

Polanyian Reflections on Embodiment, the Human Genome Initiative and Theological Anthropology

Paul Lewis

ABSTRACT Key Words: Human Genome Initiative, embodiment, theological anthropology, Michael Polanyi
The Human Genome Initiative represents an ambitious attempt to map the genetic structure of the human species (an estimated 100,00 genes). The project has generated a vast amount of theological and ethical literature, none of which discusses the impact of the project on understandings of embodiment. This gap is surprising since Michael Polanyi and, more recently, feminist thinkers have argued that embodiment is central to human existence. I argue that theologians and scientist can teach one another some important lessons about embodiment by exploring some of the literature produced by the project and the anthropologies of Karl Rahner, Wolfhart Pannenberg, Stanley Hauerwas and James McClendon.

I. The Human Genome Initiative and the Body

The Human Genome Initiative (or Project) represents an ambitious attempt to map the entire genetic structure of human beings. This effort is not concentrated in a single lab, but refers to work taking place all over the world. Begun in 1988, it is projected to span 15 years and cost \$3 billion, of which \$200 million will be spent at labs around the United States. The basic goal of the project is to increase knowledge of humanity, or in the words of co-founder, James Watson, “to find out what being human is.”¹ The project proposes to do this by mapping the human genome, which contains an estimated 100,000 genes. To give some sense of how ambitious the project is, it has been called “biology’s moon shot,” and “the Holy Grail of genetics.” Much of the technology needed to accomplish it’s goal will have to be invented as the project unfolds.

The Human Genome Initiative was funded, after several years of debate, largely because of the anticipated practical payoffs. It promises to enable physicians and scientists better to diagnose and treat what are considered to be genetic disorders. Already, at a cost less than anticipated and at a pace much quicker than expected, the project has begun to fulfill some of those promises. People working at several of the centers which make up the Human Genome Initiative have discovered genes which seem to predispose some people to certain inherited forms of breast and cervical cancer, as well as the loci for diseases such as cystic fibrosis, Fragile X Syndrome, myotonic dystrophy and others. In all, some 50 disease causing genes have been identified and tests developed for a dozen genetic disorders.² In addition to the therapeutic gains expected from the project, another anticipated payoff to the Human Genome Initiative is increased understanding of genetic bases of behavior, such as alcoholism and homosexuality.³

It goes without saying that the Human Genome Initiative has generated a vast amount of literature thus far, and that more will be forthcoming as the project progresses. Much of the theological literature has concentrated on identifying and responding to ethical concerns about how the knowledge produced may impact on matters such as abortion, privacy and personal responsibility.⁴ Missing in the literature, however, is any extended and explicit discussion of how the Human Genome Initiative will impact our philosophical and theological understandings of human embodiment.⁵ To be sure, the ethical and theological directions taken in the literature have stressed that human beings

are deeply embedded in a biocultural world, but they have had little to say about how we are to understand, experience and understand our experiences of the human body.

This gap is a bit surprising, since Michael Polanyi and, more recently, numerous feminist thinkers have suggested that human embodiment is vitally important to human existence and self-understanding. For Polanyi, the biological or physical body is the basic building block for all knowledge. It is the means by which we discover, explore and learn about the world around us. As he puts it, “Our body is the ultimate instrument of all our external knowledge, whether intellectual or practical. In all our waking moments, we are *relying* on our awareness of contacts of our body with things outside for *attending* to these things.”⁶ As Polanyi describes the process of knowing, the body provides the means of proximal or subsidiary awareness, an awareness to which we seldom pay attention, but by which we achieve distal or focal awareness of things which exist beyond ourselves.⁷

But that is not all Polanyi says about the body. He refuses to separate the biological and cultural, by insisting that both dimensions of human existence are thoroughly intertwined. The body, as the means by which we attend to other things, can be extended in numerous ways, such as through the use of tools and the development of language. Language development provides a clear example of how body and culture are connected. The precise vocabulary and grammatical structure of language is specific to culture, but language builds on physical capacities for making and shaping sounds, extending them to create meaning. In short, the physical body is best understood as part of a multilevel system which allows for the emergence of properties and skills that cannot woodenly be predicted from the properties of the physical body.⁸ In sum, one might conclude that for Polanyi the body is an important part of human existence, and as the basic instrument for human knowing, not one to be trifled with lightly.

In a manner reminiscent of Polanyi, Beverly Wildung Harrison talks about the body as the means or instrument by which we engage, indwell and otherwise come to know the world around us. Furthermore, she identifies embodiment as one of the base points of feminist theory, an emphasis designed to help overcome the mind/body dualism of our intellectual and cultural heritage.⁹ These perspectives have not won the day on this issue, nor have they brought this insight to bear on the topic of the Human Genome Initiative or genetics, so far as I can find. This is unfortunate, because such ideas might deepen the ethical and theological reflections on the Human Genome Initiative, as I will indicate below.

My intent in this paper is not, however, to offer an extensive Polanyian critique of the Human Genome Initiative. Rather, it is to explore ways in which the Human Genome Initiative might impact our notions of embodiment and put those ways into conversation with some options in contemporary theological anthropologies, all the while bringing Polanyian insights to bear on the conversation. Two possible points of impact immediately suggest themselves. First, the Human Genome Initiative’s findings might contribute to a richer understanding of the human body. At the same time, the Human Genome Initiative might threaten a full understanding of embodiment by reinforcing both a reductionistic view of human being in which we are nothing but our genes and dominant construals of the body as an object to be manipulated and commodified.

These dual concerns suggest a two-part agenda. First, I will set out ways in which genetic knowledge can illumine theological understandings of the body by putting the theological anthropologies of Karl Rahner, Wolfhart Pannenberg and Stanley Hauerwas into conversation with issues raised by the Human Genome Initiative. The ambiguous potential of the Human Genome Initiative further suggests that we should explore potential constraints or checks which might minimize the negatives. Thus, drawing from the work of James William McClendon, I set out ways

in which theological understandings of the body, especially as created, redeemed and resurrected, can generate a critical perspective on projects such as this. This paper thus aspires to serve as a model for mutually-critical and open dialogue between the disciplines. Often, the dialogue is carried on in such a way that one partner gets the upper hand. Here, I will attempt to give both parties their due and ask them to learn from one another.

II. The Human Genome Initiative in Conversation with Theological Anthropologies

Clearly, the kind of knowledge of what it means to be human sought by the Human Genome Initiative is knowledge of the body, of the corporeal, of the stuff which makes us up. The assumption is that such knowledge is available to us and valuable for us to hold. Such an assumption challenges many contemporary theological anthropologies; I shall briefly survey three of the more influential ones.

Karl Rahner is the first of these theologians and is important because of his place among influential contemporary Roman Catholic thinkers. He is important also because he has addressed issues of genetics which touch on the promise and peril of the Human Genome Initiative in such a way as to converse with the sciences.¹⁰ As Rahner sets out his theological anthropology, he emphasizes the capacities of human beings for self-transcendence, for self-actualization and for freedom. Human existence is, in Rahner's words "open and indetermined," i.e., open to the infinite horizon which ultimately is fulfilled by God.¹¹ He thus counsels against simple condemnation of genetic research and its application, calling it "symptomatic of a cowardly and comfortable conservatism hiding behind misunderstood Christian ideals."¹² He goes on to suggest that genetic self-manipulation, the form which human freedom takes in our time, is indeed required by that freedom, Christianly understood.¹³

To be fair to Rahner, we must note that he does acknowledge, here and there, that this freedom is neither absolute nor abstract but is mediated and qualified by "materiality and history."¹⁴ Thus, Rahner finds built-in checks to what we can do, checks which take the form of biological, psychological and social laws, as well as the ultimate horizon which we call God.¹⁵ More importantly, the limit to legitimate interventions comes when those interventions threaten humanity's transcendent nature.¹⁶ In short, he offers some qualifications to our freedoms to do what we wish with ourselves, which leaves us with an uneasy tension between two affirmations: material givenness and transcendental freedom.

In contrast to Rahner, Wolfhart Pannenberg explicitly sets out to integrate the work of the sciences, particularly biology, psychology cultural anthropology and sociology, into his theological anthropology.¹⁷ Here, I shall focus only on his appropriation of biology. In that realm, Pannenberg draws upon discussions of human uniqueness in order to establish that human instincts "exist in only singularly rudimentary and attenuated form" and therefore that human beings are uniquely "open to the world."¹⁸ Thus, he concludes that whatever innate dispositions to behavior exist in human beings, they are significant only for providing "the abiding *point of departure* for the human adventure of self-transcendence and historicity."¹⁹

In the end, the general shape of Pannenberg's anthropology, although rooted in biological sciences, differs little from Rahner's. For both, the essence of human existence is its openness to the future. Biological givens, the stuff which the Human Genome Initiative investigates, provide—at best—the launching pad which makes possible the exercise of our freedom and openness. Both Rahner and Pannenberg thus offer what we might call an anthropology of transcendence.

Stanley Hauerwas operates with a theological anthropology which contrasts nicely with those of Rahner and Pannenberg. Instead of their transcendental anthropologies, Hauerwas offers what we might call a socio-historical anthropology. The titles of two early essays capture the core of his anthropology: “The Self as Story” and “The Virtues and Our Communities: Human Nature as History.”²⁰ Too oversimplify his position, human life is constituted and oriented by the stories which we learn from the communities to which we belong. Ian Burns summarizes Hauerwas’s understanding of the self nicely, saying that for Hauerwas, “the self is neither a transcendental essence existing prior to human social action, nor describable in purely naturalistic terms but is constituted within the discursive space of moral meaning embodied in various social practices and narrative traditions.”²¹

Not all that surprisingly given our previous sketches, we find little room for—or even mention of—the biological side of human existence in Hauerwas’s work—with one surprising and suggestive exception.²² In an essay on medical ethics, Hauerwas talks about “the wisdom of the body.” In this context, the body serves his argument in several ways. He describes the body as the source of its own healing. It stands outside both physician and patient as an authority to which both must defer. The body further teaches us our finitude and limitations. Finally, it forces us to face our need for one another and drives us into community.²³ In short, the body functions for Hauerwas, in the end, as the goad which reminds us of our creatureliness, and drives us into the community which trains us in the virtues which enable us to live truthfully as creatures.

We have here then three examples of contemporary and widely-discussed theological anthropologies. In spite of important differences between these various figures, all of them end up ignoring the biological rootedness of the human body. From the perspective of Human Genome Initiative supporters, this gap will be most distressing. If work in human genetics is correct and there are genetic links to diseases, as well as certain behaviors, such as alcoholism or sexual orientation, then notions of radical transcendental freedom, as well as radical social formation, will have to be qualified.²⁴

Such anthropologies will also be suspect from the perspective of those informed by Polanyi, since they fail to register two facts about the body. The first is how it is the foundation for all human knowledge. The second is that the body exists as part of a complex, hierarchically-ordered system. Again, from Polanyi’s perspective, the body should neither be seen as the only word on human existence, nor as an insignificant facet. Rahner and Pannenberg’s emphasis on transcendence focuses attention on the individual self, whereas Hauerwas’s strict attention to community all obscures the complex relationship between body, society and human possibilities for growth and transformation which Polanyi nicely registers.

Interestingly, other work in the natural sciences supports Polanyi’s views. The picture that begins to emerge is that our bodies, especially as constituted by its genes, serve as both the basis for our higher level activities and as our connection to the rest of the world around us. It is worth calling attention to the fact that higher level processes such as thought emerge out of and are dependent upon biological and chemical processes, knowledge of which does not fully explain the phenomenon of thought. It is also worth noting that human beings share more than 99 percent of their genetic makeup with African chimpanzees and gorillas and that investigation into the molecular structure of proteins indicate close kinship between human beings and other living creatures.²⁵

The Human Genome Initiative may teach another, even more sobering lesson to theologians. Rather than

simply providing a launching pad for human powers, human biology and genetics may place some boundaries around human possibilities. The Human Genome Initiative and its offshoots therefore take on theological importance in helping to qualify exaggerated or misplaced claims. Clearly, there must be more to the self than simply freedom or social formation at work in human existence. There is something there for that social formation to work on and with and to which it is responsive.²⁶

James William McClendon is one theologian who would support such an observation. His work is notable in this context because it contains important affinities to Polanyi's views in that he seeks to take the body seriously and to learn from the natural sciences. Additionally, McClendon does all this at the same time that he, like Hauerwas, is committed to maintaining vigorous Christian convictions and identity.

The focal point of McClendon's discussion of the body lies in his discussion of ethics, which attends to the body primarily as created. By way of background, we should note that McClendon insists that Christian ethics concerns itself with three different dimensions which he pictures as interrelated strands that together form a single rope: the bodily, the social and the anastatic. These strands correspond to three dimensions of human existence: we are simultaneously part of the natural or organic order, the social world and an eschatological realm, i.e., the kingdom of God.²⁷ His commitment to linking the biological and social is strikingly reminiscent of Polanyi's (although there is no direct linkage between the two), while it extends Polanyi by introducing a third, explicitly theological dimension to the fabric of human existence.

III. Theological Anthropologies in Conversation with the Human Genome Initiative

Before proceeding, however, it is important to take stock. We have seen that the Human Genome Initiative raises some important questions for at least certain theological anthropologies. A genuine dialogue between disciplines will require that these questions be addressed. But a genuine dialogue will also require that the Human Genome Initiative be open to interrogation by theologians. Take one concern over what will be done with information provided by the Human Genome Initiative. Already we can begin to "engineer" the human body to express certain traits and inhibit others. For example, patients have been successfully treated for ADA deficiency by gene replacement therapy.²⁸ The knowledge and technology produced by the Human Genome Initiative promises to enhance those skills significantly, and thus raises worries of "the perfect child syndrome" or of eugenics, that deliberate intervention into the genetic code intended to produce offspring with what are deemed socially-desirable or ideal traits. This worry is not unfounded, as many clinics which do simple ultrasound and other fetal testing often make it a policy to withhold information on gender from the parents until they confer with their physician. The reason is that many couples want to use abortion as a means to practice sex-selection of offspring, a crude form of eugenics.

Already, a consensus is emerging in the literature that somatic therapy is warranted, but not germline therapy. What this means is that it would be allowable to alter the genetic structure of a single person who suffers from a disease like diabetes so that the person's body starts to produce insulin on its own (somatic therapy). On the other hand, it would not be allowable to do the same thing in a fertilized ovum where the changes will be passed on to future generations (germline therapy).²⁹ Regardless of questions some may want to ask about this particular distinction, what is at stake in the larger discussion is whether the bodies of future generations should be treated as commodities to be designed according to individual whims or tastes. What ought theological anthropology say to this scenario?

A good place to begin is with Hauerwas, who reminds us that biology is never simply biology, that the body is never simply the body.³⁰ It is also the “lived body,” the body as experienced, understood and interpreted by a community. That insight alone should raise questions about the meaning of what we are doing when we manipulate the body by tinkering with its genetic code, for to tinker with the biological body is also to tinker with some of a community’s most cherished notions about who it thinks it is. But we should go further to explore what some robust Christian convictions might suggest in response to our concern.

McClendon reminds us that we are part of the organic world created by God, that we find ourselves endowed with certain open-ended instincts, built-in needs and what he calls our “natural moral equipment” (i.e., capacities for delight, horror, shame, blame, guilt, conscience and moral judgment).³¹ The claim that human beings are created with these capacities by God adds a certain weight to them. After all, if we are created this way, then these capacities indicate to us something of God’s desires and purposes. This inference generates caution in interfering with the genetic material from which these capacities emerge. Any interventions which would diminish these capacities would thus be out of line from a Christian perspective.

But, for McClendon, the givenness of creation is not the last word on how things ought to be; there are at least two other words that need to be spoken about the body as created. First, we can look to his recent treatment of the doctrine of creation. There he characterizes creation, using his own words, as “work in progress.” Secondly, that work in progress cannot be understood apart from “what lasts and what comes last” and “the new that comes in Christ.”³² Put differently, creation is ongoing and cannot be understood apart from redemption and eschatology. While the doctrinal focus of his most recent work precludes an explicit treatment of the ethical implications of these beliefs, we can extrapolate from what he says to what his views might mean for understanding the body and therefore for interrogating the Human Genome Initiative.

The fact that creation is ongoing suggests that the way things currently are is not necessarily the way things ought to remain. McClendon clearly affirms a place for “the creature’s own creativity,”³³ a creativity apparently to be assessed with reference to God’s intentions for creation, intentions which are disclosed as much in what is to come as in what is. And what is to come is already present via redemption, i.e., “what is new in Christ.” As McClendon reads creation in light of redemption and eschatology, redemption brings into creation signs (the biblical miracles which McClendon calls historic, remembering and providential signs) of the “point” of creation, i.e., the reign of God.³⁴ Or, in McClendon’s own words, “The ultimate end of creation and redemption alike is the fulfillment of God’s great kingdom rule. This rule, when it is achieved, will mean God’s glory fully shared, imparted to all, incorporating all.”³⁵ The ultimate criterion by which interventions in the created order should be judged, then, would appear to be God’s glory.

Such a claim is, however, abstract and formal. As such, its application to the Human Genome Initiative will likely be multi-faceted and contestable. Still, we can offer three suggestive, although far from definitive connections. First, honoring the body as created and thereby as the bearer of signals of God’s intentions and purposes, establishes a presumption against intervention with the genetic code. This claim cannot be held absolutely, however, as it is qualified by the continuing nature of creation, which is expressed in the creativity of the creature and the fact of redemption. Honoring the body as redeemed thus provides limited warrant for intervention in genetic materials for the sake of redeeming or healing what is injured or what is not correct.³⁶ Furthermore, honoring the body as resurrected means that interventions to genetic code must serve God’s intended end for creation.

Secondly, this anthropology raises questions about the assumptions behind the project. As noted earlier, Watson claims that the Human Genome Initiative will tell us what it means to be human. Implied in that remark, given the nature of the project, is a belief that knowledge of the body exhausts what it means to be human. McClendon's perspective warns against such reductionism by reminding us that human beings inhabit social and anastatic realms as well. Put differently, he reminds us that there is more to being human than being a body. On this point, Polanyi would be an ally, since he perceives this reductionism as endemic to the natural sciences. He criticizes the natural sciences for assuming that the laws which govern inanimate objects are appropriately applied to the organic realm. More specifically, he argues that by failing to account for emergence, the laws of nature that are manifest in the inanimate domain fail . . . to account for the rise of living beings."³⁷

Moreover, McClendon's perspective helps us to identify what may be a bit of hubris at work in the Human Genome Initiative. The project would appear to reflect the old Baconian drive to control a nature that is only raw material for manipulation to human benefit. The project may thus continue to underwrite and reinforce partial truths about human existence which ignore or underestimate the implications of our genetic indebtedness, our connections to all around us and the limits of our abilities.

Thirdly, McClendon's (and Polanyi's) reminder that we are social creatures points toward the realization that illnesses and diseases are social constructions as much as biological facts. Thus what counts as an illness and therefore worthy of treatment cannot simply be determined biologically.³⁸ Socially-conditioned values impact those kinds of judgments and therefore vigorous social debate must be part of the process.

What overall assessment of the Human Genome Initiative is warranted then by this particular theological anthropology? It must clearly be a nuanced assessment.³⁹ On the one hand, McClendon's perspective leads us to affirm the project as a way of gaining more knowledge of the body as created. It further suggests that we affirm the therapeutic possibilities which are likely to arise from the project. Moreover, it suggests a way to limit the kinds of interventions into genetic material that are warranted. Finally, his perspective forces consideration and debate over what it means to be human and over what conditions constitute dis-ease or illness and why.

IV. Conclusion

In conclusion, I have tried here to suggest the shape a dialog between the fields of the natural sciences and theology might take. Of course, this attempt only indicates the barest outline of such a conversation and suggests only the kinds of questions each side might want to address to the other. The Human Genome Initiative promises to contribute much to theological anthropology by forcing theologians to learn more about the body as our anchor in and connection to the material world. Theological anthropology promises to offer much to the Human Genome Initiative by raising questions about the presuppositions behind the project and the proper use of the knowledge and technology produced by the project.

Such dialogues are, of course, difficult to maintain, and have become even more so since C.P. Snow wrote about the distressing gap between the sciences and humanities.⁴⁰ A productive conversation will require learning the languages of the various disciplines and communities involved. It will require that we treat opponents' arguments with care by seeking to understand and clarify before responding. It will require attending to the interests, loyalties and commitments which motivate our inquiry. Such conversation will further require a kind of nonchalance in which

protagonists, although taking their work seriously, refuse to take themselves and their arguments too seriously. Hopefully the conversation can flourish. The fact that we can find some convergence between the philosophical perspectives of Polanyi and the theological accounts of McClendon should engender some modest hope that the project is not misguided.

Endnotes

¹Quoted in Ronald Cole-Turner, *The New Genesis: Theology and the Genetic Revolution* (Louisville: Westminster/John Knox, 1993), p. 20.

²See *Human Genome News*, 6 (September 1994):2, *Human Genome News*, 6 (November 1994):3 and “DNA Map-Makers Ahead of Schedule,” *Akron Beacon-Journal*, 15 October 1995. Complete and rather technical updates on the progress of the HGP can be found in issues *Nature*, *Science*, and *Human Genome News*. which came out in the fall of 1995.

³Ronald Cole-Turner discusses the general topic in his “Religion and the Human Genome” in *The Journal of Religion and Health* 31 (Summer 1992): 163. Ted Peters discusses homosexuality in a paper presented at the American Academy of Religion, November 1995.

⁴See, for example, James M. Childs, Jr., “Genetics, Ethics and the Human Future” in *Trinity Seminary Review* 13 (Spring 1991): 26-35; Ann Lammers and Ted Peters, “Genethics: Implications of the Human Genome Project” in *The Christian Century* (3 October 1990): 868-875, or Ted Peters, “Why Genes and Theology?” in *Dialog* 33 (Winter 1994): 2-4.

⁵The criteria used in many denominational pronouncements are not without merit, but the theological reasoning in most is, at best, thin and relies on unexamined notions of, for example, human dignity, the image of God and stewardship. See J. Robert Nelson, *On the New Frontiers of Genetics and Religion* (Grand Rapids: Eerdmans, 1994), pp. 171 ff.

⁶See his *The Tacit Dimension* (Garden City, NY: Doubleday and Company, 1966), pp. 15-16. Emphasis his.

⁷See Polanyi in *The Tacit Dimension*, pp. 9-10 and *Personal Knowledge* (Chicago: University of Chicago Press, 1962) pp. 55-59.

⁸For an insightful discussion of how these skills develop over time, see Phil Mullins, “Narrative, Selfhood and Persuasion: Polanyian Notes on Selfhood” *The Personalist Forum* 9 (Fall 1993): 109-132. Polanyi discusses emergence in *The Tacit Dimension*, pp. 36-37 and in *Personal Knowledge*, pp. 381-405.

⁹See her, *Making the Connections* (Boston: Beacon Press, 1985), pp. 12-13. For an accounting of the multiplicity of feminist treatments of embodiment, see Lisa Sowle Cahill, “Feminist Ethics” in *Theological Studies* 51 (1990): 53-56 and the introduction to *Gender/Body/ Knowledge*, ed. Alison M. Jaggar and Susan R. Bordo. (New Brunswick: Rutgers University Press, 1989), pp. 4-5. A particularly lucid example of one treatment of embodiment, i.e., the body as a social construct, can be found in Mary Stewart Van Leeuwen, et al, *After Eden: Facing the Challenge of Gender Reconciliation* (Grand Rapids: Eerdmans, 1993), pp. 268-298.

¹⁰Rahner clearly wants to acknowledge the contributions which the various sciences can make to understanding human existence, but understands them to be partial and incomplete. See his *Foundations of Christian Faith*. Trans. William V. Dych (New York: Crossroad, 1984), p. 27. The end result is that the natural sciences contribute little to understanding the heart of human existence, i.e., its openness to and fulfillment by the transcendent. While he does so in a sophisticated and astute manner, Rahner, in the end, appears to compartmentalize the findings of the sciences from faith, the biological from the spiritual.

¹¹Karl Rahner, *Foundations*, pp. 35 and 190-191.

¹²Karl Rahner, *Theological Investigations IX*. Trans. Graham Harrison (New York: Herder and Herder, 1972),

p. 211.

¹³Ibid., pp. 212-213. He does, however, note the novelty of this form of manipulation, by saying that we are now able to create ourselves corporeally, whereas in the past, our creation has been limited to our moral and theoretical selves.

¹⁴Rahner, *Foundations*, pp. 36ff. and 97.

¹⁵Rahner, *Theological Investigations*, p. 217 and 220.

¹⁶Ibid., pp. 213 and 249. It is not clear, to me at least, that Rahner consistently applies this criterion in his own discussion of artificial insemination, where he appeals more to the traditions of Catholic moral theology and natural law (see pp. 236-238 and 246). In fact, he turns the logic of his position around to stress that such manipulation may, in fact, indicate a refusal to abide by what has been given us (pp. 243-245). Put differently, it seems odd to affirm both our transcendent capacities and our givenness at the same time.

¹⁷Wolfhart Pannenberg, *Anthropology in Theological Perspective*. Trans. Matthew J. O'Connell (Philadelphia: The Westminster Press, 1985), pp. 19-21. Pannenberg has previously set out the basic theological contours of his position in his *What is Man?* Transl. Duane A. Priebe (Philadelphia: Fortress Press, 1970).

¹⁸Ibid., p. 34. By openness, Pannenberg refers to our capacities for self-reflection, self-transcendence and spirit (see p. 37). Ultimately, human openness is directed toward an Other who guarantees human well-being (see p. 69).

¹⁹Ibid., p. 41. Emphasis mine.

²⁰For the former essay, see Hauerwas's *Vision and Virtue* (Notre Dame: University of Notre Dame Press, 1981), pp. 68-89. For the latter essay, see his *Community of Character* (Notre Dame: University of Notre Dame Press, 1981), pp. 111-128. While it would be misleading to say that his project is to develop a full-blown theological anthropology, it is clear that Hauerwas makes certain assumptions about human existence. Key points he wants to make are that human existence is contingent and that we are creatures. See, for example, his *Peaceable Kingdom* (Notre Dame: University of Notre Dame Press, 1983), p. 8.

²¹Ian Burns, "The Human Genome Project and the Self" *Soundings* 77 (Spring/Summer 1994): 106.

²²Hauerwas offers the following reason for being suspicious of biology: biology is never not inscribed in the linguistic/conceptual world of a community. For this point, see his *Suffering Presence* (Notre Dame: University of Notre Dame Press, 1986), n. 1, p. 19.

²³Hauerwas, *Suffering Presence*, pp. 48-50.

²⁴Of course, it should be noted that the question of genetic determinism is largely a red herring. Given the best understandings currently available, genes at most contribute to behavior; they do not determine behavior in any tightly-wound way. At best, genes predispose us in certain directions. For helpful discussions of this issue, see R. David Cole, "Genetic Predestination" *Dialog* 33 (Winter 1994): 17-22, Philip Hefner, "Determinism, Freedom, and Moral Failure" *Dialog* 33 (Winter 1994): 23-29 and Cole-Turner, "Religion and the Human Genome," pp. 168-172.

²⁵On the former points, see Ian Barbour, *Religion in an Age of Science* (San Francisco: Harper and Row, 1990), pp. 168-170. On the latter points, see Barbour, pp. 157 and 189. We could also note that the chemicals in our bodies are the chemicals in the stars, an indication of our kinship with non-living matter.

²⁶The work of philosopher Mary Midgley is very instructive on this point. See especially her *Beast and Man* (Ithaca, NY: Cornell University Press, 1978), pp. 19-24 and throughout. I have argued this point at greater length in an unpublished paper, "Where Has Human Nature Gone? A Response to Historicist Critics," delivered at the Central States Regional Meeting of the AAR in March of 1990.

²⁷McClendon, *Ethics*, vol I: *Systematic Theology* (Nashville: Abingdon Press, 1986), pp. 62-67.

²⁸Nelson, p. 60. A friend now tells me that there is some ambiguity to this trial because patients simultaneously continued to receive replacement enzymes. Thus the researchers are unsure as to how much each cause contributed

to the effect.

²⁹See, for example, Ted Peters, “Genes, Creation, and Co-Creation,” pp. 24-25 and his “Why Genes and Theology?,” pp. 3-4.

³⁰By bringing up Hauerwas here, I do not mean to imply that of the people surveyed in the previous section of this paper only he can be critical of the HGI. As noted in the discussion of Rahner, he would likely raise some critical questions at the point which the HGI begins to threaten human transcendence. Pannenberg would also likely demur if intervention threatens humanity’s innate openness to the future. Still, they would make these criticisms without reference to the body.

³¹Ibid., pp. 90-103.

³²McClendon, *Doctrine*, Vol II: *Systematic Theology*, (Nashville: Abingdon Press, 1994), p. 189.

³³Ibid., pp. 159.

³⁴For his discussion of signs, see *ibid.*, pp. 185-188.

³⁵Ibid., pp. 147-148.

³⁶I realize that I am begging a number of important and difficult questions at this point related to how we know what counts as injury or malformation. There will be no way to do so apart from the linguistic and conceptual worlds of the communities to which we belong. The fact that different people do not all share in these worlds does not make the task of deciding at a public level what counts or does not count impossible, but it does make it difficult. For some thoughts on what such a conversation might require, see my “Toward a Nonfoundationalist Christian Social Ethic,” *Perspectives in Religious Studies* 22 (Spring 1995):45-62.

³⁷Polanyi, *The Tacit Dimension*, p. 88.

³⁸For an article that does an excellent job of showing how social values infiltrate and shape biomedical practice, see Joanne L. Finkelstein, “Biomedicine and Technocratic Power,” *The Hastings Center Report*, (July/August 1990):13-16.

³⁹To say that the assessment must be nuanced does not mean that I fall prey to the mistake Gilbert Meilander worries about in “Mastering Our Gen(i)es: When Do We Say No?” *The Christian Century* 107 (3 October 1990):872-875. As I see it, he takes a nuanced approach quite compatible with the one set out here. He affirms the project at the same time that he argues we must say no to certain uses of knowledge and technology developed by the HGI. I would wholeheartedly agree. Furthermore, I think many of the decisions as to what to affirm and what to deny—even within widely agreed upon parameters such as somatic therapy—must be made on a case-by-case basis, not in general terms and not in the abstract.

⁴⁰C.P. Snow, *The Two Cultures and the Scientific Revolution* (New York: Cambridge University Press, 1961).