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The Last Shall Be First: Human Potential in Genetic and Theological Perspectives

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Abstract

The notion of “human potential” provides a fruitful window through which to explore the competing conceptual frameworks of contemporary genetics and Christianity. The contemporary cultural frame of genetics conceives of human potential in a broadly positive manner: the source of personal and societal flourishing is located within individual bodies, waiting to be identified and unleashed by genetic science and medicine for the good of persons and society. In the Judeo-Christian narrative, human individual, biological potential is far less relevant—and, in fact, may be construed as an impediment to the achievement of personal and social flourishing. Implications for the dialogue between genetics and religion are discussed.

Key words

Genetics, Christianity, potential, dialogue, religion

The contemporary scientific discipline of genetics was born in 1865 with the presentation of the paper “Versuche über Pflanzenhybriden” (“Experiments on Plant Hybridization”) to the Naturforschender Verein

(Society for Research in Nature) in what is now Brno in the Czech Republic, by an Augustinian monk named Gregor Mendel.¹ Mendel's work was ahead of its time and, as those familiar with the field know, over three decades passed before the significance of his work was recognized by the scientific community. Thus it was that the term “genetics,” while certainly current in the milieu of the nineteenth century, was not applied to the scientific study of heredity until 1905. The term hailed, of course, from the ancient Greek term γενετικός *genetikos* (generative, productive), itself derived from γένεσις *genesis*, (origin, creation, generation, nativity, horoscope), a term that in almost two thousand years of post-classical Latin referred equally, and often simultaneously, to the Book of Genesis.²

That the scientific discipline of genetics is, in its origins, history, and contemporary structure, deeply intertwined with religion—and, more specifically, in Christianity—is a fact often overlooked within the story we have come to learn about genetics. That Mendel was a monk; that his experiments were conducted within a monastery; that he was equally schooled in philosophy and theology as well as physics, astronomy, and meteorology—these points are often construed simply as historical contingencies, peripheral to his true essence as a man of science and the Father of Modern Genetics. Equally, the inextricable resonances between the terminology developed to discuss this new science and two millennia of Christian history are downplayed.³

Consequently, a mere century after William Bateson first uses the term “genetics” in its modern sense, we find ourselves in a cultural milieu where the fields of genetics and religion are perceived as spanning the spectrum from incommensurate to antagonistic and, if possible, needing to be reconciled. This relationship manifests itself in a number of ways; for our purposes, I shall identify three. First, some now argue that genetics and evolutionary biology can provide an explanatory account of religiosity, with some geneticists claiming to have found the “God gene” or postulating a genetic explanation for human belief in God.⁴ Second, one finds scholars repeatedly asking some variant of the question, ‘What does religion have to say or ask about the science of genetics and its current research directions, *if anything*?’⁵ The question suggests that the answer might be: nothing! Alternative variants of this question presume that if there is to be a relationship between religion and genetics, it will be primarily unidirectional: that the time has come for religion to learn from genetics, to catch up, to move into the modern world; and that what religion can offer genetics is a forum (usually via congregational adult education) through which regular folks can be schooled in the truths of genetic science.⁶

Third, those looking for a middle ground have chosen the word “dialogue,” seeking to foster a conversation between religion and genetics as a subset of the broader dialogue between religion and science.⁷ Is it coincidental, one might ask, that the other primary context in which the term “dialogue” figures as a fundamental metaphor is the arena of ecumenical and interreligious efforts—an arena which began using the term in the 1960s, a term which was then subsequently adopted by the conversation on science and religion? In other words, one might ask if the relationship between science and religion—and correlatively, the relationship between genetics and religion—has come to be construed primarily as an interaction between two *religious* systems. For those truly interested in a *rapprochement* between genetics and religion, much more work needs to be done to trace the historical, conceptual, and theological infrastructure of this use of the “dialogue” metaphor.

Equally critical to efforts to understand the relationship between genetics and religion will be engagement with recent histories of science that attend more carefully to the social, political, and economic dynamics from the seventeenth century forward, a time in which the relationship between science and religion is often described as one primarily of “conflict.”⁸ While such explorations are beyond the parameters of this particular article, they are critical to the broader conversation touching on these themes. Here, I take up a much more limited task—namely, to engage the dialogue between genetics and religion through one particular focus: the notion of human potential. The notion of human potential has animated the field of genetics from its beginning at the turn of the twentieth century, serving as a key plank (along with the notion of “responsibility”—a second theme

of our symposium) in the eugenics movement, a movement closely synonymous with genetics for almost half a century. The various ways in which “religion” was a key handmaiden of the eugenics movement has been well documented in a number of recent works.⁹

The field of genetics has worked very hard to distance itself from its eugenic past; nonetheless, the notions of human potential and human responsibility continue to animate the scientific *and* popular conversation around genetics. Recently, behavioral geneticists have reintroduced the argument that genetic differences may be the predominant source of individual differences in human behavioral characteristics. If so, how do these biological claims interface with notions of human potential—does our genetic profile limit (or fully encompass) our personal or species potential? Alternatively, do these biological loci become targets for intervention? Can genetic science help us identify and maximize individual potential through screening or, in the future, through some sort of pharmaceutical or recombinant intervention? If so, what are the implications of these claims or interventions for who we understand ourselves to be?

These questions require complex, careful, and nuanced answers; when used as a focus for exploring the relationship between genetics and religion, the task becomes even more textured. Thus, I will focus simply on one piece of what would necessarily be a much larger engagement. I will argue that the very phrase “human (genetic) potential” provides an excellent starting point for examining the relationship between genetics and religion. It allows us to see that what is at issue is the interaction of two powerful narrative frameworks that shape how we (scientists and lay people in western culture) think about genetics and human persons. On the one hand we have the historical and cultural framework that shapes our understanding of “human potential,” a framework in which the science of genetics is embedded and has recently come to predominate. This framework is largely unarticulated and obscured from view, but it is powerfully operative in forming—without reasoned argument—our deep-seated, intuitive responses to developments in genetics. It is a narrative that fits with the broader socio-political and economic narrative of US culture.

On the other hand, those within US culture who self-identify as Christian (some 76% of the population by some estimates) are also formed by a second narrative—the narrative found in the scriptural texts of the Judeo-Christian tradition. The notion of human potential functions very differently in this framework, I will argue. In fact, by juxtaposing these narratives, it quickly becomes clear that the cultural narrative of human *genetic* potential is deeply at odds with the central Christian vision of human persons and the world.

My analysis will proceed in three parts. I begin by considering the word “potential” itself, for it is in fact a rhetorically powerful word, bringing with it connotations and assumptions that do much persuasive work without the labor of actual argument. I then turn to our broader culture to survey some of the ways the notion of “genetic potential” is used. In my examples, I will attend more closely to cultural rhetoric than to the work of genetic scientists, since the public sphere is the main place in which the religion-genetics interaction plays out.¹⁰ Public rhetoric and, as we shall see, commercial products are the vehicles through which people most often encounter genetics. This public incarnation of genetics has enormous formative power on our minds and hearts, and perhaps even souls. Finally, I will turn to one theological locus—Scripture—to examine an alternative to the narrative framework embodied in the cultural conversation on genetics.

1 Parsing “potential”

Let us begin by considering the word “potential” itself. Assisted by the Oxford English Dictionary, we find that “potential” has two major meanings. Its adjective and noun forms are almost synonymous, suggesting: something “possible as opposed to actual; having or showing the capacity for growth, achievement, future development; a capacity or possibility which is latent.”

The root of the word potential, however, is the Latin *potentia*, the same root behind words like “potent” or “potentate.” Thus, while more rare in contemporary parlance, but quite important for historical purposes, the word potential can also mean “possessing potency or power; potent, powerful, mighty, strong; commanding.” These meanings come together in the more recent scientific use of the word in the phrase known by all students of physics, “potential energy”: that “property or attribute that a body possesses by virtue of its position or state, but which is only manifested or released under changed conditions,” the energy or power latent in a body that, under the right conditions, will be released.

Thus, in speaking of potential, or more specifically, of *human* potential, we are speaking of: possibility, an innate, internal yet latent capacity or ability for ... growth, progress, development, an achievement in the future, an achievement which is generally associated with power, might, strength. Allow me to highlight six interactive components of these meanings and terms.

First, potential is generally a very *positive* term. Growth, progress, development—these are things to pursue. They are good. While certainly an option, we less often speak of a potential for something negative—for failure or evil. When speaking of a negative, we generally speak of possibility or probability, of a misuse of potential, a thwarting of potential, barriers or limits to realizing one's fullest potential.

Growth, progress, development—these suggest that potential is a *teleological* term—it is goal-directed. It moves its bearer *toward* something, toward a particular end or ends that are usually deemed to be good or worthy ends or goals. As such, the word potential is a highly normative term. It subtly embodies the moral pressure to bring out these latent capacities, to realize the goals to the fullest extent possible, to maximize the goods at issue. Those who have achieved the highest potential—intellectually, financially, physically, athletically, morally, socially—these people are held up as exemplars, as paragons of excellence. Even if not stated explicitly, we as a society deem those who have achieved the highest potential (in most fields) to be of the greatest worth.

Behind this teleology lie particular—and variable—*philosophical anthropologies*, particular visions of who the human person is supposed to be. Thus, for example, within our post-Enlightenment culture and its Kantian anthropology centered on human rationality and autonomy, we seek relentlessly—through our parenting, our educational systems, our biological interventions—to unleash or maximize our children's potential for intelligence. The individual self-sufficiency of Kant's anthropology wed to an American narrative of liberty lends itself to value those practices and interventions—social or otherwise—that maximize personal independence.

These anthropologies are set within particular—and variable—*sociologies*, particular understandings of what society should ideally look like, how it ideally functions. Within a late-capitalist culture, parents generally seek to maximize their children's potential to make profit; thus, the Girl Scouts are now all about creating budding little entrepreneurs. Because our social context has changed since I was a Girl Scout, it is now deemed less important to maximize our daughters' abilities to know how to knit, embroider, or cook, or even how to survive in the wild.

Fifth, even though these teleologies are sociologically shaped, the term potential tends to be an *individually* oriented term: billiard balls have potential energy, rulers have power, warriors or athletes have might or strength, and in general individuals are those who have internal capacities for growth, development, achievement. The term “potential” is certainly used analogously to speak of systems and nations (growth in GDP), but in general, personal potential lies within individuated entities.

Finally, the term potential is *future*-oriented. It is conditional, expressing possibility, possibilities that will only be maximized under certain conditions. This again renders the term potential highly normative, of ethical import. For ethics is the art of the ought, the art of the that-which-is-not-yet-but-could-be-and-should-be, and the art—in part—of discerning the relationship between conditions and those oughts.

The very phrase “human potential,” then, frames the question from the beginning in a particular way and guides the discussion along the lines of these different features and their current preferred manifestations. Without actually making an argument, the phrase human potential rhetorically carries normative claims: it suggests—through the mere phrase—growth, achievement, something positive, a good, power, internal progressive momentum to move toward particular ends identified as goods, ends correlated with assumptions about who we are as persons, who we are as a society. Once the notion of human potential is attached to an intervention or endpoint, it generally presumes consensus is on its side, and the burden of argument is on those who would oppose it. For who is going to say no? Who is going to say: “No, we ought not maximize human potential”? That seems grammatically incoherent or socio-politically corrupt.

2 Genetics and human potential

These characteristics of the phrase “human potential” shape genetic research and the public rhetoric that surrounds it. For the purposes of this article, I will highlight examples of how genetics is related to human potential in our wider culture. For, as I noted above, popular culture is the main medium through which average citizens encounter genetics and engage these questions.

So thoroughly are notions of human potential and genetics infused into our culture that such encounters begin at a young age. Take, for example, the Sony PlayStation game named (yes) *Genetic Potential*.¹¹ What appears to be at issue here is not human genetic potential but rather some variant of *arachnid* genetic potential. We have, of course, the anti-hero Dr. Vigh, “the chief scientist of the GeneTech Syndicate, a freelance research and development team that specialized in radical, and often dangerous, biological projects.” Although the game involves genes and science, it is not entirely clear what this game has to do with “genetic potential.” Nonetheless, I begin with this example not only because I find it amusing, but more seriously because of its social location, by virtue of which it effectively schools the children who use it in a particular narrative about genetics and biological potential. Intriguingly, the story here is a dark one—about the dark, dangerous power of genetics.

Moving to the human realm, we find a website entitled “Genetic Potential.”¹² Here we find no radical and dangerous doctors of genetics. Here instead we find services “for all your coaching, fitness, and coach education needs.” For a fee, I imagine, the folks at Genetic Potential will tailor an individual training program or coaching session to fit with you or your child's innate, particular genomic configuration. They do not specify that they will test for specific sports-ability-related alleles (more on that below), but there is at least a resonance or implication that one's personal genome is involved in the process, in a way more specific or at least tailored than is at issue in the recreational soccer league where my children labor under the old regime of discovering their fitness and athletic potential the hard way. Here we see the cultural narrative at work: genetic potential is about growth and achievement, individual potency, maximizing important dimensions of the human person (athletic ability and, perhaps, income), dimensions which are particularly important in a society focused on sports, physical fitness, and youth. Being able to access advanced or more definitive knowledge of a child's potential promises to provide a shortcut to maximizing these abilities with the hope of a quicker and greater payoff.

Beyond mere genetics, one finds Metagenics.¹³ Philosophers take note! Who needs metaphysics when you have metagenics? The staff at Metagenics seeks to help individuals realize their full genetic potential ... through nutrition. It is not actually clear how their services interface with genetics, at least directly. Apart from the words “personalized,” “diseases” and “science,” one finds no actual references to genetic testing or genomics in their site. Rather, the following paragraph gives a general sense of their direction:

Back in 1983, we had a big idea: the right nutrition could help people realize their best health possible by positively influencing what makes them unique—their genes. We called it realizing “genetic potential” for good

health. Today, it's known as the science of nutrigenomics—the study of food as one of the most important environmental modifiers of gene expression in determining health and disease patterns. Through our substantial and ongoing commitment to nutrigenomic research, we've been able to identify natural compounds with powerful therapeutic applications, to be used in our science-based TLC programs, medical foods, and nutraceuticals.¹⁴

Now, nutrigenomics might not be a terrible idea, but it is the shape of this story that is illustrative—here we find all the characteristics of the narrative of potential tidily presented in a package:¹⁵ it is positive and goal-oriented; there is a vision of the human person as genetically unique and designed to be as healthy as possible; here society is kind of the bad guy, the stand-in for the evil Dr. Nigh—giving us all these genetically improper foods and bad habits; but, with the right intervention, we have power over the future.

Finally, let us turn to one last example, a company with the very basic name of “Genetic Technologies.”¹⁶ Genetic Technologies appears to be a company offering a variety of genetic testing services. One of particular interest for our purposes is its mail-in test for sports performance.¹⁷ In 2003, scientists announced the ability to test for a gene known as *ACTN3*, which produces a structural protein alpha-actinin 3, found in fast-twitch muscle fibers. As the company's brochure notes, testing for particular variants of this gene may help one “optimize one's (natural) genetic potential”:

So whether you're an athlete, or young athlete-to-be, the *ACTN3* Sports Performance Test will help direct you toward achieving your maximum natural potential. This test does not discriminate good athletes from bad athletes. *ACTN3* Sports Performance Testing is designed to assist athletes with identifying the type of events, distances or sports in which success is more likely. The association of different genetic variants with power/sprint versus endurance events appears to apply in a wide range of sports, including track and field, swimming, cycling, rowing, judo, etc. Testing may also assist athletes in tailoring their training for optimal performance within their sport of choice.¹⁸

Elsewhere in its materials, Genetic Technologies includes the usual caveats about how this test is but “one aspect of a range of elements that contribute to sports performance,” such as the old-fashioned techniques of coaching, nutrition, training, fitness and sports psychology. Nonetheless, there is an assumption that the information and knowledge provided by this test is meaningful, and, more importantly, is worth paying for. And, of course, this doesn't hold only for athletic abilities. In theory, there are “genetic variations that influence ability to excel in opera singing, ballet dancing, musical composition, musical performance, writing, engineering, and a great many other pursuits.”¹⁹ As such variants are discovered, one can imagine Genetic Technologies adding such tests to its menu of options for purchase.

In all these examples, genes are construed as playing a positive role, as providing a biological substrate for excellence that remains untapped through now vincible ignorance. If only we knew ... we could point people in a particular direction, enhance their personal flourishing and contribution to society by determining what, exactly, they are good at, avoiding the old method of trial and error, saving time, money, and experiences of frustration or failure as they try pursuits for which they are not made, pursuits in which they will not be able to excel.

The flip side of what we might call “aptitude” genetics is the field of “behavioral” genetics, wherein we find claims to test for causes of behaviors as diverse as aggression, risk taking, impulsivity, nurturing and aspects of sexuality.²⁰ Here, tests seek markers (differences) not as much for performance as for flaws, for biological factors which may either inhibit our potential to move toward particular visions of who we ought to be or how we ought to flourish, or enable a latent capacity for excellence ... in a vice. Take anger, for example.²¹ Perhaps it is the variation in my gene *DARPP-32* which enables me to be particularly excellent at expressing anger. Maybe there's a genetic basis for what has long been called “getting one's Irish up.” (—)

But, of course, anger is not particularly considered a good, an end worth pursuing, an excellence worth cultivating.²² And thus, here, potential is something to be moderated, regulated, controlled. Perhaps through the discovery of genetically tailored pharmaceuticals—the next blockbuster lifestyle drug—or through genetic intervention down the line, this aberrant potential or (alternatively) barrier to growth and achievement might be overcome (and if so, would this be therapy or enhancement?).

This last example, I hope, shows how slippery the relationship can be between human potential and genetics. This relationship could be complicated further by turning to proposed forms of genetic enhancement, techniques designed to compensate for one's lack of inherent potential (which assumes we know what all the potentials are). For now, I believe these examples suffice to establish the point: part of the narrative surrounding genetics and human (or broader-than-human) potential certainly conjures its dark side—that genetics accounts for pathology as well as potential, and that if we intervene, we might lose control over our creations. But in general, the narrative surrounding genetics and human potential broadly is very positive: it is that within our individual bodies' make-up lies the substrate for improving health, advancing well-being, fine-tuning performance, achieving more. Genetic Potential, Metagenics, and Genetic Technologies promise to move individuals toward particular visions of what the human person can or ought to be—healthy, flourishing, enduring—indeed, “better, stronger, faster.” Equally operative are visions of society, interestingly mostly focusing on what are seen as impediments—bad habits, bad social structures and lifestyles. But fear not, these limitations of cultural context can be overcome through genetic knowledge aided and abetted by those scientists or otherwise-skilled experts who can coach the *individual* as they move into the *future* that can be theirs. By maximizing genetic potential, we can outstrip the less fit, move ahead of the crowd, become the best, achieve first place.

3 “Human potential” in Scripture

In much of the public and some of the scientific rhetoric surrounding human genetics, then, the notion of human potential has extraordinary normative power. Maximizing the inherent, latent human potential of each individual person remains an implicit goal of progressive thought. The notion of human potential derives from and fits within a fundamental cultural narrative about who we are as persons and who we are called to be. Those who maximize their (genetic) potential, the story implies, are those who will be most valued by society—they will get ahead, overcome fate, contingency, and nature, make money, be leaders, be hailed as exemplars or heroes.²³

Yet this is not the only story that can be told about human potential. A second narrative, one with a longer history and continuing to have a foothold in the public square, offers a rather different perspective. As suggested at the outset, the Judeo-Christian narrative locates the question of human potential in a radically alternative framework.

A thorough theological analysis would incorporate multiple sources of theological insight—the witness of almost two thousand years of Christian tradition and practice, the liturgy, philosophy, and more. To bring all these resources to bear on our question is clearly beyond the scope of this article. Instead, I would like to sketch a first step in such an analysis by asking: what does the notion of human potential look like from the perspective of the Judeo-Christian scriptures? I begin with Scripture for four reasons. First, within Judaism and Christianity, attention to Scripture remains a *sine qua non* of good theological method. In fact, certainly within the Jewish tradition and within most Christian denominations, the scriptural texts are the essential starting point for any theological analysis. Moreover, the scriptural texts are not simply one source among many that might form a theological analysis; their vision carries normative weight. Finally, these texts are, in many ways, the counterpart to the ‘texts’ discussed in section two above. As mentioned earlier, most adults in the United States identify as Christian; while levels of observance vary, the Judeo-Christian scriptures continue to serve as the primary

theological resource for a significant percentage of the US population. Many were raised with these texts; some encounter them weekly in worship services; some read them every day. Thus, a necessary component to a theological engagement with the narrative of human potential, especially as it functions in contemporary rhetoric surrounding genetics, is the Judeo-Christian narrative.

An additional reason to turn to Scripture in conversations on genetics stems from specific claims made about genetics within contemporary discourse. The human genome (*à la* the Human Genome Project) has become commonly referred to as the Book of Life written in the hand of God.²⁴ Eminent geneticist, and now head of the National Institutes of Health (NIH), Francis Collins has entitled his book on religion and science *The Language of God*.²⁵ Yet for a theologian—and one would hope for any Christian—phrases like “the language of God” and “the Word of God” are another name for Scripture (as well as for Christ).²⁶ Thus, the resonances between contemporary language surrounding genetics and Scripture must be addressed. God speaks not with a forked tongue, one would hope, so any entity claiming to be God's word, God's language, or especially the book God wrote will need to have significant resonances with the Word—the Second Person of the Trinity—and the scriptural Word that witnesses to that Person.

Having established Scripture as a necessary starting point for our analysis, we immediately run into a difficulty: the word “potential” does not occur in the scriptural texts. (This alone should tell us something.) How, then, might the scriptural texts speak to our present question? I would argue that we can elucidate the theological perspective on human (genetic) potential not through a Hebrew or Greek concordance (which would point us to passages that speak of potential or use the Hebrew or Greek correlate), but rather by stepping back and considering the story told by Scripture as a whole.

The Bible, as its very name suggests, was not written as one long document; it is a collection of documents written in disparate places and times and by widely diverse persons over at least a thousand years. But as compiled, it does have an arc, an overall narrative, major themes that carry through from start to finish. Theologians refer to this arc as the story of salvation history. A few hermeneutic clues for interpreting this grand narrative are provided toward the end of the story, and we will get to those momentarily, but I will trace the narrative arc by examining the story's main characters. Let us consider three cohorts of people: (1) those people God chooses as leaders, exemplars, agents of salvation history, who become the fathers and mothers of the people of Israel and then the leaders of the early Church; (2) those who achieve success according to worldly standards; and (3) those who achieve success according to worldly standards who are *then* chosen by God for some purpose. What can we say about a scriptural perspective on human potential in light of these three sets of characters?²⁷

Group 1: those people God chooses as leaders, exemplars, agents of salvation history, who become the fathers (and sometimes mothers) of the people of Israel and then the leaders of the early church. Included in this group would be Abraham, Isaac, Jacob, Moses, David, Elijah, Peter and the disciples, and more. These men, at first glance as well as on close analysis, are those with the least potential to do anything that God calls them to do.²⁸ They are, to a man, unlikely candidates, and because of their unlikeliness, they often tend to be unwilling to do what they are asked or called to do. Abraham was a wandering Aramean who, not unreasonably, assessed that it was hardly within his power to become the father of nations. Sarah's potential to give birth was long past, and she therefore laughed (or rather scoffed) at the angel's suggestion that she might give birth to a son who would be the father of descendants as numerous as the stars. Jacob—he who later comes to be called Israel, and becomes the father of the people of Israel—was a liar and a cheat and certainly not the kind of man anyone would want their daughter to marry.²⁹ Moses, a murderer, resisted God at every turn; he had no interest in liberating the Israelites, and he points out to God that, perhaps because of a biological speech impediment, he is not the man to speak to Pharaoh. David was the least obvious candidate for king (youngest son, shepherd boy);

one might argue that, perhaps, God saw his potential, youthful though he was. And he certainly proves to be a person who exceeds expectations; but he was not a man without moral flaws.

Turning to the New Testament, one finds the same pattern. Anyone familiar with the Gospels knows that the disciples, as a group, were relatively inept—they certainly were not chosen by Jesus to be his disciples because they demonstrated that they were qualified or had any particular potential. From start to finish in the gospel stories, they never seem to “get it,” even though they spent three years working and living with he whom the Christian tradition believes was the Incarnate Son of God! Even at the end, even after three years for their latent, innate potential for spirituality to grow into full flower, to a man they betray, deny, and desert Jesus.³⁰

In other words, the people Scripture identifies as those God chose to do great things in the world score rather low on the potential-for-leadership scale ... or on the potential-for-just-about-anything-else scale, for that matter. In the story Scripture tells—the story that forms the consciousness of millions of people in the United States—those who turn out to be leaders, heroes, and saints are not those with innate potential. “Potential” seems not to be a requirement for leadership or protagonism or emulation. Apart from David, Saul, and Solomon, they never really achieve success according to worldly standards.

This brings us to Group 2: those who *are* a success by the world's standards. Because they possess ability, according to human standards, they have risen to positions of religious leader, judge, king, temple prophet, and most often they have also made a significant amount of money. These are the people against whom the prophets rail, by and large to whom the Psalmist refers as the wicked. The same pattern continues, again, in the New Testament. The Gospels are peopled with those who have achieved—Pharisees, scribes, Roman procurators. For the most part, those who possessed and have maximized their potential not only are constantly at odds with Jesus, but in the end they orchestrate and come down on the wrong side of the crucifixion. Having a lot of potential as a human in Scripture might get you somewhere in the world, but it certainly does not get one very far in the narrative of salvation history.

Group 3 is a composite group, those who seem to fit traditional definitions of success—men who have worked hard to realize their potential—whom God also called or chose for some particular purposes. Job, of course, is the classic overachiever, a man of great potential, which he maximized. In addition to his seven sons and seven daughters, “[h]e had seven thousand sheep, three thousand camels, five hundred yoke of oxen, and five hundred she-asses, and very many servants; so that this man was the greatest of all the people of the east” (Job 1:2). Certainly, he had the right alleles. And Christians and non-Christians alike know what happened to him.

Or Paul in the New Testament: he too was highly successful—“circumcised on the eighth day, of the people of Israel, of the tribe of Benjamin, a Hebrew born of Hebrews; as to the law a Pharisee, as to zeal a persecutor of the church, as to righteousness under the law blameless” (Phil. 3:5–6). He had maximized his potential for intelligence, focus, and leadership. At the pinnacle of his success, he is knocked clear blind off his horse, and his life is turned upside down. He loses—or rather, voluntarily gives up—everything that prior to his conversion had had value for him, all the rewards for maximizing his potential in the eyes of the world. As he says, “For his sake I have suffered the loss of all things, and count them as refuse” (Phil. 3:8).

Finally, there is Jesus. He more or less fits in Group 3. Jesus is a bit of a ringer (being God incarnate, according to the story). But a claim central to the Christian tradition is that Jesus is the human person who stands as the pinnacle of humanity. Therefore, if one wants to know what it means to be human—fully human—Jesus is the model. And what does one find in this model? We find a child born into a lower socio-economic class to an unwed teenager, Isaiah's man who “had no form or comeliness that we should look at him, and no beauty that we should desire him. He was despised and rejected by men; a man of sorrows, and acquainted with grief ... one from whom men hide their faces, he was despised and esteemed not” (Is. 53). He waits until he's 30 before he

takes on his mission, and by most measures, he's not particularly successful. Yes, he attracts an enormous following, but most folks are following him for the wrong reasons. And in the end, Christians and non-Christians alike know what happens to him.

Jesus fits best in Group 3 rather than Group 1 because Scripture is clear to claim not that he had a lot of potential but that he had completely maximized and realized his potential—he was equal with God (Phil. 2). However, instead of claiming or holding on to that equality, that power, he gave it up. One of the most important facts for the early Christians was that Jesus emptied himself and took the form of a slave (Phil. 2).

In the end, Jesus does prevail, at least in a way—his story ends with resurrection. But this still does not allow us to valorize human potential, since he did not accomplish this himself. He *was raised*, per the passive verb construction. The successful ending of his story is not the outcome of his own abilities. The claim of the Christian narrative is that God raised him up.

In these two points, Jesus is the key to the whole framework. The story Scripture tells, populated as it is by a variety of human characters, is not really a narrative about humanity—though that is often what many interpreters want to make it. It is not about human capabilities and achievements. It is, rather, a theological narrative, a story about God, about God's power, about what God accomplishes while journeying with God's people Israel, with the Church, with humanity. From Genesis to Abraham and Sarah, through Jacob, Moses, David, the prophets, the disciples, Jesus, and Paul, it is a story about how God creates the conditions in which humanity can flourish, about how God brings about a future that no one could even imagine or anticipate, or one that seems impossible according to rational human calculation.

And God does this by what appears to be the most irrational, least effective, least productive route.³¹ God does not select those persons who, by all appearances, are most qualified to change the world. God does not call experts to solve humanity's problems.³² God selects the last, the youngest, the least, the poorest, the most obscure, those with physical disabilities, the least likely—those who by reasonable human standards of evaluation do not have any innate, latent potential waiting to be maximized. God chooses them and works through them, mostly by simply being with them. God gives them the abilities to do what needs to be done as they need to do it.

Those to whom much is given, those who come with innate genetic potential, who have achieved much by the standards of the world, who come in first place, are called to give it up, to empty themselves, to sell all they have and give it to the poor and to follow Jesus—to follow God's model for humanity. Human abilities, achievements, potential, capabilities, it seems, count for nothing.

Given our penchant to miss the point, Jesus sums this basic dynamic up succinctly and repeats it a number of times: “The first will be last and the last will be first” (Mt. 20:16).

This quick survey of scriptural characters points to at least four conclusions about the notion of human potential within the Judeo-Christian narrative. First, theologically speaking, the question of human potential is at best a non-starter. It is not that a scriptural perspective warns against advancing human potential, as in thou-shalt-not. But it certainly calls into question the normative weight human potential and the advancement thereof is given by our culture. Why does maximizing our own potential and perfection—as well as that of our children—have such a powerful hold over our imaginations and our lives? It is not, let me hasten to add, that Scripture has a negative anthropology, as is often claimed, for I do not think it does. The scriptures have a rather realistic assessment of human nature, in all its flaws and glory, its complexity and messiness and beauty. What Scripture does is turn the question of human potential on its head, greatly complicating any narrative that gives it a privileged or valued place. It suggests that the human maximization of human potential is of ambiguous value, and that perhaps the striving to maximize our own power via our abilities as ends in themselves can lead people

to think they do not need God, which (per the scriptural framework) is the very source of evil in the world (see, for example, the story of Adam and Eve). Can a focus on human potential become a functional idolatry?

Second, the qualifier “as ends in themselves” is crucial. For the question of ends—of goals, of *teloi*, raised in our discussion of the notion of potential—is a key question. Like the Enlightenment story of scientific and humanistic progress, the story of Scripture is also teleological. It is a hope-filled story, oriented toward the future. In many ways the vision of the future that drives the story of genetic potential is an offshoot of the larger Christian narrative that so deeply shaped European culture from which the Enlightenment arose. Both stories move toward a future of wholeness, perfection, completion. But in the narrative of genetic potential, the future utopia is achieved by the temporal eradication of human imperfection. In the scriptural vision—instantiated in Eden, the promised land, occasionally in Jerusalem, the kingdom of God, the heavenly banquet, and the new creation—communal human flourishing is achieved simply when individuals and communities choose to dwell with God. They might still be fat, not very smart, short, slow runners, or manifest myriad other flaws, but when persons in Scripture choose to acknowledge God's power and to live as God's people, perfection, wholeness, goodness (holiness, righteousness, and justice) come to be.³³ The definition of human perfection in Scripture is not perfection of mind or body but rather: being in relationship with God. In other words, in Scripture, perfection, fulfillment, flourishing, comes from first and foremost from outside of us rather than from within us.

Third, in Scripture, this perfection and completeness are never simply individual—they are always communal. In Genesis, humanity (man and woman) are created in the context of all of God's creation. God saves, calls, and restores the people of Israel, the city of Jerusalem, always as a people, a people who are to care for the weak, the orphan, the widow among them. All are invited to the heavenly banquet—though only the lame and broken come; those who have achieved their potential refuse the call. And as the history shows, the early Church understood caring for the weak to be one of its central tasks—because it, as a community, embodied and dwelt with a God who took care of the weak.

Which brings us to our last point. As we noted early, potential is about “power.” To speak of “human potential” is to speak of “human power”—a notion foreign to the scriptures. In Scripture, God is the one with whom real power, potency, strength and might reside. This is an argument God makes many, many times. As God exercises this power, Scripture redefines what power and potency mean. For as Jesus shows and Paul states, God's power is made perfect (whole, complete, good) in weakness. God models power as self-emptying and holds this up as the paradigm of both divine and human love. And the fruits of this sort of power—this gift of self—are manifold: creativity, growth, harmony, unity, peace, joy, always in community.

4 Prospects for dialogue: Can we talk?

In the end, then, as the foregoing conclusion demonstrates, we have in our hands two very different stories about human potential. Where does this leave the dialogue between genetics and religion? While I hope that this survey demonstrates that there will be no quick and easy answer to how these two realms of thought and practice relate, I would like to draw three brief conclusions.

First, a necessary component of this engagement will be a careful, detailed, nuanced, and contextualized account of the history of the intertwined yet now effaced relationship between genetics and religion. Such an account—which will trace not only concepts, but equally, the key roles played by politics and economics in shaping both realms, as well as their interaction—will necessarily show how genetics is not merely an area of scientific research, and will clarify how the contemporary scientific discipline is inextricably embedded in a complex cultural narrative that makes certain assumptions about who we are as persons, what it means to live together in society, and what the fundamental nature of reality is. These assumptions shape us—they become so deeply a part of us that we take them for granted and they motivate us to act (often at a visceral level) apart

from any overt argument. The challenge is to identify those frameworks and their components and then to push back behind these to analyze the fundamental anthropologies, sociologies, eschatologies, and theologies at work. This article has provided some outlines of this narrative, and the story could be elaborated much more carefully and exhaustively, but the concept of “human potential” captures a number of the key dynamics of that story well.

Second, the concept of “human potential” equally demonstrates how deeply incommensurate the stories of genetics and religion may be. Is it possible to find points of contact between these accounts of the human person, our social context, the fundamental nature of reality, and the nature of the good life? We certainly do not live in a culture that champions the notion that “the first will be last and the last will be first.” What, for example, would it mean to understand genetics as a practice of the preferential option for the poor rather than as a field designed to enhance, perfect, and further privilege those with the economic means to be tested for ACTN3 or to maximize their potential through nutrigenomics? What does it mean to be normal, and is it co-extensive with “genetically” normal (if there is such a thing)?

Finally, it may well be the case that the Judeo-Christian narrative relativizes the importance of the field of genetics. It certainly challenges the rather bold and theologically complicated claims that the human genome is “the book of life” written in “the language of God.”³⁴ For it appears to be the case that the two books tell two very different stories, at least about human potential. Yet herein lies, I think, the starting point for the conversation: the fact that now, as in 1905, geneticists claim theological language for their venture. Now, as in 1865, persons of faith pursue the science of genetics and understand there to be—at some level—a deep compatibility between it and their own practice of science in the context of their theological commitments. For a real dialogue to proceed between genetics and religion, we may well be required to return to genetics' Mendelian roots—to the practice of genetics within a deeply theological context. What (for a thought experiment) might genetics look like if practiced within the context of a monastery or, rather, within the intellectual and lived infrastructure of a complex tradition of theological inquiry and practice? What might it look like if practiced by those equally schooled in philosophy and theology as well as the scientific disciplines? Mendel's work on the segregation of heritable traits lay undiscovered for three decades; it may well be that he was over a century ahead of his time regarding the dialogue between science and religion.

Notes

- 1 Mendel's paper was published the following year in the *Proceedings of the Natural History Society of Brunn*. For a translation of the full text of the article, see <http://www.mendelweb.org/Mendel.html>. For more on Mendel, see Elof A. Carlson, *Mendel's Legacy* (Cold Spring Harbor, NY: Cold Spring Harbor Laboratory Press, 2004).
- 2 See “genesis” and “genetics” in the Oxford English Dictionary. Interestingly, the OED entry for “genetics” notes that in post-classical Latin, the term *geneticus* itself at times referred to the Book of Genesis as early as 1607.
- 3 A thorough history would chart the inextricable relationship between genetics and religion from Mendel through at least the early 1980s in the United States. See, for example, the National Council of Churches, *Genetic Engineering: Social and Ethical Consequences* (New York: National Council of Churches, 1984).
- 4 Among the many sources that could be cited, see Jeffrey Kluger, Jeff Chu, Broward Liston, Maggie Sieger and Daniel Williams, “Religion: Is God in Our Genes?” *Time Magazine*, 25 October 2004, a review of Dean Hamer's book *The God Gene: How Faith Is Hardwired into Our Genes* (New York: Doubleday, 2004), <http://www.time.com/time/magazine/article/0,9171,995465,00.html>. John Cleese's take on this question is, of course, not to be missed; see <http://www.youtube.com/watch?v=qvijTjZ8Rg>.
- 5 This question was posed as part of the framing of the original symposium at which the papers in this volume were originally presented. I quote this question not because it is unique to this symposium but because

it is representative of the cultural construction of the relationship between genetics and religion, particularly since the 1960s.

6 See, for example, Ronald S. Cole-Turner, *An Unavoidable Challenge: Our Church in an Age of Science and Technology* (Cleveland: Division of Education and Publication, United Church Board for Homeland Ministries, 1992).

7 For example, the American Association for the Advancement of Science designated its subcommittee the "Dialogue between Science, Ethics, and Religion"; see <http://www.aaas.org/spp/dser/>. Ian Barbour posits a four-fold typology for the science-religion relationship, with "dialogue" being the third. See, for example, his Gifford Lectures, in *Religion and Science: Historical and Contemporary Issues* (San Francisco: HarperOne, 1997).

8 See, for example, Amos Funkenstein, *Theology and the Scientific Imagination from the Middle Ages to the Seventeenth Century* (Princeton, NJ: Princeton University Press, 1989); John H. Brooke, *Science and Religion: Some Historical Perspectives* (Cambridge: Cambridge University Press, 1991); Gerald McKenny, *To Relieve the Human Condition: Bioethics, Technology and the Body* (Albany: SUNY Press, 1997); Robert Song, "The Human Genome Project as Soteriological Project," in *Brave New World?: Theology, Ethics and the Human Genome*, ed. Celia Deane-Drummond (New York: T. & T. Clark, 2003), 164–184; and Bronislaw Szerszynski, "That Deep Surface: The Human Genome Project and the Death of the Human," in Deane-Drummond, *Brave New World?*, 145–163.

9 See, for example, Christine Rosen, *Preaching Eugenics: Religious Leaders and the American Eugenics Movement* (New York: Oxford University Press, 2004); and Amy Laura Hall, *Conceiving Parenthood: American Protestantism and the Spirit of Reproduction* (Grand Rapids, MI: William B. Eerdmans, 2007).

10 This is not to suggest that there is a hard and fast distinction to be drawn between the science of genetics and the cultural shape of genetics. Any history of the field would quickly put that assumption to rest.

11 This should be filed under the heading "You Can't Make This Stuff Up."

See <http://starwarsgalaxies.station.sony.com/players/content.vm?id=66911&resource=features>.

12 <http://www.geneticpotential.com/>.

13 <http://www.metagenics.com>.

14 <http://www.metagenics.com/about>.

15 This intervention also trades on the recent series of neologisms suffixed with "-omics." Such terminology rhetorically grounds its truth and effectiveness in the twin realms of the biological sciences (genomics, proteomics) and the market (economics).

16 <http://www.gtg.com.au>.

17 <http://www.gtpersonal.com.au/index.php>.

18 <http://www.sportatlas.com/?mod=library&p=8&id=996&cp=6>.

19 <http://www.futurepundit.com/archives/002486.html>.

20 http://www.ornl.gov/sci/techresources/Human_Genome/elsi/behavior.shtml#4.

21 <http://www.impactlab.com/2009/05/04/blame-your-genes-when-you-get-angry/>.

22 This brings us to a theme taken up in other articles in this volume, that of responsibility. Are we responsible for our vices if they can be traced back to genetic variation?

23 This narrative, with multiple roots in the Enlightenment, emerged around the time of William of Ockham and found one its most avid proponents in Francis Bacon. It has shaped both scientific rhetoric and American consciousness. See Gerald McKenny, *To Relieve the Human Condition: Bioethics, Technology, and the Body* (New York: SUNY Press, 1997); Thomas A. Lessl, "The Mythological Conditioning of Scientific Naturalism," *Journal of Communication and Religion*, 28 (March 2005): 23–46; and Joel Shuman, *The Body of Compassion: Ethics, Medicine, and the Church* (Boulder, CO: Westview Press, 1999).

24 See, for example, Sabyasachi Sarkar, "Human Genome: The Book of Life," *Science*, 3:5 (September-October 2000); Barbara Katz Rothman, *The Book of Life: An Ethical Guide to Race, Normality and the Human Gene Study* (Boston: Beacon Press, 2001); and Katrin Weigmann, "The Code, the Text and the Language of God," *EMBO Reports*, 5:2 (2004): 116–118.

25 Francis S. Collins, *The Language of God: A Scientist Presents Evidence for Belief* (New York: Free Press, 2007).

- 26 As we will see below, Christology (our understanding of who Jesus is) is another key locus for exploring the relationship between genetics and theology, though one that will only be touched on briefly in this article.
- 27 These groups are not meant to be exhaustive, but are, rather, illustrative of the general themes and overall arc of the scriptural narrative. There may be occasional characters within the narratives who do not fit neatly into one of the categories.
- 28 Importantly, women, for the most part, present quite a different face in Scripture. Women who play a key role in salvation history work hard, respond quickly to God's call, are persons of virtue, and engage in reasoned discussion with God or other men. See, for example, Sarah, Naomi and Ruth, Esther, Judith, Deborah, Mary, and the women who journeyed with Jesus.
- 29 Certainly one common understanding of the scriptural narrative is that if it says anything about human potential, it focuses on the human potential to sin due to humanity's fallen condition. And this, of course, would be a potential one would want to minimize. The notion of sin vis-à-vis the notion of potential is worth exploring further. It certainly mirrors the sub-theme of the genetics narrative in focusing on the potential for the dark side. However, God usually seems genuinely surprised by human sin—that Adam and Eve actually ate from the Tree of the Knowledge of Good and Evil; that the Israelites crafted a golden calf while he and Moses were busy on the mountain; that the people of Jerusalem repeatedly flout the commandments and ignore the prophets. Yet at the same time, it is generally presented as a fact, a part of reality, not something for which people have an innate potential to realize, but simply a given, something already actualized.
- 30 The only exception to this behavior of the disciples is the representation of the disciple John in the Gospel of John; interestingly, he accompanies various women as they journey with Jesus to the cross and stand with him until he dies.
- 31 As an aside, one could say that when God wants to accomplish something in salvation history, somebody gets pregnant – not the most efficient *modus operandi*.
- 32 Alternatively, as we saw earlier, a key assumption of the cultural (and scientific) narrative regarding genetic potential is that the agents of the maximizing of human (genetic) potential or of the minimizing of potential flaws are geneticists.
- 33 While the word “potential” does not occur in the Judeo-Christian scriptures, the word “perfect” (*teleios*) does—but only twice in the Gospels and in only 15 more verses in the New Testament. James Keenan comments on Gospel passages (both in Matthew) where Jesus enjoins his hearers to be “perfect” as the heavenly Father is perfect. Some translations render this “holy.” Keenan notes that in the biblical context, this notion of perfection (*teleios*) does not necessarily mean “maximized” or “excellent” in our sense of the word perfection. Rather, it means that something is good, whole, or complete. Thus, when God declares everything “good” in the original creation, he is saying that everything is “perfect”—that it is just exactly as it should be. It is all actualized, not potential. And God declares humanity—woman and man—to be good. No capacity for growth or achievement is there. But what is the nature of this goodness? It is that they are in perfect relationship, perfect and complete harmony with God. It is not that they are biologically or intellectually perfect in some idealized anthropological sense. Perfection lies in the unity and harmony of all of creation with the creator. When humanity turns its attention from God to maximizing itself—to become like gods, to increase its knowledge—the perfection of relationship is broken and it all falls apart. Throughout the rest of Scripture, God seeks to re-establish this harmony, this unity, this relationship with humanity. God calls Israel not because Israel is particularly worthy, but to demonstrate that “righteousness,” perfection, justification, salvation, holiness, flourishing are not something we have to or even can achieve on our own. The necessary and sufficient condition for all these things is right relationship with God. See James Keenan, “‘Whose Perfection is it Anyway?': A Virtuous Consideration of Enhancement,” *Christian Bioethics* 5:2 (1999): 104–120.
- 34 Yet, for historians of medicine, this odd co-optation of theological language for the field of genetics comes as no surprise. Further investigations would explore how the contemporary scientific narrative cannot be understood apart from the broad Christian narrative that shaped the cultural context of medieval and

Enlightenment Europe as well as the religious character of the nineteenth- and twentieth-century American context.