceptual uncertainty" in the Commission statement simply because they realize that there is no single human person or committee which possesses the right or the ability to "draw the line" between what is defective and what isn't.

A further aspect in this whole area of rDNA development has to do with speculating about how far rDNA technology may be able to take humanity in light of the amount of knowledge that has been obtained in such a short period of time.

If the frontiers of genetic engineering can advance from one-gene to three-gene traits within a few years, what stands in the way of discovering the larger gene combinations that influence height, weight, and skin color? For that matter, won't we eventually be able to identify the genetic roots of intelligence, ambition, courage, and altruism? And if so, whose children will be permitted to benefit?\textsuperscript{152}

Yet again there is another facet of this speculation that deserves attention. It has to do with the ability to identify deleterious genes in children and the limits of those identifiers. A thermometer informs one of the temperature, but it does not give satisfactory information regarding sunshine, clouds, humidity, precipitation or the like. An rDNA gene probe will identify the existence of the deleterious gene that it has been coded for, but it will not provide information on the degree of manifestation of said disease and neither will it provide for identification of any other deleterious gene.

\textsuperscript{151} The Presidential Commission, ed. Thomas A. Shannon, 409.

\textsuperscript{152} Saletan, "Genes `R' Us," 19.
Moreover, despite our advances a vast impenetrability cloaks almost all prognostication about human traits and conditions. In fact, the language of "contingency" itself reveals a wobble in the lofty trajectory of the new human molecular genetics: for diseases of low or uncertain penetrance or for which expression is determined in part by other factors, genetic forecasts remain statistical predictions not predeterminations. Peering into a given individual's future to predict the development of some currently undetectable condition presents a heretofore unheard-of capability, but the power of probes to forecast the future is forever limited by the power of genes to cause it.\(^{153}\)

In other words, if there is even the slightest variation in the actual sequence, the probe will not be able to identify the gene sequence.\(^{154}\)

While it is true that there may yet be many reasons for carefully questioning the use of rDNA on a fetus or infant, there are also some quite compelling reasons for approaching


\(^{154}\) Indeed, this precision itself presents a dilemma. As indicators of the presence of gene sequences, DNA probes appear to offer a virtually failsafe diagnosis. In fact, they can only reveal the presence of what is being sought—usually a known gene sequence. All probes will fail to correctly identify other defective variants of the gene, or a de novo mutation that differs in as little as one base pair from the DNA being sought." Marc Lappe, "The Limits of Genetic Inquiry," The Hastings Center Report 17, no. 4 (August 1987): 10.
the use of gametic gene therapy. However, these too need to be weighed very carefully for benefits and dangers.

There are usually two reasons given for performing gametic therapy. The first is that someone who has received somatic gene therapy for a disease will, in all likelihood, pass the genetic disease on to their offspring. In other words, why do a genetic operation over and over in succeeding generations, when doing it once at the gametic level would cure the disease once and for all.

And secondly,

some genetic diseases may be treatable only by this method. For example, because of the blood-brain barrier, the brain cells involved in hereditary central nervous system disorders may be inaccessible to somatic-cell gene therapy. Early intervention that affects all the cells of the future organism, including the germ cells, may be the only means available for treating cells or tissues which are not amenable to genetic repair after birth.

It is lesser known facts such as the last that provide difficulties in legislating against the use of gametic gene therapy.

155 There are two classes of gene therapy that can then be divided by purpose. The first is often referred to as somatic gene therapy, taken for the Greek word for body. This entails the performance of gene therapy on an already existent body to alleviate some genetically apparent disease. The second is usually referred to as gametic (from gamete) gene therapy. This is the process of performing gene therapy on the sperm and/or ovum used to form the initial united cell of a new embryo again to eliminate some genetically caused disease. Both of these treatments (somatic and gametic) can be further sub-divided along lines of purpose. In this new division the purpose has changed from that of therapy treatment for genetic diseases to design treatment which is the changing of some aspect of the individual which is not considered to be a disease, eg. hair color, height, etc.

In examining the parent/child relationship, there are still other aspects of genetically assisted reproduction that should be looked at. The final point of the previous section posed gametic therapy as a laudable endeavour in the treatment of certain central nervous diseases. However, what is seen as beneficial and propitious on the one hand has its detriments on the other hand. Deciding whether to engineer a profound change in an expected or newborn child is difficult enough, but when it is remembered that the effects of a couple's actions in the genetic manipulation of the reproductive cells will be evident not only in their immediate offspring but also in all future descendants, the burden of responsibility could be truly awesome. When one considers the speed and the quantity of the change combined with the spread of an inherited mistake after two or three generations of offspring, reversing a genetic mistake could be cost prohibitive, not to mention, difficult or even impossible.

There are also psychological considerations which need to be taken into account. Psychologists and counselors are only now beginning to decipher the importance of family relationships and what happens to individuals when these external relationships are severed through separation and divorce. They can only speculate about what types of difficulties may be encountered if society begins severing the biological family connections.

Gene splicing technology may also change people's sense of family and kinship. On the one hand, the possibility of promoting significant inheritable changes through gene surgery may encourage people to think of their family as extending further into the future than they now do. On the other hand, knowing that future generations may employ an even more advanced technology to alter or

replace the characteristics passed on to them may weaken people's sense of genetic continuity.¹⁵⁸

This quote assumes a viewpoint taken purely from this age and people; it makes no attempt to imagine how the genetically altered offspring may feel. Since time and changes in technology itself has provided what are known as vast generation gaps, it would not be inconceivable for these offspring to feel that they have no connections with previous generations since they are so different from their parents and ancestors in their fundamental physical make-up. The Presidential Commission speculates on the feelings of these offspring as follows.

Whether or not they are accurate, people's beliefs that they are linked to other members of their family by constitutional similarities may play an important role in a family's sense of solidarity and group identity. Knowledge that the genetic link between parents and children is only partial or non-existent could attenuate these feelings of kinship and family and the sense of continuity and support that they foster. Experience with adoption illustrates successful integration of family members who are not biologically linked, but also demonstrates the importance some individuals place on an association with biological parents. Here, too, there may be as much uncertainty about whether such changes would be beneficial or harmful as there is about whether they are likely to occur.¹⁵⁹

Additional considerations include normal health and rights and duties. The first is an extension of the parental duty and the child's right to possess normal health. Most civilized (and wealthy) societies provide legal support in favour of children to sustain their health. While this


is too often violated even in the wealthiest countries for various reasons and/or excuses, the precedent exists. Certain ethicists and lawyers have taken this right of the child into the realm of fetal existence.

This argument maintains, in fact, that the duty to provide normal health for one's children should take precedence over the desire to reproduce in these kinds of cases. According to the argument, this is because if one's desires will cause serious harm to others, they are illegitimate desires and should not be satisfied. This same argument could be applied to the case of any terribly debilitating disease which cannot be detected pre-symptomatically or prenatally.160

With apparently twisted logic, Gauthier argues that just as the child has a right to proper health care, so too does the fetus. While she states that the parent's are not required to abort, there is good reasoning to do so. If genetic screening determines that a particular fetus will be the possessor of a genetic disease, the fetus' right to a normal, healthy existence free of suffering demands that the parents abort. "To conceive a child or to allow a pregnancy with known genetic defects to go to term harms the future person who will be born."161 However, the point that is being missed by both Gauthier and Engelhardt is that the fetus is already a possessor of life. They both assume that life doesn't begin until birth and this assumption makes many things much easier. In other words, the defective fetus' right to a normal, healthy existence free of suffering overrides both the parent's desire to have and care for


a defective infant and the fetus' right to existence post-conception.\footnote{162}{Here the assumption is that the "defect" is not life threatening.}

Involved in the above argumentation are the rights/duties of both the mother and the fetus. These deserve close examination. Gauthier sides with the mother and her rights when she states that "the duties she may have toward the fetus which arise from its rights as a potential person will not be strong enough to override her right to make the choice for an abortion. Thus, again, abortion for genetic indications will still be morally acceptable."\footnote{163}{Gauthier, "The Impact of Recombinant DNA Technology on Genetic Screening," 32.} The number of reasons grow for permanently silencing those who can not speak for themselves.

Perhaps one of the best commentaries on how we view our children has been offered by Outler in the summary paragraph of an article he wrote as a logical defense against abortion. Although a somewhat lengthy quote, the argument is easily transferred to the issue of genetic reproduction. He states:

Our best recourse, in such a situation, is to look to the practical consequences of the two contrary perspectives, each taken in turn as if it were true. If fetal life is regarded as if it were human and sacred and potentially personal in some truly important sense—as if its values were rooted in its transcendental origins and ends—then it must not readily be violated by others on grounds of disparate self-interests. If, on the contrary, fetal life is viewed as if it were sub-human, as if its values were conferred on it, or denied it, by other human beings, in terms of self-interest or social sentiment, then abortion is a legitimate fail-safe against defective births and beyond that, euthanasia an acceptable fail-safe against lives no longer useful. By then, of course,
abortion would have ceased to be the central issue, but rather human life itself. But that, precisely, is what this debate has been all about, all along!  

It is always wise to keep the whole picture in mind when trying to evaluate details. We have been examining the detail of genetic manipulation at the beginning of human life and what effects, psychological and otherwise, this might have on the parent-child relationship.

In a very interesting article, Michael Ruse asks a very pertinent question which backs us up and forces us to look at the larger picture. After examining a number of different angles, he queries, "What could really be any better than where we are genetically?" While Ruse's confessed amazement is somewhat surprising in itself, his conclusion bears much truth. "So having run through my six categories, here you have my conclusion--a conclusion which, I must confess, somewhat surprised me at first--that God did not do such a bad job after all! Before we plunge headlong into massive programs of genetic redesign, perhaps we should consider where we stand today. It may just be that it is not such a bad place to stand."  

There are very likely many more factors which could be considered under the heading of other aspects of genetic reproduction in addition to those listed, however this should suffice to give some forewarning to the complexities and danger inherent in the processes of genetic reproduction.

In looking at genetic reproduction from as many angles as possible, attention should also be given to those in-

---


165 Michael Ruse, "Genesis Revisited: Can We Do Better than God?" Zygon 19, no. 3 (Sept. 1984): 312.
involved in the actual process of decision-making in genetic reproduction. Genetic reproduction can involve three or more parties in the process. What was previously a consented to action by two people is now a full-blown laboratory procedure, where little is left to simply occur. This third party is usually a genetic counselor and how s/he reacts and speaks can have varying degrees of influence over the couple in crisis. "Genetic counseling is a new frontier which passionately needs sound thinking and solid development." It must be realized by all involved that the genetic counseling process is more complex than the simple transfer of scientific, biological, genetic knowledge from the counselor to the prospective parents.

Again there are varying views on the activities and responsibilities of the genetic counselor. Marc Lappe holds the genetic counselor to a very limited sphere of operation, this being not much more than simply a dispenser of information. "Basically, I think that genetic counselors may be misguided if they feel that their ethical obligation is in any way to future generations." While it is true that the prospective parents make the ultimate decisions, the genetic counselor must be held accountable to some degree for the decision which is ultimately arrived at. Lappe continues that in the simplest of terms, all a genetic counselor can properly do is to minimize the "bad" which may be a result of human reproduction. Loading a public good or a conscientious genetic guidance and screening


program on the back of the genetic counselor may be fallacious and ethically dangerous. He also states that "the genetic counselor's obligation never should extend beyond the family within his purview. . . . Properly, a genetic counselor's job should not, in any way, be construed as eugenic in practice."169

Lappé's basic position for the ethical view of a genetic counselor is the following, "The best that one can do in the role of genetic counselor (as that role is currently construed) in the face of the inevitability of genetic defects is to minimize the impact (not necessarily the occurrence) of these defects. This impact is measured by the amount of human suffering coincident to the defect."170 This whole tone is also echoed by Candace Gauthier in her article on rDNA technology and screening. She states that "the ethical dilemmas confronted by couples at risk for debilitating or lethal genetic disorders are difficult ones and are dilemmas that most agree must be resolved by the individuals themselves. Neither the scientists nor the genetic counselors can resolve them. . . . It is up to the individual and the society to decide how to use it [technology]."171 What is being stated here both by Lappe and Gauthier is that the genetic counselor is a value-neutral information dispenser; that the genetic counselor is no different than a computer printout.

The definition of a counselor excludes this type of belief regarding the genetic counselor's actions and message. Invariably, the prospective parents are going to ask something like, "What would you do if you were in our posi-


170 Lappé, "The Genetic Counselor:" 7.

171 Gauthier, "The Impact of Recombinant DNA Technology on Genetic Screening," 35.
tion?" or "What do you think the chances are of...?" The genetic counselor has to make some type of response or evaluation or appear incompetent and uncaring to the parents. If this is all that society is going to require of a genetic counselor, then a questionnaire and a printout would be a more responsible process.

In addition, the issue of privacy versus publicity is another issue which bristles with thorny questions. The parents facing these types of agonizing decisions are under enough pressure without having to face "inquiring minds". The difficulty is that the public at large has a right to know what the medical world is capable of performing.

With gene therapy, one hopes for a reasonable balance between familial privacy and the desire of the public and the media to know.

172 It is the opinion of the author that value-neutral genetic counseling is an impossibility. It is a formidable task for a human being to be simply a dispenser of information. Whether it is body movement, inflection, intonation, or words used, the genetic counselor will in some way (possibly even unconsciously) affect the decision of the prospective parents. It would seem inhumane to load a genetic counselor with the responsibility of dispensing information only in such an intensely personal situation. In the past, the scientific and medical worlds have believed that the dispensing of raw information without regard for the emotional impact or consequences was sufficient for their part. This view has been changing in the recent past, especially in the area of psychology where the spiritual and emotional aspects of the person and their decisions are more easily acknowledged.

173 This is supported by the following, "Guidelines for genetic screening rely on "nondirective counseling," where an individual or family determines the level of burden associated with a given condition, based on information conveyed in as nearly "value-neutral" a fashion as possible. However well this framework may have functioned when the occurrence of serious disease propelled an individual or family into genetic counseling, it is inadequate alone to handle questions about appropriate applications of newly developed genetic diagnostic tests in general medical practice." Nolan and Swenson, "New Tools, New Dilemmas:" 44.
Researchers will bear the primary responsibility for informing patients and their families of the public interest in gene therapy and for shielding patients from excessive media exposure. If as seems likely, the earliest patients are infants or young children who are incapable of expressing their own views regarding publicity, they will deserve special protection.  

It would seem that this should not pose too great a difficulty if the parents would compromise and consent to the dissemination of information as long as no actual legal names were used. However, this quote points up a another and somewhat less obvious point and that is that the most likely candidates for gene therapy will be infants or young children. The question then follows, "Can decision making by proxy, even parents, really be fair in such far reaching issues of this magnitude?"

There is one possibility that seems to be rarely considered in genetic reproduction scenarios, and that is limiting conception where there is a high probability of serious genetic disease or defect. Snyder includes as part of his view of genetic counseling this concept of limiting conception.  

Many people seem to have a misunderstanding of Christian ethics and their proper operation. These misunderstandings are not limited to the average public, but are also assumed by many with more education and experience. Marc Lappe, an ethicist at The Hastings Center, is one such individual. He compares his version of Christian love and benevolence to Indian ahimsa and finds the Christian ideal wanting in the face of far eastern options.

Acting out of compassion does not always mean, for example, that detection of a Mon-
goloid chromosomal constitution automatically leads to abortion: Indian ahimsa holds that if this child's birth brings no additional suffering into the world (as it would not if parents are warm and loving; Mongoloid children can live happily and respond to human warmth), it must be allowed to pass.  

On the other hand, Lappé seems to have a very black and white concept of Christian ethics.

(b) Acceptance of Christian benevolence, by contrast, leads to an obligation to act when and only when one can perceive that his actions will lead to a tangible improvement in or avoid an impairment of someone's life or well-being. . . . In the latter instance [(b) above], I'm afraid the counselor would almost always find his hands tied - being able to give only statistical assessments of the greater or lesser good implicit in a particular mating. Only rarely, (as in the case of amniocentesis-proven Tay-Sachs disease), will he be able to act forthrightly to abort the fetus in the face of evident potential impairment."  

This is not a proper definition of the Christian view of life or its required actions. Christians are called to act benevolently at all times toward their neighbours and those entrusted to their care. Lappe makes an additional assumptive equation between suffering and evil ("reducing the operation of evil [i.e. suffering] through reducing the number of individuals born with major defects.") which needs to be evaluated.

Daniel Callahan, in a following, evaluative response to Lappe's article, correctly calls this equation into question. Callahan's first point is that reducing the suffering of one individual increases the suffering of another individual(s). Secondly, suffering comes in many forms and is not necessarily always to be avoided. "There is physical

176 Lappé, "The Genetic Counselor:" 8.

177 Lappé, "The Genetic Counselor:" 7.
pain, emotional stress, bereavement, fear, and so on. Suffering can be meaningful . . . and meaningless, . . . ennobling . . . and degrading, . . . useful to others . . . and destructive.\textsuperscript{178}

It is obvious then that any difficulties which are encountered by prospective parents vault them into a completely different scenario. No longer is it simply a couple and their baby. Those difficulties bring them into endless laboratories, testing and drugs with numerous people involved where before it was only themselves. It is contended here that all of these external intrusions have to have some effect, either positive or negative. The people and the testing can not be completely and totally neutral.

While this is not an examination of parenting, parenting styles, views of parenting or being parents, this new technology will affect all of these. Commonly held conceptions of parenting and what it means to be a parent are being and will continue to be forever changed.

Current attitudes toward human reproductive activity are founded, in part, on several important assumptions, among them that becoming a parent requires a willingness, within very broad limits, to accept the child a woman gives birth to, that parents' basic duties to children are more or less clear and settled, and that reproduction and parenting are and should remain largely private and autonomous spheres of people's lives. The doors that genetic engineering can open challenge all three of these assumptions.\textsuperscript{179}

When genetic engineering becomes available, parents will no longer have to accept what the natural genetic lottery has dealt them, nor will the duties remain consistent, nor will


it remain a private decision completely within the parents own personal control.

In an article entitled "The Brink: The Parent-Child Bond in the Genetic Revolution," John Fletcher discovers the following stunning reality after several

...interviews with a number of parents before and after amniocentesis contemplating abortion. He declares that even a responsible decision to undergo amniocentesis and to contemplate abortion "permanently altered" the relation of a parent with that child or another child even though it "does not lessen the affection they have for their children." 180

If abortion is the final end of the test, regardless of how the ensuing action is explained or covered up by the parents, the fact that the mother was going to have a baby and is no longer going to, severely alters "...the relationship of uncalculating nurturance and basic trust..." 181 which the other children have in their parents. This would infuse other threatening questions into the minds of the children, such as "What if I get sick?" and "Do I measure up?" The observation of one of the discussions below shows up here. A misplaced faith in the ability of technology to cure all problems results in a desire for the perfect child. The belief is fostered that technology can give the perfect, happy child. At a time when our confusion concerning the activity of parenting continues to grow, we gain access to a knowledge base that gives more control. Or forget the "Why's" of having children. Parents want their children to be perfect, and all children have experienced the pains of those types of desires. 182

180 Verhey, 136.

181 Verhey, 136.

Not only are the pressures on parents growing from the inside, that is from both their own expectations and those of extended family members, but the pressures are multiplying externally as well to have perfect children (much less children who simply do well). While other aspects of Nolan and Swenson's article are less desirable, they make this point exceptionally clear.

A central question therefore concerns how we are to assess the benefits of intervention for contingent disorders. Unfortunately, "diagnosis" (through identification of an underlying genetic substrate) often tends to legitimize interventions prior to rigorous evaluation of their potential benefits and harms. Yet most currently available therapies for genetically based conditions require long-term lifestyle changes. These may be highly burdensome but have little effect on ultimate morbidity and mortality, or they may reduce life's overall benefits as perceived by the individuals being treated. . . . Since markers exist to detect genes predisposing familial hypercholesterolemia and other lipid disorders, a zealous clinician might be tempted to argue that failure to maintain an identified child on a low cholesterol diet constitutes a new category for parental medical neglect. 183

As was mentioned earlier, this is not an investigation into the task of parenting, but what has been done is sufficient to display the added pressures which prospective parents are going to be asked to undergo if they are detected as being a carrier of deleterious genes.

This draws under the examination light perhaps the most important element of this entire section, that is the children themselves. In all reproductive rDNA, there is a lot of work and speculation that will be done on children, infants, fetuses, and prospective embryos who will have very little if any input regarding their own desires. It will be

discerning to investigate an alternate form of the issue which Leroy Walters has raised above, that being, "If as seems likely, the earliest patients are infants or young children who are incapable of expressing their own views regarding any of this treatment [publicity], they will deserve special attention." How such children will be regarded is a matter that cannot be taken too seriously. Discussion of this nature took place during a retrospective discussion among experts regarding what came to be known as the Boston XYY Case. In this situation, a geneticist made correlations between the existence of XYY chromosomes and aggressive behavior in males. This correlation was later disproved, but not before a substantial prenatal screening program had been instituted. Part of that retrospective discussion follows and it highlights the effects of identifying individuals with deleterious genes.

The decision to identify XYY individuals at birth and inform their parents may cause the children so identified to be at some increased risk of parental and social stigmatization. Although this risk is impossible to estimate precisely and will probably vary from family to family, even Dr. Walzer feels there is some risk. "...I agree with Beckwith that there is a risk to labeling kids, but I think we have to take it." How we view our children is very possibly influenced by what science and scientific reports have to say about them rather than a proper understanding or proper application of our understanding of the Image of God in our children.

A second evidence of this inadequacy is the assumption of genetics and those involved that elimination of deleterious genes is automatically and necessarily a bettering of the children and consequently, of the human race. "The


second order of issues relates to what is generally termed 'eugenics,' the improvement of the species, either by weeding out genetic 'undesirables' or by actually using genetic techniques (breeding or genetic engineering) to increase the number of desirable traits in offspring." The author of this quote goes on to provide some stipulations which shall be raised below.

Construction of a more correct view of children could quite easily be started with a quote from Paul Schotsmans' article "Brave New World Within Reach?" He states in a somewhat lengthy but otherwise excellent paragraph that, ethical orientations make a possible linking of science and ethics more real and actual. It is to be hoped that they do not function on their own but according to the facts, and that they also provide guidance for the development of biotechnology and genetics. In all this thought needs above all to be given to the image assigned to the child in our culture. Is it not the situation that the child must respond to its parent's most extreme expectations? Never has the pressure for the perfect child been so great. What is termed the medical indication for genetic reasons seems rather to be a euphemism that conceals the lack of consideration for the fundamental values that are at stake here. The idea that human beings are only healthy if they can function normally in society points to the exaggerated expectations that people currently have of medicine. At the same time one can rightly question whether this will offer sufficient guarantees for the viability of our society.\textsuperscript{187}


He goes on to draw some parallel connections between how we view the beginning of life and how we view the end of life. The implication is that "life is life is life", regardless of how societal definitions of quality measure the life in question. And it is not just the beginning and end of life that can be compared, but also on equal grounds in the equation are those lives that are not capable of operating at full capacity due to a health impairment.

However, more to the point of this discussion is the view of children that Schotsmans upholds. The following is a list of principles which should be the constant basis of how society views children. 1) It is not the primary responsibility of children to fulfill parents' dreams. 2) Levels of functional capabilities are not to be used to grade a child's worth. 3) How we view and pressure children is a "limited release" view of how we anticipate society to unfold. Obviously, there is much more at stake in the genetic designing of children than the children themselves, but they should be the ultimate focus. Part of this focus should be a determination (as near as possible) of what their own feelings may be with the knowledge that they were designed regardless of the reasoning used to initiate the rDNA design process.

If we conclude that the project of designing our descendants would, if successful, result in descendants who would reject that project, then it would clearly be better never to embark on our project at all. Otherwise we shall risk producing descendants who will be deeply ungrateful and aghast at the people--ourselves--who brought them into existence. 188

We should be grateful to Schotsmans for pointing us in the right direction, however, Stanley Hauerwas gives the picture of how we should view children with much more clari-

ty. While this author would paint the picture using such cliches as "Children are a gift from God," (which is true), Hauerwas gives the portrait much more verbal brilliance.

Now children are the basic and, perhaps, the most essential gifts we have because they teach us how to be. That is, they create in us the proper need to want to love and regard another. For love born of need is always manipulative love unless it is based on the regard of the other as an entity who is not in my control but who is all the more valuable because I do not control him. Children are gifts exactly because they draw our love to themselves while refusing to be as we wish them to be.189

What is illuminated here in the microcosm is a reflection of what God sees and desires of His own children as believers. Again, due to lack of eloquence on the part of this author, Hauerwas will be quoted to conclude this examination of the effect of rDNA on our views of children and parenting. He does an admirable job of injecting a theology of love into the day-to-day world of raising children.

For our having children draws on our deepest convictions that God is the Lord of this world--that in spite of all the evidence of misery in this world, it is a world and an existence that we can affirm as good as long as we have the assurance that He is its creator and redeemer. Even though we know that this is an existence racked with sin and disobedience, our Lord has provided us with skills to deal with sin, in ourselves and others, in a manner that will not destroy us or them. Children are, thus, our promissory note, our sign to present and future generations, that we Christians trust the Lord who has called us together to be His people. (This is the basis of our conviction about abortion, not that life is sacred, but that

---

this is the way we should regard children.)  

The Moral Views of Others/Society

Much of what was said about the family in the previous section could be expanded and enlarged to apply to the prevailing and growing views of society. Much of what was said regarding our changing views of children and parental activities can be applied to other people and particularly the weak, the helpless and the unproductive which can be found in every society and community. "If the family is a microcosm of society, then the biological revolution also confronts us with the question about what kind of society we would be and become. Our dispositions toward each other will affect and be affected by genetic engineering."  

It is these dispositions which shall be the focus of this section.

It has been stated numerous times that rDNA technology is going to change how we think. There are many who fully understand the implications and possibilities of rDNA technology who are strong proponents of pursuing and using all technology available. The Congress of the United States, Office of Technology Assessment has produced a publication entitled Mapping Our Genes: Genome Projects: How Big, How Fast?  

Chapter four is entitled, "Social and Ethical Considerations," and under a section titled "Attitudes," this question is asked: "How will a complete map and sequence of the human genome transform attitudes and perceptions of ourselves and others?" The reply begins,

---

190 Hauerwas, "Having and Learning How to Care for Retarded Children:" 633.
One of the strongest arguments for supporting human genome projects is that they will provide knowledge about the determinants of the human condition. One group of scientists has urged support of human genome projects because sequencing the human genome will provide one of the most powerful tools humankind has ever had for deciphering the mysteries of its own existence.\(^{193}\)

The rest of the section follows in the same tenor and ends with the following paragraph.

Many individuals have general beliefs about their genetic potential for achievement in certain spheres of activity, about the limits of possible improvement through effort or environmental change. These intuitive beliefs are often vague and inaccurate. Often, it is only in regard to a few skills or characteristics that individuals have pushed against the limits of their potential. When science makes it possible to trace the actual limits of individuals, intuitive perceptions may turn out to be wrong. This has the potential of both enhancing and limiting personal liberty.\(^{194}\)

Throughout, there is no adequate presentation of the "negative" or "critical" attitudes that exist from those who are not quite so enamoured with Human Genome projects.

Contentment is a very difficult thing for humans to come to grips with, and this is doubly so in the area of scientific technology. The same forces that drive any acquisition also drive the desire to know more about rDNA. There is a certain ambition or even lust which fuels the rDNA process; an ambition to be first. There is also a pride of ownership which goes along with being the first to discover something, which in itself is not wrong, but has in the past, been the cause of forgetting to use common sense.

The point is rather that unless our dispositions toward power are worthy ones, and un-


\(^{194}\) Congress, O.T.A., "Mapping Our Genes:,", 85-86.
less the needs to limit and to distribute power are clear, the new technologies will be fueled by the lust for power and then fuel the pride of power, until the biological revolution has quietly and unwittingly caused a political revolution without a bullet being fired. The issue is what kind of society do we want to be and to become.\textsuperscript{195}

While Verhey may have worded this a bit harshly, the political revolution to which he refers is very probable and in some senses, is the point of this section.

As with everything in which they are involved, computers make many tasks much easier and quicker to perform. Such is also the case in rDNA. However, the speed and complexity which computers provide, and the number of people and research centers which are involved in the whole rDNA process will provide many problems. "The complexity of the new genetic technology, the magnitude of its implications, and the pace of its development combine to make a thorough societal understanding seem almost unattainable."\textsuperscript{196} The speed with which all of this information is being discovered and the way that the information is being discovered, not in cohesive, contiguous wholes, but rather bit by bit makes any complete assimilation and understanding of the information most difficult.

There are several consequences of this new information that are going to pose ominous question which will demand almost immediate answers, not the least of which is the creation of new life forms. This problems ties very closely with the problem of lust and pride identified earlier. "It raises the specter, not of destroying life for technological advance or profit, but of controlling life for personal or


\textsuperscript{196} Nolan and Swenson, "New Tools, New Dilemmas:" 45.
corporate gain." While control of other people is not a new game, the control of other people designed for no other purpose is.

While creating new life forms may be an example of the extremes of pride to which the human can extend, patenting of new life forms would seem to be the ultimate hubris. "One assumes that we would not permit the patenting of a human clone, even if this meant patenting at the one-cell level, because of the potential. . . . Unfortunately, short-term profits rather than well-thought-out philosophical principles are likely to dictate federal policy." The U.S. Supreme Court has already been asked by the U.S. Patent Office to rule on a patent application for a biological life form. "The long-range consequences of the Supreme Court's decision are hard to foresee. Since the decision was not based on biological features unique to bacteria, I suppose that, as genetic engineering technology advances, patents will be sought for higher forms of life." Then it becomes very easy to progress from here into definite blurring of the lines between class distinctions. The basic question then becomes, "What is human and what is not hu-


198 Annas, "Life Forms:" 22.

199 "On June 16, 1980, the U.S. Supreme Court held, in a five-to-four decision, that "a live human-made micro-organism is patentable subject matter" under §101 of Title 35 of the United States Code, the patent law. . . .

In the majority decision, delivered by Chief Justice Warren E. Burger, the Court emphasized that it saw its task as the "narrow one of determining what Congress meant by the words it used in the statute; once that is done our powers are exhausted." Taken from The Hastings Center Report, 10 no. 5 (October 1980) 10.

man?" The logical end of this is that most likely, at some point in the future, there is going to be a court case asking for patent rights on a life form that is, for all intents and purposes, human.

There are other smaller areas too numerous to mention in which rDNA technology is going to change organisms and people, both in their manner of existence, appearance and function. This section is more concerned with people as a whole and the projected ways in which rDNA is going to change them.

It was noted in the first chapter that humanity was created by God to be uniquely and qualitatively different from the rest of created nature. The possibility exists that this differentiation is going to be tested and possibly threatened by rDNA technology. "Part of what is at stake in the biological revolution is our image of ourselves in relation to nature. One perspective sets us over against nature, controlling and possessing it for the sake of human well-being. Another perspective would set us in nature, exercising stewardship over it for the sake of the well-being of the whole creation. What sort of persons are we meant to be and to become?" If and when genetic technology and techniques become standard procedure and the similarity between organic DNA patterns and human DNA patterns are viewed, it is going to be much more difficult for humanity to see itself as unique from the rest of the creation.

Current discoveries in gene splicing--like the new knowledge associated with Copernicus and Darwin--further dethrone human beings as the unique center of the universe. By identifying DNA and learning how to manipulate it, science seems to have reduced people to a set of malleable molecules that can be interchanged with those of species that people

---

regard as inferior. Yet unlike the earlier revolutionary discoveries, those in molecular biology are not merely descriptions; they give scientists vast powers for action.\textsuperscript{202}

As is obvious, there are already a small camp of individuals who are thinking very specifically in these terms, i.e. that humanity is not so different from the rest of creation. "The genetic material of mice and men is so similar -- more than 90 percent of it identical -- that scientists in search of human disease genes often find them first by looking in laboratory mice. . . . It's healthy for human beings to know that we aren't somehow different and apart and special," Dr. Roderick said.\textsuperscript{203} In some senses this might be healthy, but in other senses it is definitely not healthy. If we see ourselves as a small part of the whole, maybe we will begin to look after each other and the planet in a more steward-like manner. On the other hand, if we don't foster a view of ourselves as intrinsically different, we will have few qualms about treating each other the same way in which we treat mice.

The comparison is not limited to mice. For decades, the idea of evolution has attempted to link humanity with the primates in some type of ancestral bond. Present estimates rate the total percentage difference between human DNA and primate DNA at around five percent. In other words, when the DNA of humans and primates is compared, ninety-five percent of the base pairs would appear to be the same.

What should be coming clear in this is the power of genetic technology to change the thinking of mankind. "There is the fact that powerful technologies do not just

\textsuperscript{202} Shannon, \textit{Bioethics}: 401.

change what human beings can do, they change the very way we think--especially about ourselves."\(^{204}\)

In times past, humankind thought of itself as in some way nobler than the rest of creation. At times this thinking has progressed into an arrogance of attitude that has been a disservice to everyone and everything concerned. However, this current trend will contribute to a decline in people's considerations of themselves.

We have paid some high prices for the technological conquest of nature, but none perhaps so high as the intellectual and spiritual costs of seeing nature as mere material for our manipulation, exploitation and transformation. With the powers for biological engineering now gathering, there will be splendid new opportunities for a similar degradation of our view of man. Indeed, we are already witnessing the erosion of our idea of man as something splendid or divine, as a creature with freedom and dignity. And clearly, if we come to see ourselves as meat, then meat we shall become.\(^{205}\)

What may have gone unrealized to this point in time is the fact that by engineering future offspring, in some measure, their sense of freedom is razed, for how could they be expected to return to a pre-engineered state. While it is unlikely that future societies will take offense at attempts to alleviate the suffering caused by genetic diseases, any rDNA which goes beyond therapeutic use can only be deemed a limitation of future society's options.

If in designing our descendants we succeeded in designing people who possessed just those traits that I have described, we should have contrived for ourselves descendants who would be unable, by virtue of those very traits, to adopt manipulative, bureaucratic modes of

\(^{204}\) Annas, "Who's Afraid of the Human Genome?" 20.

planning. What we would have done is to design descendants whose virtues would be such that they would be quite unwilling in turn to design their descendants. We should in fact have brought our own project of designing descendants to an end.  

There is one piece of knowledge that will stem the downward spiral of mankind's denigration of itself, and that would be a proper understanding of image of God in humanity. What can not be lost sight of is both the individuality and the oneness contained within the human race. To reduce an individual's identity to her/his genetic code is a grave injustice to the uniqueness of the individual. To continue to do so would erect an ominous barrier to the progression of humanity and would also do severe damage to the dignity of humankind.  

Ultimately, the identification of this uniqueness and individuality will continue to be displayed in society's willingness to continue looking after the defenseless and the infirmed.

Some would attempt to argue that perhaps the better part of valour would be to simply walk away from genetic engineering all together and avoid the ensuing problems. There may be many even within the faith community who would feel this way. One of the most often repeated commands in the New Testament is to look after the widows and the orphans. It must then be asked, "Is it so different to allow the curing of some disease through the insertion of a healthy chromosome?"

So Christians are rightly noted for their care of persons whose quality of life prevents them from participating in the mainstream of society. . . . If it were possible to alter the present condition of persons by inserting into their bodies an enzyme bearing

---


207 Schotsmans, "Brave New World within Reach?" 102.
a healthy chromosome, should the faith community oppose such a hope for life restored to its true intention? Presumably not. While quality of life is a relative and subjective categorization of human activity, there is a point at which Christianity should allow rDNA in order to effect a cure.

As attention turns from how to care for people at the macro level, the feelings and desires of societies begin to enter the discussion. There are several scenarios, some of which are more popular than others, that have arisen and been discussed in several different forums which will be used here as a type of guide by which to measure the way society is viewing individuals.

The first scenario was the earliest and perhaps the most outlandish. Perhaps it more than any other served to frighten people away from wanting anything to do with rDNA. That is the possibility of hybrids, both human and non-human. That is the recombining of human DNA with that of some other species; i.e. perhaps a muscle hormone from cheetahs in order to produce endurance. Some of the awful feelings that one feels at this thought may be due to the Old Testament prohibition against bestiality, but the revulsion is much deeper than simply sexual prohibitions. This could relate back to the degradation of humanity which was spoken of earlier. In all probability, because of this Old Testament command, humanity has always considered itself to be somewhat higher than any other created being or substance. The question then becomes, could genetic engineering be used to develop a group of virtual slaves--partly human, partly lower animal--to do people's bidding? Paradoxically, the very characteristics that would make such creatures more valuable than any existing animals (that is, their heightened cognitive powers and sensibilities)

---

208 Snyder, "Theological Reflections on Genetic Engineering," 213.
would also make the moral propriety of their subservient role more problematic. Dispassionate appraisal of the long history of gratuitous destruction and suffering that humanity has visited upon the other inhabitants of the earth indicates that such concerns should not be dismissed as fanciful. 209

Another way in which rDNA has affected society and people has to do with what has come to be known as voluntary screening. This is also a big part of the next issue that will be raised, but should be dealt with separately. Screening for any single disease, or combination of diseases, both prenatally and otherwise, is going to be a growing issue as DNA probes and tests for more diseases increase. Candace Gauthier notes that "a screening program may be mandatory in regard to provision, but still be voluntary in regard to participation." 210 While her statement is true enough, nevertheless, in a health care economy such as is developing in the United States and Canada, there is no guarantee that mandatory testing would not become a prerequisite for reception of welfare support or ability (regardless of ability to pay) to purchase health insurance. The place that this testing may enter into its greatest controversy is in the workplace.

Screening in the workplace involves many peripheral issues that hammer at some long held fundamental beliefs about the way in which western society was founded and has operated for a few hundred years.

In particular, current pressures to curtail spiraling employee healthcare costs could tempt employers to rely on genetic 'predictors' to guide hiring decisions. Legislation designed to protect the handicapped may discourage such abuses, but it is

209 Shannon, Bioethics: 403.

210 Gauthier, "The Impact of Recombinant DNA Technology on Genetic Screening," 39.
less certain how courts (and others) would respond to discrimination claims if screening led not to exclusion from employment, but to coercion of affected workers into 'wellness plans' or the establishment of sliding-scale contributions to insurance pools.\textsuperscript{211}

Obviously, issues of privacy, coercion, possibly even blackmail and fraud will be focal points, all of which could be used by companies as defenses against high reimbursement costs and legal action by former employees.

Almost inseparably bound up in this is third party interest in the results of such screening. Insurance companies are the most obviously interested in the outcome of such testing, but they should not over-shadow other family members and employers. The most likely reason for both insurance companies and employers wanting such information is, as mentioned above, in order to adjust premium schedules. While these types of decisions may be somewhat easier to make, it is not this easy when it comes to the desires of other family members. It will be more difficult to turn away a son or a daughter who is inquiring about the future well-being of the parent who has been genetically probed and tested positive for Huntington's disease. However, in all of these cases, the needs of the patient could, but should not be subordinated to the desires of the company, family, or possibly even society.\textsuperscript{212}

A sidebar to this that continues to reflect on the changes wrought on society by genetic technology, is the question of prior knowledge versus chronic costs. In other words, if a genetic probe provides a positive result for the existence of some genetic disease, should the state be required to provide care for free or nominal cost, or should

\textsuperscript{211} Nolan and Swenson, "New Tools, New Dilemmas:" 44.

the state be able to charge a pre-payment or some type of tax? To do so would appear to be a regressive move, but the state of the nation is that no one can afford to pay for ongoing chronic illnesses.\textsuperscript{213}

To get a little closer to the heart of the matter, but from a different angle, there are the effects of genetic probes in the first place.

A 'positive' gene test, say, for manic depressive illness, provides an ineradicable marker of deviance with potentially lifelong social consequences to the affected individual.

From a societal perspective, a gene probe for manic depression may be seen as akin to AIDS antibody testing: in both instances, testing leads to the uncovering of a marker of varying prognostic value but substantial risk of social stigmatization.\textsuperscript{214}

This whole scenario was played out in an earlier decade in what came to be known as "The Boston XYY Case."\textsuperscript{215} In the cases and hearings subsequent to the testing, evidence was offered of exclusion, ridicule, and antagonism against not only the individual in question but also the family.

Voluntarism was spoken of early in connection with genetic screening, which is admirable, but the possibility stands that if genetic testing becomes as reliable as its proponents believe it will, it may not continue to be an option. "If genetic engineering and related reproductive technologies enable a marked reduction of genetic defects and the burden they impose on their victims and on societal


\textsuperscript{214} Lappé, "The Limits of Genetic Inquiry," 7.

\textsuperscript{215} Cf. fn. 91 above.
resources . . . mandatory genetic treatments may be advocated.

An evaluation of the effects of rDNA on people and society becomes the bottom line in an enquiry of this nature. Two possibly unanswerable questions in relation to rDNA are the following: 1) Is it possible that the potential harms exceed the potential benefits? 2) Does society really possess the moral depth to provide answers to questions which need to be answered immediately? Further, any type of gene therapy be it somatic or gametic, invokes the following trio of questions: 1) Who decides 2) Who receives 3) What genes?

This bottom line also needs to be asked in a broader context which Allen Verhey does repeatedly in his article. He states,

The point is that if our confusion about the appropriate dispositions toward our own children can [137-138] fuel the use and abuse of genetic engineering, then I suggest that our confusion about the appropriate dispositions toward the retarded and weak and stigmatized children can further fuel the use and abuse of such engineering. . . . The issue is what kind of society we want to be and to become, a society which cares for and nurtures its so-called "defective" children or a society which cannot tolerate them or allow them existence.

Paul Schotsmans provides a picture of hope which the faith community is called to provide to a lost and hurting world. He speaks of the ability to suffer that many Christians through the ages have demonstrated. However, the suffering

---

216 Shannon, Bioethics: , 411.


that will be introduced into this world through genetics is

a suffering of a different sort.

Finally it remains a powerful challenge to a society inspired by Christianity to teach people how to cope with suffering and handicap. Up till now this question has above all been referred to one's own suffering and one's own handicap. Without falling into the excesses of a mystique of suffering, Christianity has always tried to be present to and with the person who is suffering. Now genetics puts before us a different experience of suffering and one apparently much more difficult to bear: Can I impose this on my child?

In conclusion and from a book with a very providential title, C. S. Lewis states that at some point man's powers and capabilities will reach a zenith, after which they will be such no more. He states, "What we call Man's power over nature turns out to be a power exercised by some men over others with Nature as its instrument." He continues a couple of pages later,

If any one age really attains, by eugenics and scientific education, the power to make its descendants what it pleases, all men who live after it are patients of that power. They are weaker, not stronger: for though we may have put wonderful machines in their hands we have pre-ordained how they are to use them . . . . The real picture is that of one dominant age . . . which resists all previous ages most successfully and dominates all subsequent ages most irresistibly, and thus is the real master of the human species. But even within this master generation (itself an infinitesimal minority of the species) the power will be exercised by a minority smaller still. Man's conquest of Nature, if the dreams of the scientific planners are

\[219\] Schotsmans, "Brave New World within Reach?", 102.

realized, means the rule of a few hundreds of men over billions upon billions of men." "

Obviously, people as a whole and society will be deeply affected by the genetic technology and rDNA. The potential power which rDNA engineering will possess will make all previous scientific discoveries weak by comparison. The effects which rDNA will have on how humanity views itself, how individuals view other people, and on the relationships in the workplace will be changed forever. It appears that rDNA is going to accentuate the class differences in societies around the globe like no other previous scientific discovery. It is only common sense to implore those doing the work to use diligent caution. They are working with human constitutional matters.

Moral Views of the Future

This rally cry to caution has been echoed over and over during the past fifteen to twenty years. Almost every article that is written from any point of view ends by imploring those in control of the research, i.e. the budget people and those doing the actual research, to be extremely careful about what projects are undertaken. Western society is deluding itself if it believes that the National Institutes of Health and/or the Department of Energy wield absolute power and control over rDNA research. There are certain levels of anxiety raised by these possibilities. A certain measure of comfort could be felt if it could be absolutely guaranteed that all rDNA research would remain within the confines of NIH/DOE research centers. Guarantees are not in the realm of possibility when it comes to these types of matters. Nuclear and biological weapons have proven this. rDNA research is going to have profound effects on humanity and the ways in which it thinks about and faces the future.

---

221 Lewis, 70-71.
Clearly, in many of the scenarios of genetic engineering, various forms of gene therapy, and birth technologies that are being proposed and developed, there is a vision of a particular future. This future, obviously, is based on certain values, preferences, and choices. At some point we need to ask ourselves whether this is the future that we want and is this a future that will respect and enhance the rights of those who live in that future.\textsuperscript{222}

Of all of the questions which may need to be asked on an ongoing, evaluative basis, this is one of the most important. This is in no way similar to the building of a space station, wherein, if something goes wrong, regrettably, a few astronauts may lose their lives, but the project can still be walked away from without further damage. Unlike other so-called mega-projects, an rDNA experiment is completed and instantly active. The effects will most likely be permanent, and worse, may not manifest themselves for years or perhaps decades.

The difficult question then becomes, "Who should be held accountable now for the future?" Obviously, no person or group of persons can be expected to predict how certain discoveries are going to affect days yet to come. However, the scientists and others involved in the actual processes need to be reminded of the seriousness of their activities.

Scientists cannot utterly ignore the likely uses of their discoveries. Since the marriage of science and technology in the mid-1800's, we have understood that knowledge equals power. But we have not always admitted that power can be used for evil as well as good. Social scientific work on attitude change and persuasion has been used more for commercial and political manipulation of public opinion than for any morally sound purpose. We cannot reasonably require scientists to anticipate all likely consequences

\textsuperscript{222} Thomas A. Shannon, What Are They Saying About Genetic Engineering? (New York: Paulist Press, 1985), 7.
of their work. That would be impossible. But scientists and society at large are well advised to try to anticipate the most likely uses of new developments, and to judge the desirability of their impact.\textsuperscript{223}

In too many instances, the greed or the pride mentioned earlier takes over and the process is developed regardless of how compelling the arguments against proceeding really are. In a newspaper article, the reporter quotes a hospital official from Cincinnati's Good Samaritan Hospital as saying that before the hospital decided to establish the facility, officials thought about the ethical concerns -- questions about the possibility of altering genetic makeup or whether tests so conclusive could lead to selective abortions if parents-to-be don't like their fetus' genetic profile.

But this is the future of diagnostic medicine," he said. "We just had to go with the idea that we need this knowledge.\textsuperscript{224}

This is not to say that genetic engineering should be resisted in totality, but rather that the hard questions need to be asked and adequately answered without undue economic, political or commercial influence. The Presidential Commission "...also emphasized that human beings have not merely the right but the duty to employ their God-given powers to harness nature for human benefit. To turn away from gene splicing, which may provide a means of curing hereditary diseases, would itself raise serious ethical problems."\textsuperscript{225}

There is much more that needs to be discussed in the specific areas differing views of nature, the development and use of technology, and the views and hopes of the future. They have been touched on here in an effort to try

\textsuperscript{223} Murray, "The Social Context of Workplace Screening," 23.


\textsuperscript{225} Shannon, Bioethics:, 401-402.
and show the accumulated effect which they all have on humanity's view of itself.
CHAPTER 4

Contemporary Views of the Image

It is finally necessary to draw the two, seemingly non-convergent lines of this discussion together. Part One was an examination of a Biblical view of the image and two related commands. It was discovered that the image of God is inherent in simply being a human being. It could not have occurred to the Biblical writer that much later readers may have benefitted from a more detailed description of what is contained in the phrase "image of God in man". This of course assumes that a more detailed description would really be of benefit. In the day that the first Biblical accounts of humankind were made verbal, there was no existing conception that mankind could be reduced to less than the whole.

The second line of discussion has proven to be a very reductionistic view of humankind. Both the scientific and medical views of humanity, have in the past, operated in an isolationist, piecemeal manner. The technology that has been the focus of this chapter is capable of serving either the Biblical model or the reductionist style of thinking.

There arises, in other words, a mutually critical juxtaposition of tradition and contemporary experience. It is in the middle of this critical juxtaposition that really creative theology occurs. And because contemporary experience continues to unfold with time, theology always has new reflective tasks and potential for significant new insight.\textsuperscript{226}

Tradition on the side of theology and contemporary experience are often at fundamental odds over each others views of the world and humanity. It is at this critical juxtaposition that the focus of this thesis has placed us. Theology has to be able to intersect with the new technology and provide a unified concept of the image of God in man which

\textsuperscript{226} Cole-Turner, "Genetic Engineering:," 69.
will satisfy both theological and scientific definitions, or risk losing its credibility as the valid worldview.

This may make it sound like theology and the contemporary world always collide at right angles, which is not necessarily the case. There are occasions when Biblical and non-Biblical definitions and understandings will coincide. In other words, utilitarian and consequentialist thought patterns may invoke exactly the same processes and desired outcomes as will Biblically oriented thinking. Concerns have been voiced "...over unintended effects, over the morality of genetic manipulation in all its forms, and over the social and political consequences of new technologies by both religious and secular commentators."\(^{227}\) It is the fact that these concerns are being voiced from a variety of philosophically and theologically based camps that should serve to emphasize the seriousness of these concerns.

The most popular phrase in the attack against gene manipulators by anti-genetic lobbies has been the accusation that they are "playing God." In reference to the phrase, "playing God", the Presidential Commission makes the following statement: "At its heart, the term represents a reaction to the realization that human beings are on the threshold of understanding how the fundamental machinery of life works. . . . In this view, playing God is not actually an objection to the research but an expression of a sense of awe--and concern."\(^{228}\) Due to the opening phrase, the commission statement is true, however, the majority of times that the phrase is invoked, it possesses an accusative tone towards the people and processes involved.

Among theologians, there are as many differing views on the field of genetic engineering as there are basic theolog-

\(^{227}\) Shannon, ed., Bioethics, 400.

\(^{228}\) Shannon, ed., Bioethics, 400-401.
ical camps. Those with a more fundamental point of view would strongly advise that genetic engineering of any type should be left alone. "They regard any manipulation or modification of the body and its natural functions as sinful. For some, this means no blood transfusions or surgical interventions; for others, no deviation from normal conjugal intercourse for procreation, no contraception, no modification of genes in human tissues." These hard-liners are not necessarily confined to any one denomination and can be found in both Roman Catholicism and biblical Protestantism.

There may be some correlation between this "hard-line" view and the writings and views of the rabbis. Benjamin Freedman has written an article comparing the rabbinic commentaries on the Levitical passages forbidding interspecies reproduction and the new rDNA technology. In concluding this article, which is an over-view of the Rabbinic interpretations of Leviticus 19:19, Freedman summarizes Rabbi Halevy's position.

Recombinant DNA research which is therapeutically directed--as in its recent success in manufacturing human insulin, or in those attempts to prevent genetic disease through genetic manipulation--is permitted, as being considered 'healing'. But attempts to improve the species through this technique--which clearly could not be considered 'healing'--or other instances of research motivated by pure curiosity, are forbidden.229

In continuing to summarize Halevy, Freedman notes that the realm of science very often professes to use a unique language and is indeed working on understanding a new language which may put them in another category in relation to the


rest of society. He notes from Gen. 11:6, "now nothing will be withheld from them, which they purpose to do." This line may hold more truth now than when it was first spoken.

There is another more liberal interpretation of the uses and applications of science and the limits that should be placed upon the scientific community. More permissive theologians would embrace a more utilitarian or consequentialist way of thinking.

They accept any application of genetic and medical technology so long as desires are fulfilled and the benefit outweighs the harm to individuals, classes or society as a whole. For some this stance can allow external methods of fertilization; for others experimentation with embryos and still-living aborted fetuses; for others, euthanasia for genetically disabled infants, the comatose or senile; and voluntary suicide. The hard-liners practice a deontological ethics—stressing deon, or duty. The soft-liners practice libertarianism.\(^{231}\)

Thus, while some people cannot see the use of trying to make any connection between theology and science, others will go to the opposite extreme. It is apparent that Ronald Cole-Turner should be placed in this latter category.

If we believe, as many contemporary Christians do, that God has used these same natural processes over billions of years of evolution, and that through these processes God has created, then we must ask what, theologically speaking, we are doing. As creatures of evolution itself, we now direct a tiny fragment of evolution's processes toward our own purposes or intent. If God indeed has created through these very processes, and if divine intent has been working itself out through them and continues (creatio continua)

---

even now, then how are we to understand our role?"\textsuperscript{232}

It should be obvious that the hard-liners would prefer to read only the Bible while the libertarians would prefer to read primarily contemporary journals and magazines. The most probable course left is one of correlation, "...not a correlation by deduction from a divine edict but a correlation between religious teaching and the empirical data; for example, between books on genetics and the Book of Genesis."\textsuperscript{233}

It is at precisely this point that this thesis has attempted to intervene. It seems apparent that beginning with and coming to a more Biblical understanding of the image of God in humanity would serve to provide a more unified approach and interpretation by theologians as to the uses and abuses of genetic technology and engineering.

Though some religious people may believe that theology and genetics are contradictory, that belief is neither "necessary" nor true. We must recognize instead that genetics and theology provide different kinds of data, in different dimensions of cognition, which are ultimately complementary. Genetic science is opening new vistas for understanding, but it will remain insufficient without the insights of faith and theology."\textsuperscript{234}

It is at this point that the National Council of Churches has published a belief statement in relation to creation. It is a good beginning statement for a Christian view of genetic engineering. It was adopted by the Governing Board in May, 1986, and affirms some fundamental tenets.


\textsuperscript{233} Nelson, "Genetics and Theology:," 388-89.

\textsuperscript{234} Nelson, "Genetics and Theology:," 389.
"Creation by divine power is not static but dynamic and ongoing. As creatures uniquely made in God's image and with purpose, humans participate in the creative process through the continuing quest for knowledge, which now includes unraveling and learning to control the intricate powers compressed in genes of DNA molecules."\(^{235}\) This statement seems to place some limits on the power of evolution which Cole-Turner so willingly accepts.

There are two major issues that are going to run throughout this section. They are aspects of the central issue of the redesigning of humanity. They concern some of the fundamental truths of the Christian tradition which would appear to be under attack by genetic research and discoveries. The first of these has to do with the concept of the uniqueness of the human being.

It was revealed above that genetic discoveries have shown that all DNA material contains about 90% of the same information, and in the comparative case of primates and humans, this factor rises to about 95%. Many Christians immediately assume that either something is wrong with the figures or the uniqueness of God's ultimate creation has been empirically disproved. "But the discovery of genetic identities between human cells and those of most other organisms does not negate the distinctiveness of human beings. Rather, it shows how the infinite creative power has used these marvelous mechanisms to fashion us as we are."\(^{236}\) Such information, rather than proving disheartening, should serve to remind us of the infinite creative powers that designed this creation in the first place and can create as much difference as there is between humans and primates using only five percent of the given DNA material.

\(^{235}\) Cole-Turner, "Genetic Engineering:," 71.

\(^{236}\) Nelson, "Genetics and Theology:," 389.
In a series of articles over a period of several years, Joseph Fletcher, a theologian/philosopher from the University of Virginia describes and later debates with others on a definition of humanhood, as he labeled it. In the preliminary article he outlines fifteen positive and five negative criteria that he presupposes as a start to the discussion on the "Indicators of Humanhood: A Tentative Profile of Man." As Fletcher anticipates, the discussion carries on for several years through different issues of The Hastings Center Report before it was finally suspended in the final issue of 1974. In the end, out of a total list of twenty criteria, Fletcher defends neo-cortical function as the fundamental sign of humanness. After affirming the need for self-awareness and socially interactive capabilities, he states,

I still want to reason that their key indicators are only factors at all because of my key criterion--cerebral function. Is this not an issue to be carefully weighed. . . . To Professor Tooley and Father McCormick I would say, 'Neocortical death means that both self-consciousness and other-orientedness are gone, whereas neither non-self-consciousness nor inability to relate to others means the end of neocortical activity.'

In the same article, he clarifies further.

As far as I can yet see, I will stand by my own thesis or hypothesis that neocortical function is the key to humanness, the essential trait, the human sine qua non. . . . Only this trait or capability is necessary to all of the other traits which go into the fullness of humanness. Therefore this indicator, neocortical function, is the first-

---


order requirement and the key to the definition of a human being.

While obvious arguments could be raised against many of the twenty criteria that Fletcher lists, space will afford dealing only with neocortical function. It must be noted that Fletcher does not stipulate that neocortical function is the sum total of humanhood, only that it is the first and minimal requirement for any other indicators of personhood to exist. However, neocortical function is a fairly high function level of the brain activity and consequently rules out many individuals who suffer from encephalitis and other diseases which leave an individual in a "vegetative state". Thus, these individuals are no longer considered fully human by Fletcher's definition.

The second issue which confronts any theologian facing the technology of rDNA is that of free will. If the genetic code of an individual is so predictive of disease, is the free will of the individual hampered or undermined? Some geneticists are positing the notion that an individual's genetic endowment may predispose them to manic depression, schizophrenia and possibly even morally disapproved behaviour such as indecent exposure. If geneticists should actually be able to prove a link between DNA and behavioural actions, then theological understandings of free will and moral responsibility become an issue.

The trends of modern life are working to erode one of the glories of being human: free will. "Free will is often inefficient, often inconvenient, and always undependable. That is the character of freedom. We value it in men. We disparage it in machines and domestic animals. Our technology has given us dependable machines and livestock. We shall

\[239\] Fletcher, "Four Indicators," 6.

now have to choose whether to turn it to giving us more reliable, efficient, and convenient men, at the cost of our freedom. We had better decide now for we are already not as free as we once were, and we can lose piecemeal from within what we would be quick to defend in a frank attack from without."^241

It is becoming increasingly apparent that human actions are not as isolated as was once believed. This is probably most obvious in the connections which are now being made between previously unquestioned waste disposal and current, more obvious links with environmental problems. It is also evidenced in the scientific connections which have been made between such factors as the mother's actions and habits during pregnancy, long term environmental exposure, sensory and educational input, and individual personal development which are all proving to have a great deal more to do with the manifestation of disease and the degree of its severity than was previously expected. Thus, because of these proven environmental factors, "...it is possible to maintain a biblical view of human freedom and responsibility while acknowledging the power and significance of genetic coding."^242

There is a finer point that should be illuminated having to do with the human capacity for objectivity. This ability to objectify one's self and one's goals is used as a starting point for endorsing the re-design of the human genome. "If there is anything natural about us, it is the ability we have as persons to objectify our characteristics as human and to inventory their benefits and drawbacks. Far from human nature being sacrosanct, this ability would


^242 Nelson, "Genetics and Theology:," 389.
appear to call us to reflect regarding revising and remaking ourselves." This statement stands parallel with the general western consensus regarding our role in nature as overlords rather than stewards. "In seeing ourselves as objects, we then raise for ourselves the moral problem of all creators, namely, to create prudently and responsibly."

This ability to see ourselves as objects is evidence of the degree to which humankind possesses its true identity as image bearers of God. This objectifying ability makes it possible to reflect on our shortcomings providing sufficient reasons for re-creation. While the truth of this objectifying capability is not to be denied since it is part of the image of God in humanity, it is being turned to a new use, that of eliminating any external needs, infringements on freedom and impairment of abilities, and positioning humanity at the ultimate pinnacle of creation.

Furthermore, the complication again arises as to whose prudence and responsibility is to be trusted in a matter of the magnitude of the redesigning of the human genome. "The possibility of genetic engineering recalls to our attention the inescapable fact that in being self-reflective individuals, we are always potentially recreators of ourselves. Genetic engineering opens up in physical reality possibilities that were always available in reflection." In the same section of the article that these last quotes are taken from, Engelhardt refers to the "possibility of persons remaking their bodies in the image and likeness of their goals." The implication of such a possibility is that

---

244 Engelhardt, Jr. "Persons and Humans:," 293.
245 Engelhardt, Jr. "Persons and Humans:," 293.
246 Engelhardt, Jr., "Persons and Humans:," 293.
one's personal goals are of absolute and primary importance. Consequently, he calls on "the canons of prudence and care, since there is nothing sacrosanct about the particular deliverances of evolution, which we find currently in human nature," to guide the re-creation process.\footnote{Engelhardt, Jr. "Persons and Humans:," 293.}

From his argument, it is possible to decipher that: 1) nothing is more valuable than one's own goals; 2) one's only responsibility in this task is prudence and care; and 3) there is nothing particularly special about the human individual as s/he presently exists. The discussion and conclusions of our first chapter must be recalled here. Engelhardt assumes that the gift/ability of creativity has unlimited bounds; anything is open for re-creation through the creative capabilities of humankind. The questions that must now be asked are: 1) whose goals become the ultimate goals and take precedence in the design process? and 2) Does individual prudence and care provide enough responsibility in tasks of this size?

As the final and most difficult question comes into view, the acknowledgement must be made that a clear and concise answer is likely not possible in this composition. In its simplest form, the question may be asked thus, "When is an engineered human no longer a human in the image of God?" In ages past, the task of differentiating a human being from any other species was quite simple and easy. Technology is blurring these once clear distinctions.

While Joseph Fletcher, et al, raise arguments for the disbarring of certain less than functional individuals, there are arguments being raised at the bacterial end of the biological spectrum for the existence of new forms of life. The possibility is very real that this is the tip of the iceberg or the "slippery slope" on the way to creating human-like life forms.
Ananda Chakrabarty is the biogeneticist who created a bacteriological organism that exists by consuming crude oil. Such an organism would prove invaluable in the clean-up of tanker oil spills at sea and elsewhere, assuming that the organism doesn't prove harmful to the environment either prior to or subsequent to its intended usage. The storm arose when he applied to the U.S. Customs and Patent Office for patent rights over this new life form. The Patent Office Court of Appeals denied the application, however, the U.S. Supreme Court awarded the patent on the basis of its technical reading of the patent act.

Some have since argued that "new life form" is a fallacious identification of the entire situation. Ananda Chakrabarty did not create a new form of life; he merely intervened in the normal processes by which strains of bacteria exchange genetic information, to produce a new strain with an altered metabolic pattern. "His" bacterium lives and reproduces itself under the forces that guide all cellular life. We are incalculably far away from being able to create life de novo, and for that I am profoundly grateful. The argument that the bacterium is Chakrabarty's handiwork and not nature's wildly exaggerates human power and displays the same hubris and ignorance of biology that have had such devastating impact on the ecology of our planet.²⁴⁸

It seems obvious that this whole scenario is the result of the familiar/unfamiliar dialectic that was spoken of earlier. Those who are familiar with the processes have less fear of the result than those who are unfamiliar.

To some, the thought of patenting—that is, giving the patent owner a monopoly over—life forms seems inherently repugnant. Such repugnance seems to be based in part on amorphous ethical considerations and in part on qualms about giving anyone a monopoly over a living organism. A short answer to this is

that we now, as a result of purposeful legislation, permit the granting of patents on some (botanical) forms of life.\textsuperscript{249}

There are likely very few who would oppose the verification of the quantifiable difference between botanical forms of life and biological "life forms." However, is the precedent of the Supreme Court ruling in the Chakrabarty case going to make it permissible to grant patents for genetically altered organisms? If this is taken to the logical extreme, then who is going to be the rightful patent holder of an "organism" which is the result of one woman's egg, another man's sperm and the geneticist's "handi-work" in the whole process? Granted that this final scenario may be many years down the road, it is not inconceivable that Chakrabarty is the crown of the "slippery slope".

The possibilities become endless with the advent of rDNA, and each "break-through" creates whole classes of new ethical dilemmas which were heretofore undreamt of. For instance, who will have the patent right on an "organism" whose intelligence quotient has been sufficiently lowered (but in all other respects is "human") to the point where unquestioning subservience is the end result? What will the "human value" be of such an "organism"? When the task for which the "organism" was designed is either completed or can be accomplished by other means, how will the "organism" be disposed of?

In light of the foregoing, it becomes more obvious that the inroads which have been made by rDNA have come with a speed that neither geneticists, economists, politicians, or the public had expected.

The powerful new methods, expansive scope, and accelerated pace of human molecular genetics combine to catapult us into ethically

unfamiliar territory. The molecular method generates not simply diagnoses but presymptomatic and contingent diagnoses. Its scope potentially includes not only serious genetic disease but also mild conditions and bothersome or unusual traits and characteristics. And its pace threatens to outstrip our capacity to react sensibly to its implications.²⁵⁰

The Chakrabarty case came before the public was ready to debate such issues. It is likely that a "scratch human being" will arrive on the scene before the public is again ready to make ethical decisions about such processes and existences.

The Genesis 1 account of the image makes it quite clear that a major marker of humanity is free will, and that humanity derives a certain measure of dignity from possessing free will. When any portion of that free will is infringed upon, then also a certain portion of the dignity is diminished. Consequently, if the genetic code of an individual is 'adjusted' toward some specified end result, for example, a decreased susceptibility to lung cancer so that that individual might work in a situation where asbestos is present, then that individual's free will and dignity is being infringed upon through the limiting of their choices. This limiting of choices is also a limitation of the individual to less than their original potential.

While this type of limitation may be no worse than the limitations of parental pressure, educational choices, or any of several other factors, it is not better and is still to be regarded as an infringement of rights since it is not necessarily in the persons best interests. If the example offered is continued, it is not inconceivable that society would then demand the choice limitations of this individual to this specific position since s/he had already undergone

the procedure, in order not to waste the effort and expense by a change of position or vocation in the future. The ethical question which must be asked is, "Is it not better ethically, economically and ecologically to eliminate the necessity of the need for exposure to asbestos, in other words, to adjust the situation, rather than adjusting the individual, especially in light of the number of unknowns associated with adjusting the individual in this manner?

What made the Gallilean [Galilean] and the other major scientific revolutions disturbing is the reductionism, that we become less than what we are. That is what is so uncertain about gene therapy, because it gets back to a very fundamental question..."Is there anything unique about humans?" 

On the one hand, it is unlikely that parental pressures, lack of educational choices, and other such factors will invade the uniqueness of the individual. On the other hand, it is highly likely that costly and invasive rDNA procedures will be used to coerce or even force an individual into a limited set of circumstances. Just as there are positive and negative forms of parental pressure and educational opportunities, so there are going to be good and bad reasons for performing rDNA procedures on an individual.

There are no single, discrete genes that code the complex arrangements of proteins that produce given human traits; and to manipulate one is to change the original, fragile configuration in unforeseeable ways. But even if such Promethean methods were developed in the distant future, who would decide what traits should be preferred? Who would decide what makes a person a more fit specimen, and under what idealized plan for human harmony and well-being? What would be the criteria for choosing alternatives that seem to some a

Shannon, Bioethics: 421, note 11.
social boon, to others a form of dehumanization?\textsuperscript{252}

As has come up in countless other documents and articles, the main by-word is caution in all aspects of rDNA research and technology. Somatic gene therapy is laudable, but still requires caution until the connection between genes is more concretely deciphered. Gametic gene therapy may also be laudable, but future generations need to be the primary focus. They will be inheriting any changes which are performed at this date. And there are strong possibilities that changes which are made now may not manifest any side effects, either negative or positive for several generations, at which point the problem may be magnified by several thousand individuals. Design of any type, whether somatic or gametic needs to be held up for cross examination from all angles and by more than just the parties involved. Implicated in gene design are not just the individual and family in the immediate picture, but national, international and societal concerns must also be taken into account.

And if there isn't anything unique about humans, there's nothing wrong with doing gene manipulation. But if there is something unique about humans, then it is wrong to pass over the barrier, wherever the barrier is--but we don't know where the barrier is.\textsuperscript{253}

\textsuperscript{252} Boone, "Bad Axioms," 13.

\textsuperscript{253} Shannon, \textit{Bioethics:}, 421, note 11.
CONCLUSION

This study opened with an exegetical and theological study focusing on Genesis 1:26, specifically focusing on the meaning of the phrase "Let Us make man in Our image." With the help of textual criticism and other exegetical methodology, the examination of this and other relevant Old and New Testament passages revealed the fact that the "Image of God in man" is not and cannot be limited to any one aspect or attribute within the human design. It was also noted that the manner of interpretation with respect to the way the first eleven chapters of Genesis were written, does not make any significant difference in the general understanding of the phrase.

Upon examining several commentators and theologians on this particular passage, it was discovered that most interpretations fall into either one of two camps. On the one hand is the structural or substantive interpretation of the image. This view sees the image as being represented in the very nature of humanity; something that s/he is rather than something s/he has or does.

On the other hand is found the functional/relational view of the image in mankind. In this view, humanity does not reach its full human potential until it is involved in some type of relationship and cannot reach its ultimate potential without a relationship with God. It seems that the logical implication is that a believer possessing a personal relationship with God would be more human than an individual who is not in relationship with God. Brunner notes, and consequently seems to avoid any difficulty by saying that this would still be a relationship: just not a right relationship. Also often included in the functional image is the concept of dominion over the creation, i.e. it is only as mankind functions in the proper role of over-seer or steward over the rest of creation that mankind enters the full potential of humanhood.
In the second chapter, which was split into two parts, the decision was made to look at two different parts of the creational command. Freedom is an inference or implication of the creation mandate which God places on humanity. This whole aspect of freedom has been distorted in the modern world to mean an absence of limits. It is often couched in the phrase, "Anything is permissible as long as it doesn't hurt anyone else." It was shown that a Biblical understanding of this freedom was a freedom of action within specified limits or guidelines. In any realm of activity, there are boundaries which are not to be overstepped without incurring dire consequences.

The creational command to subdue possesses a more concrete origin. In Genesis 1:28 is found God's command to humanity to rule over the earth and to subdue it. It was shown in the second section of the second chapter that a more correct interpretation of this concept has to do with the idea of stewardship. This requires humanity to operate in this world with the understanding that it does not belong to humanity to do with as we please. Part of the purpose of humanity on the earth is to be caretakers of that which is not owned by humankind. This forces an acknowledgement by humankind of God as the sole owner of all that is seen and even not seen in this world.

The third chapter opened with some needed examination of the whole recombinant deoxyribonucleic acid process. It was the primary focus of this chapter to determine if the rDNA process possessed the power to invade and possibly even alter the essential nature of humanity. After preliminary examinations of what is often meant by "the good" and "risk/benefit analysis" in many of the written articles relating to this whole procedure, investigation was made of the impact that this technology would have first on the nuclear family unit, secondly on others and society as a whole including the workplace, and very briefly on the way
in which technology is developing our concepts of the future.

It appears that this technology may indeed have the power to alter the basic makeup of the human genome and thereby develop something that is not really human (but may indeed look human). The close of the chapter showed that changing any part of the genome that would predispose an individual to even a certain area of occupation is limiting his/her freedom and thereby altering the dignity which was to be found in the original genome of that individual. This is not to forbid the therapy of disease and malfunction through the use of genetic technology. What was emphasized was the call to caution that is voiced by almost everyone concerned with the scope and potential of this technology.

Daniel Callahan makes eloquent note of a concern that has been growing in the mind of the present author as this discussion draws to a close. This concern has to do with the predictability of the outcome of any ethical discussion regarding rDNA. He notes three moral principles that are culturally persuasive in our society. They have to do with individual liberty (freedom) if there is no demonstrable harm to others; risk-benefit analysis; and the fact that it is always better to attempt to do good than to avoid harm. He confesses that while these three seem to constantly produce the same outcome, and that bothers him, he can think of nothing better with which to substitute them. He says that these three principles do not allow us in any fashion to pose larger questions about the nature of human happiness, the most appropriate and valuable direction which science as a whole should take, or to inquire about the best ends to which human freedom should be directed. . . . It is precisely the sameness of the outcome of the

---

application of the three principles noted above which renders them suspect. It is the feeling of the present author that it is precisely the starting point of this discussion which opens up some of these larger questions and issues regarding genetic engineering for a more comprehensive discussion. Risk-benefit analysis and the good are side issues when the focal point of the operation is the changing of an individual's genes, and thereby, his or her identity. And a change of identity can only be properly evaluated when there is a proper and unified starting point: a Genesis 1 understanding of the concept of the Image of God in humanity.

It must be acknowledge that this discussion raises many more questions than it could possibly answer. However, the central question regarding the ability of rDNA being able to touch the essential nature of humanity has been addressed. If rDNA is used to heal some serious genetic defect or disease, such a procedure will not change or alter an individual's humanity. If it did, then we would have to call into question such healing procedures as eye glasses, heart transplants and drugs. The fact that genetic engineering is at a much more sub-atomic level than the wearing of eye glasses is of little, if any, consequence. Therapy versus design does not form the crux of the issue. Neither does the issue lie in the internal versus the external application or procedure. Rather the difference exists in the fact that the correcting of vision has little if anything to do with altering the uniqueness of the individual, while altering the rDNA of an individual comes much closer to striking at the heart of what makes an individual human that particular individual. The fact that deleterious genes predisposing for genetic disease and physical design of the individu-

\footnote{Callahan, "The Moral Career of Genetic Engineering," 21.}
al are both encoded in DNA makes involvement in altering the DNA a much more delicate procedure, not just technically, but emotionally, mentally, and most of all ethically.

The entire game changes, however, when rDNA is performed for design reasons. While the procedure for avoiding Tay-Sachs disease is no different than the procedure for changing black hair to blonde, the reasons for performing these two procedures does change their inherent nature. The former operation is to avoid disease and suffering in the future life of the individual; the latter is to satisfy the desires of the parent, regardless of the rationalizations that may be produced in support of such a change. Any such change is an infringement on the future of the receiving individual which is in turn an infringement on their identity as a free human being of divine design. As humans, we have been given the obligation to protect other human beings, but we have not been given the right of creation or design of other human beings. This holds true regardless of familial relationships.

An argument could be built around the fact that designing for good looks, intelligence, or athletic ability, which are traits desired by most normal people, is actually an increasing of the individual's option and as a direct consequence, an increase of freedom. While this may be true on the micro or individual level, it will not likely stay true on a macro or societal level. For the foreseeable future, rDNA is going to be a very costly and delicate (with no guarantees) procedure limiting its availability to the rich and influential. Short term desires are not adequate for addressing procedures and consequences of these magnitudes. Long term consequences have to be faced in regard to these types of procedures by asking questions such as, "By whose
standards will what designs be performed?" and "How many of the same design should be allowed?"  

There are obvious realms of unexplored territory when it comes to the combining of theology and genetic research and technology. An issue that came to light but which may have already been examined in detail elsewhere, is that of the relationship in the Old Testament between God's oft repeated commands to the people to "remember" and the process of healing, both spiritually and physically and possible connections with gene therapy.

The focus of this thesis could also be attempted using the humanity of Christ as the starting point. Both the Old and New Testaments have much to say regarding the life and humanity of Christ. How the life and body of Jesus Christ were viewed and referred to both prior to his coming to earth, during his ministry on earth, and subsequent to his resurrection may have much to say regarding our use and the possible abuses of rDNA technology.

As genetic technology comes closer and closer to complete performance, the questions of free will and predestination will require investigation. The coding in DNA is going to have substantial effect on previously held concepts of free will, predestination, human behaviour and its modification, as well as the effects of environment and manner of upbringing. In other words, DNA coding is going to add another very complex variable to the already complicated fields of sociology and human behaviour.

In spite of Marc Lappe's insistences, the availability of genetic engineering will require both genetic counselors and parents to evaluate much more closely the legacy of their actions in the lives of both their immediate offspring and the lives of all future descendants. Consequently, how

---

256 Cf. Michael Ruse, "Genesis Revisited: Can We Do Better Than God?" *Zygon* 19, no. 3 (Sept 1984): 279-316.
genetic counseling is performed with specific interest in
the ability to counsel in a value-neutral manner needs to be examined.

These and other concepts and ideas will require careful scrutiny by all concerned with genetic engineering and its effects, and especially by Christians concerned with how society continues to view and value mankind.
BIBLIOGRAPHY


---. "Moral Obligations and the Fallacies of Genetic Control." Theological Studies 33, no. 3 (Sep 1972): 422.


Ruse, Michael. "Genesis Revisited: Can We Do Better Than God?" Zygon 19, no. 3 (Sep 1984): 297-316.


Zoler, Mitchel L. "Genetic tests creating a deluge of dilemmas". *Medical World News* 27, no. 18 (Sep 22 1986): 34-52.