

Article

Religion versus Science II: Why Science Is Wrong about Life and Evolution, and Where Religious Beliefs Can Find Objective Traction

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Abstract: Traditional religions posit a nonmaterial, spiritual aspect of life. Science rejects that possibility and given the contemporary intellectual hegemony enjoyed by science, that has greatly deflated support for religious perspectives. This paper introduces the countervailing position, that the extraordinary claims associated with the scientific vision have always been a stretch—beginning with a reliance on DNA for exceptional behaviors. That stretch is now unfolding in a broad failure as huge efforts to identify the DNA (or genetic) origins for disease and behavioral tendencies (in the realms of personal genomics and behavioral genetics, respectively) have been an “absolutely beyond belief” failure. This paper will discuss this unfolding heritability crisis, and then indirectly further it with consideration of challenges posed by some unusual behaviors including taboo and accepted paradoxes. A basic point herein is that objectively challenging science’s bedrock position of materialism—which has been an immense obstacle in the path of finding meaningful support for religious perspectives—is not difficult. A final point touched on here is that science’s physics-only based model of evolution never made sense as a possible vehicle for dualistic or transcendent phenomena, and thus the unfolding failure of genetics further deserves the attention of those investigating religious perspectives.

Keywords: scientific materialism; religions; genetics; evolution; paranormal behaviors; metaphysics; philosophy

1. Introduction: DNA and the Scientific Vision

It is difficult to overstate the expectations surrounding deoxyribonucleic acid (DNA). It is essential to science’s molecular-only or material-only vision of life and the associated intellectual purview. Steven Pinker in an essay introduced this vision in stating that:

In making sense of the world, there should be few occasions in which we are forced to concede “It just is” or “It’s magic” or “Because I said so”. The commitment to intelligibility is not a matter of brute faith, but gradually validates itself as more and more of the world becomes explicable in scientific terms. The processes of life, for example, used to be attributed to a mysterious *elan vital*; now we know they are powered by chemical and physical reactions among complex molecules. (Pinker 2013)

The presumed director of those complex molecules is of course DNA. Consistent with this, Pinker went on to add that science’s “understanding consists not in a mere listing of facts, but in deep and elegant principles, like the insight that life depends on a molecule that carries information, directs metabolism, and replicates itself” (Pinker 2013).

Continuing here, the pioneering geneticist Craig Venter succinctly answered the question “What is life?” with the expression, “DNA-driven biological machines” (Venter 2014, p. 6). The biologist Richard Dawkins characterized our genomic nature with “DNA neither cares nor knows. DNA just is.

And we dance to its music” (Venter 2014, p. 1). Additionally Venter in his book, *A Life Decoded: My Genome: My Life*, declared that the Human Genome Project:

has charted a landscape in which we will discover the most intricate workings of our species, the particularities of our own individual genetic makeup, and the promise of novel approaches to health and medicine that will mark a new stage in human development, one in which inherited biology is no longer destiny. (Venter 2007, inside cover)

Likewise in the succinct and finely written, *What Evolution Is*, the late prominent biologist Ernst Mayr at no point suggests any doubt that DNA can fulfill its purported roles. As Mayr pointed out, “[o]ne can never fully understand the process of evolution unless one has an understanding of the basic facts of inheritance, which explain variation” (Mayr 2001, p. 89). DNA is of course believed to be the basis for inheritance.

Furthermore, readers can get additional details on this situation via some statements provided by the biologist and Nobel laureate James D. Watson in 2003. In an interview with him, *Scientific American* asked (Watson 2003):

[i]n a century, we went from rediscovering Mendel’s laws and identifying chromosomes as agents of heredity to having the human genome largely worked out. Finding the double helix drops neatly in the middle of that span. How much, with respect to DNA, is left for us to do? Are there still great discoveries to be made, or is it just filling in details?

After some speculation about the possible significance of epigenetic phenomena (secondary conditional factors effecting DNA dynamics) Watson replied:

[relevant research] seems to moving pretty fast. You don’t really want to make a guess, but I’d guess that over these next 10 years, the field will be pretty played out. A lot of very good people are working on it. We have the tools. At some stage, the basic principles of genetics will be known be in terms of gene functioning, and then we’ll be able to apply that more to [more difficult] problems such as how the brain works.

Next, *Scientific American* asked Watson, “[i]f you were starting out as a researcher now”. Watson interjected, “I’d be working on something about connections between genes and behavior. You can find genes for behaviors . . . ” The above “field” which was predicted to “play” itself out, most likely included personal genomics as well as behavioral genetics.

Another feature of the associated scientific mindset was also suggested by Watson in his self-characterization:

I was born curious. . . . And so if you wanted an explanation for life, it had to be about the molecular basis for life. I never thought there was a spiritual basis for life; I was very lucky to be brought up by a father who had no religious beliefs. (Watson 2003)

And in commenting on a promotional line used for the genetics-inspired movie *Gattaca*—“There is no gene for the human spirit”—Watson wrote, “[i]t remains a dangerous blind spot in our society that so many wish this were so” (Watson et al. 2017, p. 440).

On a similar note, Steven Pinker have written:

[t]here is no such thing as fate, providence, karma, spells, curses, augury, divine retribution, or answered prayers—though the discrepancy between the laws of probability and the workings of cognition may explain why people believe there are.

Beyond this sweeping and unquestioned endorsement of materialism, Pinker went on to directly characterize the contemporary default intellectual dismissal of religions with:

[t]he moral worldview of any scientifically literate person—one who is not blinkered by fundamentalism—requires a radical break from religious conceptions of meaning and value. (Pinker 2013)

Readers should keep in mind Watson's and Pinker's (and more generally science's) arrogant materialist fixation and the associated dismissal of religious perspectives. That is likely modern science's biggest blind spot, it should be questioned, and alternatives including traditional religious perspectives reconsidered. It is worth noting that hubris is rarely symptomatic of intellectual competence.

This paper will first discuss the last decade and a half of significant outcomes from efforts to tie variations in our DNA or genome to variations in our behavioral specifics and disease susceptibilities. These two areas—the auspices of behavioral genetics and personal genomics, respectively—offer basic tests for the presumed role DNA is believed to play as a vehicle for the inheritance of traits (and thus life and its evolution). Next, some remarkable behavioral challenges to genetic reasoning and materialism will be considered. Finally, the big resulting impasse facing the scientific vision of life and some resulting opportunities for traditional religious beliefs will be briefly discussed.

2. DNA Searches and Expectations

Fourteen years after predicting wholesale genetic success within a decade, James D. Watson in his 2017 book, *DNA: The Story of the Genetic Revolution*, broke from his earlier optimism and acknowledged in particular the lack of genetic insight into the occurrences of mental illnesses. Watson pointed out that “[t]he history of this research is full of high hopes brought low” (Watson et al. 2017, pp. 391–92). He went on to provide a fitting quote on the situation from the geneticists Neil Rich and David Botstein:

[t]he recent history of genetic linkage studies for [manic depression] is rivaled only by the course of the illness itself. The euphoria of linkage findings being replaced by the dysphoria of non-replication [in other populations] has become a regular pattern, creating a roller coaster-type existence for many psychiatric genetics practitioners as well as interested observers.

Watson, though, still maintained the faith as reflected in his subsequent statement, “[t]hat said, I am extremely hopeful that we are entering an era of genetic analysis that will soon take us beyond this irritating game of ‘now we have it, now we don’t’”.

Sober assessments also appeared in a May 2017 *Scientific American* review article by Michael Balter, “Schizophrenia’s Unyielding Mysteries: Gene Studies Were Supposed to Reveal the Disorder’s Roots. That Didn’t Happen. Now Scientists Are Broadening the Search” (Balter 2017). After enormous efforts to identify the expected DNA basis for the susceptibility to the profound and difficult condition, schizophrenia, insiders provided some frank appraisals. These included the geneticist David Goldstein’s comment that “[p]eople working in the schizophrenia genetics field have greatly over-interpreted their results” and further that they should utilize “a whole lot more humility”. Additionally, the behavioral geneticist Eric Turkheimer offered the noteworthy, “GWAS [Genome Wide Assessment Studies] shows that schizophrenia is so highly, radically polygenic [i.e., with many DNA contributors] that there may well be nothing to find, just a general unspecifiable genetic background”. Does this really make sense? A profound, focused, and presumed significantly heritable condition like the tendency to experience schizophrenia is somehow the result of many, many individual genetic/DNA contributors, thus contradicting the confirmed logic of identified disorders with their strong singular genetic origins?

It should be an everyday, self-evident fact that people differ in a number of basic characteristics. Not just the gross stuff—like physical gender, size, hair color, etc.—but in a lot of readily apparent characteristics including personality. More subtly there appear to be differences in disease susceptibilities (thus it “runs in families”) and also in characteristics like intelligence. The innateness aspect of such characteristics is highlighted by the fact that such differences routinely show up amongst siblings. A bit of a mystery is likewise apparent, though, in that monozygotic twins—who share their DNA blueprints and within a family, much of their environments—differ significantly in their behavioral tendencies (unlike with regards to their often mirror-like appearances).

Some aspects of our individual differences along with DNA's presumed heritability role has been inferred from human studies. This connection was neatly captured by the psychologist Steven Pinker who wrote that:

schizophrenia is highly concordant within pairs of identical twins [about 50% of the time when one is affected so is the other twin], who share all of their DNA and most of their environment, but far less concordant within pairs of fraternal twins, who share only half of their [variable] DNA ... and most of their environment. The trick question could be asked—and would have the same answer—for virtually every cognitive and emotional disorder or difference ever observed. Autism, dyslexia, language delay, language impairment, learning disability, left-handedness, major depressions, bipolar illness, obsessive-compulsive disorder, sexual orientation, and many other conditions run in families, are more concordant in identical than in fraternal twins, are better predicted by people's biological relatives than by their adoptive relatives, and are poorly predicted by any measurable feature of the environment. (Pinker 2002, p. 46)

So it seems that many of our differences in behavioral and health inclinations appear to follow biological parent-connected patterns. While such variations in behavioral innateness are often obvious, the inheritance-packaging of that innateness is not so clear (although physically it certainly can be). This parent-correlated packaging has become clearer through formal studies. Such studies often utilize the relative similarities observed between monozygotic (identical) twins versus dizygotic (fraternal) twins in order to estimate or infer a genetic influence. Pinker's statement does, though, appear to shortchange possible environmental contributions to the occurrence of schizophrenia (Balter 2017).

These behavioral and health patterns are of course presumed to be largely a function of DNA. Remember DNA "created [us], body and mind" (Dawkins 1976, p. 20). Notice also that even if an individual's innate traits were not established at their conception, they should then largely be specified by some postconception mutation to their genome. One way or another, our innate aspects are supposed to be in large part established by our DNA specifics.

A reminder here is that genes consist of the subset of DNA, which provides templates for the construction of the body's protein molecules. DNA (or the genome) also has significant content beyond the approximately 1.5 percent constituting of genes, nevertheless "genes" (and thus "genetics") tends to be overused and can lead outsiders to think that that is all there is to DNA, or at least its functionality. Quite often this "genetics" tendency will be followed herein.

Continuing, it turns out that *Homo sapiens* have been referred to by geneticists as a "small species" since there is relatively little genetic variation amongst us and such limited variation is typical of a species with a small population (Pinker 2002, pp. 142–43). This lack of genetic variation appears to have followed from our having been a small species not too long ago, as we struggled through a difficult period. Yet, the amount of time that has since elapsed has been insufficient for that set of DNA variations to expand much (via mutations). As a result, any two human beings are about 99.9% identical in terms of their DNA blueprints, which translates to being different in only about 3 million bases or letters (Green 2013; Kingsley 2009; Schafer 2006). In a crude way, it is akin to having us all be identical twins, except that there are some notable exceptions, beginning with the physical gender determining Y-chromosome.

Additionally, as within the encompassing genome, the 0.1% variable subset could be home to significant irrelevant junk or neutral code segments. This is supposed to follow from the haphazard workings of evolution (Zimmer 2015). A gross way to grasp this point is to note that some simpler species have much larger genomes than we do. The broad-footed salamander and the onion, for example, have genomes about fifty and five times longer than ours (also note that this appears to challenge the logic of intelligent design). Altogether then, among our oft-cited three billion DNA letters blueprint, there is in fact a much smaller subset that should be home to the origins of our heritable distinctions.

Thus, with this limited variation present in our genomes, genetic searches were thought to be well situated to identify critical genetic variants. This expectation was reflected in the great confidence of

geneticists and, thus, the aforementioned decade-to-success 2003 prediction made by James Watson. In a simple sense, it is as though the roughly last decade and half of genetic searches were simply looking for some additional Y-chromosomes amidst the relatively small subset of our variable DNA.

However, there are some under-appreciated problems, though, facing this genetic vision. Two big ones are the inexplicable differences present between monozygotic twins and also the existence of some truly remarkable behaviors. I will now briefly describe some monozygotic puzzles. The cause of their origin—the initial split or division of a single cell zygote—is a mystery. So is its occurrence only in some species. Further, similar appearances and biological presumptions aside, twins in fact constitute major challenges to the sacred DNA “created [us], body and mind” logic. Although DNA replicas, such as twins, whether they were raised together or separately, have been observed on average to be a bit more different, rather than alike, in terms of their personalities. Thus, these genetic clones can closely share the same environment or inhabit separate ones and still they appear to be markedly different in terms of personality.

Additionally (for readers aware of the secondary potential bio-code, the epigenome, essentially consisting of chemical-based alterations to the packaging of the genome), it is not clear what environmental traction is available for the epigenome or other physical mechanisms to differentiate twins. If the differences between twin pairs are largely insensitive to being raised separately, then that does not appear to leave much of an opening available for environmental differentiation. Places where environmental factors do have observable impacts, though, include creating specific trauma-based fears; the occurrence of schizophrenia, and also familial allegiance items like political party affiliation.

In Judith Rich Harris’ *No Two Alike* she pointed out that even conjoined (or attached) twins appear to be markedly different. As one such twin reported (prior to an unsuccessful separation operation), “[w]e are two completely separate individuals who are stuck to each other. We have different world views, we have different lifestyles, we think very differently about issues” (Harris 2006, p. 1). This mystery seems to have generated considerable puzzlement within psychology (see for example discussions in Steven Pinker’s *The Blank Slate*), but perhaps it has only seen limited appreciation by geneticists. One succinct example of the individuality of twins, despite their matching DNA, is with regards to male exclusive homosexuality. In that case, there is only about a 20 to 30 percent concurrence rate among (male) monozygotic twins (Collins 2010, pp. 204–5). There are also surprisingly large differences between monozygotic twins with regards to their disease histories and longevity (Kolata 2006).

Nonetheless, there appears to be very strong faith in DNA’s inheritance functioning. Ernst Mayr’s *What Evolution Is* captures this unquestioning stance, including providing the basis for so many innate behaviors. These behaviors can include remarkably elaborate instincts present throughout the animal kingdom, and also generic behavioral tendencies or inclinations. In an evolutionary sense, Mayr wrote with regards to such behavioral developments that:

[t]here are reasons to believe that behavioral shifts have been involved in most evolutionary innovations, hence the saying “behavior is the pacemaker of evolution.” Any behavior that turns out to be of evolutionary significance is likely to be reinforced by the selection of genetic determinants for such behavior (known as the *Baldwin effect*). (Mayr 2001, p. 137)

Thus, the behavioral implications associated with a segment of DNA code should be significant to natural selections’ treatment of it.

What is critically important here is that innate behaviors, either generic instinctive ones or an individual’s particular behavioral inclinations, are not only readily apparent features of any (macroscopic) animal, but that such behaviors are also supposed to be in large part an expression of a creature’s DNA and, thus, reflect its evolutionary history (via “the Baldwin effect”). An individual’s particular pattern of freckles might be mostly derived from random elements during in utero biological development, but their innate tendency to follow a behavioral pattern should have a genetic basis.

If this reasoning is correct, that is, if genetics provides the basis for the details of innate behaviors, it stands to reason that there should be specific DNA codes for some amazing behaviors. Yet, there

are observations that challenge the plausibility of that belief. One of DNA's jobs is to provide "[t]he entire behavioral information available to the newborn" (Mayr 2001, p. 253), which in some cases is astounding. One such example relates to bird migrations, in that some migratory birds have been shown to demonstrate an innate knowledge of their migratory routes. However, is it realistic for a large molecule—deoxyribonucleic acid (DNA)—to have been shaped by natural selection to encode for the making of a brain equipped with migratory maps or guides? On this point even the Nobel laureate James D. Watson expressed astonishment (Watson 2003).

Additionally, among humans there are some remarkable innate abilities, and also in the case of transgender kids very surprising cross-gender orientations. When little biological boys make claims such as that when they grow up they will "adopt my babies, but I'll have boobies to feed them and I'll wear a bra, dresses, skirts, and high-heeled shoes" (Solomon 2012, pp. 605–6), and furthermore, after thoroughly testing such kids researchers can state that:

[a]ll of this research combines to show that transgender identities in even very young children are surprisingly solid and consistent across measures, contradicting popular beliefs that such feelings are fleeting or that children are simply pretending to be the opposite gender. (Olson 2017)

Are DNA origins really plausible in this case?

Of additional note here is the extraordinary memory syndrome, hyperthymesia. This syndrome involves extensive autobiographical memories and was considered in a February 2014 *Scientific American* article, "Remembrance of All Things Past" (McGaugh and LePort 2014). That article opened with an excerpt from an e-mail that the author James McGaugh had received from a woman named Jill Price:

As I sit here trying to figure out where to begin explaining why I am writing you ... I just hope somehow you can help me. I am 34 years old, and since I was 11 I have had this unbelievable ability to recall my past ... I can take a date, between 197[6] and today, and tell you what day it falls on, what I was doing that day, and if anything of great importance ... occurred on that day I can describe that to you as well.

The authors, McGaugh and LePort, then extensively tested Price's recall. Her memory was eventually proved faulty in just one case—the day of the week of one of the previous 23 Easters (and Price happens to be Jewish). Along the way she "corrected the book of milestones for the date of the start of the Iran hostage crisis at the U.S. embassy in 1979". Moreover, during the tests she:

correctly recalled that Bing Crosby died at a golf course in Spain on 14 October 1977. When asked how she knew, she replied that when she was 11 years old, she heard the announcement of Crosby's death over the car radio when her mother was driving her to a soccer game.

Price appeared to demonstrate an "immediate recall of the day of the week for any date in her life after she was about 11 years old". Of additional note is that she also "has trouble remembering which of her keys go into which lock" and, moreover, "does not excel in memorizing facts by rote". The remainder of McGaugh and LePort's article included mention of their subsequent confirmation of hyperthymesia in about 50 people. Such memories were found to be "highly organized in that they are associated with a particular day and date" and they also occurred "naturally and without exertion". Interestingly, such memories could be analogous to those observed in some near-death experiences (Holden et al. 2009, p. 306).

For a relevant exercise here readers can pause and write down a year from the last decade. Next, one can write down a month and also a date within that month. In so doing, a calendar date that occurred in the last 10 years has been specified. Perhaps something like 11 April 2013. One can then try to figure out which day of the week that specified date occurred on (no need to attempt recalling the associated significant personal and global events). Even straightforward day-of-the-week recollection (or deciphering) seems quite implausible in a "naturally and without exertion" biological fashion.

That this behavioral capacity is untrained and effortless (and, thus, similar to instinctive behaviors) suggests that it is innate and, thus, an expression of DNA. That would imply that such people have a

specific DNA pattern that presumably fell out of our evolutionary history that facilitates effortlessly recalling their lives and significant events, in a date and day-of-the-week fashion. Although the article's authors acknowledge this situation, they did not begin to consider its extraordinary import. This could be a good introduction to the type of miracles ultimately expected of evolution and DNA (not to mention neural tissue). Such miracles would seem to be implausible even if the last decade and a half's worth of searching the human genomes for the origins of behaviors had been successful.

3. The Genetics' Breakthrough Treadmill

The first big public acknowledgment of genetic search difficulties came in 2008. At that time Duke University's geneticist David Goldstein was quoted regarding the outcome of the just completed, thorough (or "tour de force") comparisons between the million or so common genetic variations and the inheritance patterns associated with the occurrences of common complex diseases (which also overlap some into the behavioral domain) (Wade 2008). It was naturally expected that some of these common variations in our DNA blueprints would be correlated with the patterns of complex disease susceptibility (and also with other heritable distinctions). The accepted logic is of course that genotypes produce phenotypes. Yet, despite this, as Goldstein pointed out:

[a]fter doing comprehensive studies for common diseases, we can explain only a few percent of the genetic component of most of these traits. For schizophrenia and bipolar disorder, we get almost nothing; for Type 2 diabetes, 20 variants, but they explain only 2 to 3 percent of familial clustering, and so on.

Goldstein then added:

It's an astounding thing that we have cracked open the human genome and can look at the entire complement of common genetic variants, and what do we find? Almost nothing. That is absolutely beyond belief.

Note that "common" here implies that a given specific genetic variation is present in at least 5 percent of humans. This initial and very surprising result—which appeared to negate the common variants theory, in which commonly occurring differences in our DNA were hypothesized to be causally correlated with common variations in our experiences of complex diseases—should have garnered more attention.

That failure of the common variants theory was also reviewed in a 2010 *Scientific American* article, "Revolution Postponed" (Hall 2010). Another critical appraisal also came in 2010 when Jonathan Latham and Allison Wilson of the Ithaca, New York's Bioscience Resource Project pointed out that with few exceptions (including previously identified genes for cystic fibrosis, sickle cell anemia, and Huntington's disease; and also including genetic contributions for some instances of Alzheimer's and breast cancer):

according to the best available data, genetic predispositions (i.e., causes) have a negligible role in heart disease, cancer, stroke, autoimmune diseases, obesity, autism, Parkinson's disease, depression, schizophrenia and many other common mental and physical illnesses that are the major killers in Western countries. (Latham and Wilson 2010)

Latham and Wilson went on to ask (in italics) "[h]ow likely is it that a quantity of genetic variation that could only be called enormous (i.e., more than 90–95% of that for 80 human diseases) is all hiding in what until now [circa 2010] had been considered genetically unlikely places?". Furthermore, Latham and Wilson also suggested that "[b]y all rights then, reports of the GWA [genome wide assessments] results should have filled the front pages of every world newspaper for a week". That coverage did not happen.

Continuing, in a subsequent 2014 review article of another 'breakthrough' with regards to the genetics of intelligence (which purported to account for a possible 1 percent of the variation in our innate intelligence), *Scientific American's* John Horgan reflected back to a 2012 *Behavioral Genetics* editorial that had stated:

[t]he literature on candidate gene associations is full of reports that have not stood up to rigorous replication. This is the case both for straightforward main effects and for candidate gene-by-environment interactions . . . As a result the psychiatric and behavioral genetics literature has become confusing and it now seems likely that many of the published findings of the last decade are wrong or misleading and have not contributed to real advances in knowledge. (Horgan 2014)

This was another significant, but under-appreciated story.

More significant appraisals showed up in the aforementioned May 2017 *Scientific American* article, “Schizophrenia’s Unyielding Mysteries: Gene Studies Were Supposed to Reveal the Disorder’s Roots. That Didn’t Happen. Now Scientists Are Broadening the Search” (Balter 2017). The author, Michael Balter, described the big DNA search tool utilized, Genome Wide Assessment Studies (GWAS), as:

scan[ning] the entire genome for differences between the disease and control groups. [They] employ sophisticated statistical analyses to pick up even small increases in the number of specific genetic variants that might contribute to disease risk.

These searches carefully check for significant correlations between variable DNA segments and supposedly genetically influenced conditions, such as the occurrence of schizophrenia.

These schizophrenia-focused genetic searches as of 2017 involved a scientific armada consisting of over 800 researchers and considered DNA samples from more than 900,000 subjects. In one assessment, the aforementioned David Goldstein, currently director of Columbia University’s Institute for Genomic Medicine, commented that the C4 finding (a singular genetic discovery) and the associated possible insight for schizophrenia represents “the first time we have gotten what we wanted out of a GWAS.” “[T]he first time” is noteworthy given the extent of heritability searches. As for that C4 finding, it was challenged by one evolutionary genetics researcher, Kenneth Weiss of Pennsylvania State University, in stating—“[e]ven if the C4 story is right, it accounts for only a trivial amount of schizophrenia” and that its significance “is debatable”.

Furthermore, there was a subsequent genetic search development to consider. Starting in 2018, there was a sequence of apparently successful searches using a new approach. Tacitly acknowledging the limited (if any) findings from earlier efforts, some groups started analyzing larger data sets. The basic idea was that the missing genetic contributions were likely in such tiny doses that to detect significant overall genetic influence, it is necessary to look more fully at genomes and also utilize more individuals’ DNA. The requisite count of individuals was believed to be in the hundreds of thousands. The resulting processing then allows researchers to piece together a very large summation formula that can be used to predict the overall genetic contribution for an individual’s particular trait, given the specification of thousands of genetic variants for that individual. That genome-wide polygenic score (GPS) should then reflect the influence of many trait-associated, mostly minute, genetic contributions.

That such net genetic contributions would then be hiding amongst so many tiny contributors is surprising. The established genetic logic had been that some variations in our DNA code have significant effects and, thus, can be acted upon by natural selection. For some smoothly distributed characteristics like intelligence, though, it might then be assumed that a collection of something like 20 or so DNA variants might together be required to produce the trait’s smooth distribution. Another smoothly distributed trait is height and given that it is a variable feature shared with many species, perhaps there really are many relevant DNA contributors reflecting its general evolutionary origins. The genetic searches for the origins of variations in height in fact do seem to be finding a significant basis amongst many contributors (Lello et al. 2018). However, there is also a significant difference between physical characteristics like height and cognitive/psychological characteristics like intelligence. Consistent with genetic logic, the former are highly concordant amongst monozygotic twins, but the later show marked variations amongst those twins.

Continuing, what about seemingly focused and/or binary-like phenomena like classic (or serious) autism, exclusive homosexuality, and also the tendency to experience schizophrenia? A conceptual

challenge is that with many DNA contributors—plus a little bit of randomness (technically referred to as penetrance, which conceptually allows for the differences found between monozygotic twins)—you would expect very similar outcomes for genetic replicas (as is apparent with height). Randomness played out across many contributors should tend to have a weak net effect. To appreciate this, readers can contemplate where you tend to see more skewed outcomes—flipping a large number of coins versus flipping a few? Nonetheless, the many genetic contributors hypothesis is where the logic of some researchers has shifted in recent years.

Additionally, in big health data bases some traits are discrete and routinely recorded. One behavior-related example is educational attainment. If the databases also contain genetic scans, then together with the simple trait data there are opportunities to perform genetic analyses. It is also worth noting, though, that traits like educational attainment can be rather loose in their implications. A very wide range in educational accomplishment can be found with the nominal achievement of being a high school graduate (certainly true in the United States). Nonetheless, some groups have utilized GPSs to apparently identify genetic bases for educational attainment. Such studies claimed to have found genetic origins for roughly 10 percent of the variation in individuals' educational attainment (Lello et al. 2018; Lee et al. 2018; Allegrini et al. 2019; Plomin and von Stumm 2018). Furthermore, some of these studies also attempted to piggyback searches for the genetic origins of cognitive performance onto the educational attainment analysis (Lee et al. 2018; Allegrini et al. 2019; Plomin and von Stumm 2018). Because of correlations that have been observed between educational attainment and intelligence, it is believed that you can start to glean genetic estimates of IQ using educational attainment.

One possible source of errors with these large polygenic studies, though, is population stratification. Humans have, of course, been mostly aligned historically into separate groups. Over time such groups acquired their own particular DNA variants or markers (via mutations), which is how DNA-based individual histories can be created at companies like ancestry.com. Where this can present a hurdle is when geneticists are trying to differentiate people based on their genetic trait propensities. They obviously do not want to mistakenly declare simple genetic markers based on group history as being causally significant to a trait. One example in the literature is with regards to the ability to eat with chop sticks. Naively, researchers attempting to uncover some genetic determinants for such facility might inadvertently uncover genetic markers for having East Asian ancestry. Groups really can differ in their trait characteristics independently of any causal genetic basis and it turns out to be a tricky problem to normalize DNA search results by possible interference from such population stratification (Young 2019).

As it turned out, in fact, in 2019 serious complications with the polygenic score-based studies were encountered. Some earlier studies had attempted to uncover the evolutionary genetic dynamics underlying the fact that northern Europeans tend to be taller than southern Europeans. These initial analyses appeared to be successful in identifying genetic contributors. Two later works, in applying those findings to the larger and more homogenous UK Biobank data set, though, did not corroborate this (Berg et al. 2019; Sohail et al. 2019). The new data set produced slightly different estimates for the contributions of the many genetic variants (which ultimately get plugged into the GPS formula) than those found in the earlier studies. When subsequently run through the GPS algorithm, those adjusted variant scores produced overall height predictions, which contradicted those of the earlier studies. In particular, they contradicted the claimed genetic basis for northern Europe's taller populations. One of the papers pointed out that the small, presumed genetic contributors, which constitute:

large numbers of [variants] below genome-wide [statistical] significance are extremely sensitive to biases due to uncorrected population stratification. More generally, our results imply the typical constructions of polygenic scores are sensitive to population stratification (Sohail et al. 2019)

Based on these two contradictory study findings, an April 2019 *Genomics* article, "New Turmoil Predicting the Effects of Genes" was produced (Cepelewicz 2019). That article's conclusion suggested

that the polygenic successes thus far had been unknowingly distorted by complications including population stratification. One researcher, Nick Barton of the Institute of Science and Technology Austria, said:

[t]he whole thing is tricky, because the origins of genetic variation in any population are really complicated. Now you really can't take at face value any of these methods over the last four or five years that use polygenic scores.

One researcher, Shamil Sunyaev of Harvard Medical School, commented that “no one realized how big of a problem” the population stratification phenomena was. Another researcher commented that “[i]t's fairly humbling to see all of that work go away”.

Furthermore, with the educational attainment trait the analyses would appear to be quite susceptible to these stratification issues. Having tutored refugees for years, I can strongly attest to significant differences in cultures with regards to their emphases on education. Coupling those differences with the presumed existence of associated group genetic markers and you have a recipe for stratification interference. More significantly, though, there are underlying individual cognitive performance differences, and those differences should have some significant DNA origins whose discovery is overdue.

In reviewing the recent polygenic score situation, the work of a retired psychiatrist, Steve Pittelli (Pittelli 2018, 2020) was encountered (the aforementioned Jonathan Latham had pointed out Pittelli's work along with Cepelewicz's article). Pittelli has apparently spent years following the genetic revolution from the field of psychiatry. He claims to have spent that time observing the cycle of genetic breakthroughs. One publicized breakthrough followed by another, with little mention of their contradictions and discontinuity. Significantly, this cycle, I think, has provided a superficial veneer of success for genetics. In the world of psychiatry, Pittelli observed that the promise of genetics was largely uncritically accepted and this markedly displaced other aspects of the field's work. In another critical assessment, this by Stanford's Tanya Marie Luhrmann, the genetics-based vision of mental illness was identified to as the “bio-bio-bio model” (Luhrmann 2012). This biology-oriented approach had focused on mental illness as expressions of a “brain lesion, [with a] genetic cause, and [an associated] pharmacological cure”. This is appropriate from the materialist perspective.

Pittelli had, in a nicely written essay in the journal *Logos*, nominally focused on reviewing Robert Plomin's book *Blueprint: How DNA Makes Us Who We Are*, which covered a sizable chunk of the contemporary behavioral genetics impasse (Pittelli 2018). Pittelli's coverage is not akin to the somewhat routine efforts to brace against genetic determinism (i.e., ‘it is not all in the genes!’), which even geneticists now seem to regularly embrace. Pittelli bothered to follow the cycle of contradictory breakthroughs to their probable conclusion—DNA is striking out as a cognitive prediction vehicle, in particular in the area of mental health.

Moving along to a practical point here, it is worth noting that it appears that traditional approaches to episodes of schizophrenia seem to work better than the contemporary materialist-based approaches. As the aforementioned article by Tanya Luhrmann pointed out, “[s]chizophrenia has a more benign course and outcome in the developing world”. She also touched on the underlying downside of science's bio-robotic vision (aptly captured in the title of an April 2010 *Scientific American* article, “Faulty Circuits”). In our country, people with schizophrenia commonly spend a lot of time homeless in part because, “[t]hey dislike the diagnosis even more than the idea of being out on the street, because for them the idea of being ‘crazy’” is worse. Luhrmann also wrote that “Indian families don't treat people with schizophrenia as if they have a soul-destroying illness.”

In reviewing the heritability situation here, one additional study is worthy of consideration. This study reflected on another polygenic score effort trying to make DNA sense with regards to the occurrences of homosexual sex. This study and its findings were described in a *New York Times* article by Pam Bullock, “Many Genes Influence Same-Sex Sexuality, Not a Single ‘Gay Gene’” (Bullock 2019). Moreover, an accompanying article, “What Genetics Is Teaching Us About Sexuality”, by two relevant researchers,

one of whom was involved with the research project (Phelps and Wedow 2019). Those researchers were biologist Steven M. Phelps of the University of Texas at Austin, and a project researcher, sociologist, and geneticist Robbee Wedow of M.I.T and Harvard. Both of these men are gay and, thus, likely had some personal interest in the findings.

It had been a carefully done study and as Bullock's article pointed out, "[e]xperts widely agree that the research was conducted by first-rate scientists". The researchers not only plunged into the requisite scientific (mostly statistical) analyses, they also apparently labored intensively to put together a sensitive presentation of their findings. It was also mentioned that trans individuals were excluded from the study. As provided in the Bullock article, the principal finding of the sexuality study, which was based on almost a half a million individual behavioral reports paired with genomes (thus making it the largest of its kind), was that:

genetics does play a role, responsible for perhaps a third of the influence on whether someone has same-sex sex. The influence comes not from one gene but many, each with a tiny effect—and the rest of the explanation includes social and environmental factors—making it impossible to use genes [alone] to predict someone's sexuality.

This loose explanation was seconded in the Phelps and Wedow article, which stated that, "while biology shapes our most intimate selves, it does so in tandem with our personal histories—with idiosyncratic selves that unfold in larger cultural and social context".

Loose as these findings might appear, this investigation was essentially billed as a success. It seems rather ambiguous, though, with its stated conclusion describing many genes, "each with a tiny effect". The *New York Times'* comments (and for brevity the Reader Picks) accompanying these articles were revealing. First, as appears common, many *Times'* readers apparently nod their heads to scientific findings. Additionally, though, there was a critical theme running through some of the comments to the effect that 'enough with the sensitivities, just give us the facts!' The sensitivity gauntlets that had to be run through before investigating and then communicating the findings had really bothered some readers.

However, the really significant content was found in some frank points made in the Reader Picks comments for the Phelps and Wedow article. One of these read:

[t]his research clearly shows that there is no straight answer—pun unintended. If looking into the DNA of 500,000 people didn't help, what will?

Another reader got a bit animated:

[l]ess than 1% of variation!

I almost choked on my pork and beans when I read that.

Less than 1% of variation is risible, not even the beginnings of understanding the phenomenon.

Dudes, get back to us if and when you have something to report.

I appreciated the frankness of this comment, but must now let the findings as given in Bullock's article speak for themselves. After some generalities the article reported that:

[r]esearchers specifically identified five genetic variants present in people's genomes that appear to be involved. Those five comprise less than 1 percent of the [inferred] genetic influences, they said.

And when the scientists tried to use genetic markers to predict how people in unrelated data sets reported their sexual behavior, it turned out to be too little genetic information to allow prediction.

“Because we expect the sum of the effects that we observe will vary as a function of society and over time, it will be basically impossible to predict one’s sexual activity or orientation just from genetics,” said Andrea Ganna, the study’s first author, whose affiliations include the Institute of Molecular Medicine in Finland.

The final bit regarding varying over time and societal aspects appears to be a rationalization. In fact, the “Dudes”-comment accurately pointed out that they really did not find anything. For additional context, though, the same commenter also asserted a mocking “[h]ello, all behavior is influenced by DNA”. To the contrary, though, are there any analogous behavioral genetic studies that have credibly identified some DNA origins?

Now, a possible reason they did not find anything is because they chose too subtle of a characteristic. They were looking for a DNA connection to those who had answered affirmatively to the question about “whether [one had] ever had sex with a same-sex partner, even once”. However, is it realistic to expect a significant genetic connection with this? Likewise, geneticists might expect to find some kind of DNA basis for a person being a liberal versus being a conservative. However, is it also reasonable to expect a connection for crossing over ideologies (or parties) in a single case? The real backdrop of failure here is that they have not already identified significant DNA contributors for those with reversed sexual orientation (i.e., those “born this way”). Such contributions certainly are supposed to exist in order to provide the basis for the transformed orientations. As the Steven Pinker quote previously pointed out, we should not be “forced to concede ‘It just is’ or ‘It’s magic’ or ‘Because I said so’”. Such transformations ultimately should make DNA sense.

By looking at about a half million behavioral reports and the associated genomes, their study should certainly have uncovered statistical blip(s) reflecting the very high likelihood that individuals with innate homosexual-engendering DNA would have reported same-sex sex. There could be different DNA specifications corresponding to the female and male reverse sexual orientations, but nonetheless the born-this-way blips should have been observed.

Continuing, the Bullock article mentions possible overlap with the genetics of mental illnesses including schizophrenia. The nominal success of their genetic investigation into same-sex sex was thus found to have overlap with the nominal success of the genetics of mental illnesses. This, not surprisingly, prompted some sensitive commentary. However, it simply highlights the real crisis facing genetics and with it the scientific understanding of life—they cannot find significant DNA connections for these phenomena. The undercurrent of the article relates to their efforts to be sensitive about the possible ramifications of their genetic findings for homosexuality, when in fact a substantial tension going on relates to their inability to find anything. These researchers must want to find something, if only to experience some gratification and also vindicate the basis of their profession.

4. Mulling over the Heritability Impasse

Given the unfolding failure to find DNA origins for so many human behavioral tendencies, this certainly suggests that DNA is failing in its “language of life” role. An analogous situation has unfolded for many disease susceptibilities. At the same time, though, there are some well established DNA origins, in particular for a number of particular disorders and physical features. In addition to some relatively common conditions, such as sickle cell anemia, there are, as James D. Watson et al. pointed out, “vast numbers of single-gene disorders—the current genetic disease database lists several thousand—but the majority are extremely rare, each occurring in just a few families” (Watson et al. 2017). So the existing DNA-heritability situation might be outlined as sporadic successes set against apparent broad failures.

This suggests that either the broad heritability failures represent big flaws in genetic analyses, or that those failures accurately capture the limited functioning of DNA. These two outcomes would correspond to significant experimental and theoretical problems facing genetics, respectively.

As a result of the extent of the heritability deficit, I suggest that this is much more likely a theoretical impasse. The significance of such a failure is enormous and in particular suggests openings for alternative understandings of life. This point will be reinforced later via considering some

behavioral enigmas. Since much of the foundation for modern intellectual vision appears to have been inherited from the materialist vision of science (and in particular physics), this impasse could be of considerable interest. As a simple relevant example, without a DNA basis for many human behavioral tendencies, the traditional arguments in support of genetic determinism, along with the associated denial of free will and a self, are undermined. Long braced-against religious theories might in fact find traction in this situation. Two associated traditional nonmaterialist possibilities are top-down or God-based contributions, and bottom-up or soul-based contributions. Respective nonmaterialist dynamics impacting life and evolution might then entail an external entity (or entities) steering the processes in some way, and/or some forms of underlying continuity playing out between sequential lives.

Another important point here is that religious and/or paranormal-based understandings of phenomena, really appear to need to integrate their hypotheses within an evolutionary framework. The existing framework is of course undirected physics, and the fact that higher intelligence fell out of it was by no means a given. In Steven Pinker's *How the Mind Works*, there is fine discussion of how people—even highly educated people like physicists involved with the NASA's Search of Extraterrestrial Intelligence (SETI) project—tend to greatly overestimate the likelihood of evolution producing higher intelligence (Pinker 1997, pp. 150–55). Pinker mentioned that the biologist Ernst Mayr had pointed out to the astronomer and determined SETI-ist Frank Drake, that only “one of the fifty million species on earth had developed civilizations”.

Steven Pinker went on to make that claim that:

[t]he fallacy that intelligence is some exalted ambition of evolution is part of the same fallacy that treats it as a divine essence or wonder tissue or an all-encompassing mathematical principle. The mind is an organ, a biological gadget. We have our minds because their design attains outcomes whose benefits outweighed the costs in the lives of Plio-Pleistocene African primates.

With this evolutionary perspective, how can one possibly make sense of the existence of some deeper elements in life, whether they are consistent with religious perspectives or simply paranormal phenomena? With regards to his reincarnation research efforts, the late researcher Ian Stevenson suggested that reincarnation phenomena could be a third element of life, in addition to the nature plus nurture pair. I think of this suggestion as implying that the reincarnation process—including a soul (or Stevenson's psychophore)—somehow piggybacked on the evolution-defined material-only phenomena.

However, how does this ultimately relate to us? Readers might wonder where they would be now if in fact the unlikely outcome of intelligent life had not happened? What if the ceiling on intelligent lifeforms on Earth had in fact turned out to be in the vicinity of simple worms like nematodes? The point here is that if religious supporters simply acquiesce to the materialist evolutionary vision then that leaves them requiring two apparent miracles. One, that intelligent life somehow fell out of the physics-only biological history, and two, that the additional deeper content—hopefully involving souls—somehow merged with physical life. While the latter process might conceivably have happened within a range of other species, its meaningful fruition seems to require higher intelligence.

Alternatively, modern nondualist alternatives have also been suggested. (Note that I am using dualism here in a crude sense, as implying there is something more to us than the physics-driven phenomena of materialism). The previously cited researchers, Jonathan Latham and Allison Wilson, suggested an environmental basis for nominally inherited characteristics (Latham and Wilson 2010). Their focus appeared to be in the health and disease areas. I wonder if their location—Ithaca, New York—contributes to their preference for an environmental explanation. Ithaca happens to be the home of Cornell University and with it their prominent proponent of the health benefits associated with a plant-based diet, T. Colin Campbell. For brevity here, though, I prefer to sidestep possible environmental contributions to disease, and instead consider behavioral differences. Does anyone really think that the enormous variations we can observe in human behavioral tendencies does not

involve significant innate factors? To appreciate this, one might simply look at the variations found amongst siblings and then try to deny innate contributions. Those innate distinctions (or particular characteristics) are supposed to have DNA origins.

Another alternative nondualist explanation for the missing heritability problem comes from Rupert Sheldrake, the biologist and ex-communicated academic. He feels that the plausibility of a complete basis for inheritance via DNA was never realistic. From the enormous complexity represented in realizing the functional shaping of proteins, and then further with the immense complexity of biological cells, Sheldrake builds on earlier work suggesting organisms' need for morphogenic or information fields (Sheldrake 2012a). After discussing some of the complexity involved in realizing the functional shape of the small bio-molecule ribonuclease (out of over 10^{40} possible shapes!), Sheldrake went on to introduce the field-based approach:

[r]andom [linear] molecular permutations [of DNA] simply cannot explain how organisms work. Instead, cells, tissues and organs develop in a modular manner, shaped by morphogenetic fields, first recognized [or hypothesized] by developmental biologists in the 1920s. (Sheldrake 2009)

The idea here is that there are some additional physical fields that somehow channel the developing embryo towards an endpoint of that organism's functional form (and also more subtly, the corresponding behavioral patterns). Thus, DNA is claimed to only provide linear molecular recipes for organisms' proteins, whilst morphogenetic fields are claimed to shape those ingredients into functioning organisms.

If readers want to nitpick they might argue that Sheldrake's approach represents a break from materialism. The morphogenetic fields he is advocating are not recognized by contemporary physics and in that sense they violate materialism (or physicalism). However, those fields seem to simply represent an additional layer of physics hypothesized to help define the phenomena of life. Thus, as living beings we would be expressions of more complex physics than currently recognized. Nonetheless, though, the basic features of materialism including determinism, would seem to be preserved.

Sheldrake's work is very interesting, but there appears to be substantial behavioral challenges for its morphogenic inheritance explanation. Somehow then, the variations in innate behaviors around us were somehow transmitted via morphogenic fields. Those fields would then communicate the behavioral patterns of earlier and/or concurrent individuals in a subtle way (perhaps radio waves offers the beginnings of a crude analogy). Sheldrake goes to some lengths to suggest that the incredible similarities noted amongst monozygotic twins, in particular those who were raised separately, could not simply be the result of genes. He wrote:

morphic resonance between [monozygotic twins] will be exceptionally specific and stronger than that between any other pairs of humans. As a result, patterns of activity, beliefs, habits, or health patterns in one are likely to influence the other. Therefore, many of the remarkable similarities between identical twins may depend on morphic resonance rather than genes. (Sheldrake 2012a, p. 180)

The idea here is that morphogenetic fields are likely required to explain some of twins' amazing similarities, such as when two separated-at-birth twins were both found to live in "the only house on the block, with a white bench around a back tree in the backyard; both were interested in stock car racing; both had elaborate workshops where they made miniature picnic tables or miniature rocking chairs" (Sheldrake 2012a, p. 179).

Steven Pinker also gives examples of some very specific behaviors shared by monozygotic twins who were raised separately (Pinker 1997, p. 20). Not surprisingly, he did this as evidence for genetic determinism. James D. Watson, on the other hand, suggested that such shared behaviors more likely represent coincidences. Watson offered an example in that he and his two (unrelated) coauthors have all owned Volvo station wagons (Watson et al. 2017, pp. 378–79).

The real puzzle, though, which monozygotic twins represent for genetics and any alternative explanation, is the scale of their differences. The fact that their appearances are typically so similar

makes genetics sense (conceivably furthered by something akin to morphogenetic resonance). The fact that they are so wholesale different in a behavioral sense does not, and, thus, the same Steven Pinker can acknowledge that “something is happening here but we don’t know what it is” (Pinker 2002, p. 380). This mystery is well established in psychology (and thus should have tempered Pinker’s ultimate endorsement of genetic determinism) and moreover is readily apparent in person. In an effort to address this mystery, the researcher Judith R. Harris wrote the book *No Two Alike* (Harris 2006) and appropriately opened it with the aforementioned differences between conjoined monozygotic twins. Such differences are perhaps not surprising given the differences observable between monozygotic twins in general, whether they were raised together or (rarely) apart. How this can happen given the assumptions of genetics is a real mystery. How this can happen when morphogenetic fields are supposed to make them even more similar should be of interest to Sheldrake.

Now, for some perspectives on the contemporary societal sway of genetics I turn to the 2016 book by Siddhartha Mukherjee, *The Gene: An Intimate History* (Mukherjee 2016). A professional reviewer wrote with regards to Siddhartha Mukherjee’s genetics book:

[This] is a book we should all read. I shook my head countless times while devouring it, wondering how the author—a brilliant physician, scientist, writer, and Rhodes Scholar could possibly possess so many unique talents. When I closed the book for the final time, I had the answer: must be in the genes. (McCarthy 2016)

The Gene is in fact a seriously flawed book, both in its faithful message—“we know [our future is] . . . in our genes” and in its excessive novelistic style (which probably accounted for the limited endorsement by scientists). With the possible exception of a paragraph on page 487, at no point does the book hint at the decade-long, “absolutely beyond belief” failures in genomic searches. While reading reviews for *The Gene*, including approximately 500 customer reviews at Amazon, I could not find a single reviewer that questioned the loose logic of genetics or comment on the status of the DNA searches.

Furthermore, Mukherjee’s book clearly captured the materialist gist of genetics. It is also of note that Mukherjee made a point of predicting success for the genomic searches by “the end of the decade”. Throughout my 2019 checks, readers seemed oblivious to this prediction. One of the 5 star reviews nicely captured the common tendency towards science-awed rapture, “[a] Majestic and brilliant work, beautifully written, and informative, and evocative”. A number of the other 2019 reviews are simply over-the top nonsense with such titles as “The most fascinating book that I’ve ever read”, “A must read”, “Providential read!”, and “Became my favorite book”. If readers want a quick tour of the prominent footprint associated with faith in the scientific vision, then you might read some of those reviews. Questioning the contemporary scientific vision of life is for the most part not happening, and instead simply applauding it appears to be a strong tendency (at least for the educated). Note that this vision relates to stuff very close to home (ourselves), not some remote esoteric phenomena like that found in fields like physics and astronomy, which are inherently difficult to grasp for outsiders (as well as insiders).

If people are unwilling to question the scientific vision of life they are also likely whittling down their vision of themselves with it a rational basis for consideration of deeper religious perspectives.

5. Crazy Behaviors—Some Taboo Phenomena

Continuing here with some extraordinary behavioral challenges to materialism, and with it genetics. The initial examples include some paranormal reports and then later some unusual but accepted behavioral challenges. The inclusion of paranormal reports here is in part to protest the inappropriate removal of such investigations from academic consideration. A basic point here is to highlight the degree to which science has maintained a blind eye to conundrums facing materialism and with it, genetics.

I begin with a few paranormal examples for the most part based on material in Elizabeth L. Mayer’s fine *Extraordinary Knowing* (Mayer 2007). There are many other worthy sources available, but I found

Mayer's book to be particularly straightforward and general. A sampling of other established efforts include investigations of extrasensory perception (Tart 2009; Radin 2018); possible cases of reincarnation (Stevenson 1997, 2000; Tucker 2005, 2015; Weiss 1988); near-death experiences (Holden et al. 2009; Alexander 2012); the totality of psychological challenges as chronicled in a thorough academic text like *Irreducible Mind* (Kelly et al. 2007); and finally more broadly-based challenges as described in Sheldrake's *Science Set Free: 10 Paths to New Discovery* (Sheldrake 2012b).

Elizabeth Mayer's regular work had included positions in the psychiatry department at the University of California Medical Center, San Francisco, and also as an associate clinical professor of psychology at the University of California at Berkeley. Her book resulted from her investigations into paranormal phenomena after an initial remarkable experience involving some help she received in retrieving her daughter's stolen harp. This had entailed phoning a man in Arkansas; then sending him a map of Oakland, California; and then subsequently being told the location of the stolen harp.

Several of Mayer's personal experiences were with psychics (or intuitives). After her over-the-phone success in locating her daughter's harp, Mayer wanted to check out other individuals with purported psychic skills. As a result, she phoned a woman in Cape Cod, Massachusetts, Deb Mangelus. After giving Mangelus only her first name, Mayer then held back any additional information. Mangelus, though, after a brief pause started into some commentary:

"[y]ou're in the middle of a decision. There are two woman involved. They're very different. One is fiery, playful, someone you can always have fun with. She has trouble with words. Maybe she's not always reliable. Fire is a big part of the image; I see the two of you holding hands around a campfire." She pauses. "The other woman is different—really different. She's very responsible. Dutiful. Orderly. The funniest thing is happening. . . . I keep seeing her hands and they're clasped in her lap. I simply can't get her to unclasp her hands." (Mayer 2007, pp. 43–44)

This commentary really jolted Elizabeth Mayer. She had in fact been struggling with a hiring decision. It came down to two female candidates for a managing director position of an arts organization. Here is some of Mayer's subsequent reflective follow-up:

[Mangelus's] description of each woman struck me as unbelievably accurate. I'd liked the first woman a lot. She seemed like she would be enormous fun to work with, though her writing samples were terrible and I wondered how she'd handle details. I'd been less drawn to the other woman. She seemed great on details, but I doubted if she ever got excited about what she was doing. She struck me as boring. Even more to the point was this: The second woman had managed to sit through our entire two-hour interview holding her hands firmly clasped in her lap. At the time I had repeatedly wondered to myself, "How can anyone possibly keep her hands so solidly clasped for so long?" (Mayer 2007, p. 44)

Additionally, Mayer pointed out that the enthusiastic woman had such pronounced red hair that as she exited the interview Mayer had joked to her, "Now I know what fiery red hair really means!"

These kinds of experiences amazed Mayer and she repeatedly asserted in her book that, "this changes everything". It certainly strains any conceivable molecular-only based explanation, but "everything" seems excessive beginning with the possibility that such apparent psychic insights may not have helped Mayer much (including with her hiring decision). Nonetheless, Mayer went on to conclude that the intuitive Mangelus, despite telling her "nothing or as close to nothing as I could consciously manage", would reveal insight into her life:

that made me feel that she saw my life with a clarity my closest friends couldn't match, things I knew but hadn't yet recognized that I knew. They rang extraordinarily true and were also extraordinarily important. She pinpointed the central dilemmas, choices, situations, and desires in my life. [She] was somehow breaking every mold I recognized about how people achieve insight about themselves. She *knew* me. And I couldn't begin to explain how. (Mayer 2007, pp. 44–45)

Moving ahead to one more of Mayer's interactions, which was with a psychic named John Huddleston. Huddleston offered Mayer some of his impressions of her family. Mayer wrote about Huddleston's commentary, "I told John that he had been right on a lot of things, but was totally off the mark about one person". Of that person Mayer wrote, "[i]t was simply impossible that this person would do what John told me he'd been doing". Huddleston, though, responded in a "relaxed and easy fashion" that "he could sometimes be wrong", but, "he'd stick to his guns on this one". Mayer went on to write:

[t]welve days later, I received the news. Everything that John had told me turned out to be accurate. I was as stunned as the rest of the family—but they didn't have to contend with the fact that someone had told me all about it twelve days earlier. (Mayer 2007, p. 51)

Another remarkable insight that suggests that at least some people—perhaps a very small minority and under certain circumstances—can intuit information in ways that defy the scientific assumptions.

Another notable feature in Mayer's coverage is her presentation of explanations provided by psychics on their abilities. They appeared humble and matter of fact about the subtle state they felt facilitates their intuitive insights. Inaccuracies were acknowledged as possible. Huddleston's explanation stood out in part for its optimism. He said of his mind state:

"relaxed focus, that is the best way to describe it. There's calm, clarity, and a receptive quality. There's also a physical component, and by that I mean I'm physically centered and grounded within myself, not drifty and discorporate. I'm in communication with the client, the barriers are down, and they are very easy to see, but I don't merge with them in order to read them. This is not an out-of-body experience, in fact my state of mind is surprisingly down to earth and ordinary. (Mayer 2007, pp. 51–52)

Huddleston went on to add that psychic readings are "surprisingly ordinary" and add "[i]n fact most people use aspects of this state of mind in their daily lives without realizing it". However, if this were true it would seem likely that such phenomena would be self-evident. These really do appear to be rare and remarkable occurrences.

A different type of paranormal phenomenon also presented in *Extraordinary Knowing*, was that of remote viewing. Remote viewing entails the ability to observe a remote location without utilizing normal means. The remote viewing work Mayer considered was done at Stanford Research Institute (SRI) and it had been initiated in the aftermath of a visit to SRI by an artist and psychic, Ingo Swann. During that visit, Swann had remotely manipulated a shielded magnetometer instrument. That instrument was located "in a vault below the floor of the building and [was] shielded by mu-metal shielding, an aluminum container, copper shielding, and a superconducting shield." Swann had also managed to remote view and draw the interior of that vault. His drawing was a "reasonable facsimile of [the vault's] rather complex (and heretofore unpublished) construction." It was that remote viewing demonstration that helped establish some funded parapsychology research work at SRI. That funding ultimately totaled 20 million dollars for 24 years worth of work. The funding initially came from the Central Intelligence Agency (CIA) (Mayer 2007, p. 106).

Some of the remote viewing experiments as one physicist put it, "were anything but ordinary and [they] just blew our minds" (Mayer 2007, p. 108). One example involved a remote viewing exercise that seemingly failed in a big way. Geographical coordinates had been given separately to two men (Swann and a retired policeman, Pat Price) and those coordinates corresponded to a mundane rural location. The viewers, though, went on to independently discuss an elaborate, nearby underground facility (which they had assumed was the actual viewing target). As it turned out, the SRI people subsequently found out from the CIA that right next to the given coordinates was a "highly sensitive underground government installation". One of the viewers even got the name of the classified facility correct.

Another remote viewing example was intelligence-inspired and involved a recruit from the ranks of the U.S. Army Intelligence and Security Command, Joe McMoneagle. McMoneagle had been quite

successful in his military career and was judged to have good potential as a remote viewer. That assessment seemed accurate as Joe McMoneagle in his new intelligence career managed to “produce masses of data that were really hot and totally inexplicable by ordinary means” (Mayer 2007, p. 116).

One demonstration of McMoneagle’s abilities involved some coordinates in the Soviet Union. Those coordinates unbeknownst to McMoneagle were where an enormous building was located. That building, seemingly in the middle of nowhere, had come to the attention of U.S. intelligence officials. McMoneagle’s:

immediate response was that [the coordinates] identified a very cold wasteland with an extremely large industrial-looking building that had enormous smokestacks, not far from a sea covered with thick cap of ice. (Mayer 2007, p. 116)

The location was later identified as Severodvinsk on the White Sea. After noting his initial success, the investigators gave McMoneagle a surveillance photo of the big building and asked him to try to see inside the building. Here is an excerpt from McMoneagle’s retrospective account:

I spent some time relaxing and emptying my mind. Then with my eyes closed, I imagined myself drifting down into the building, passing downwards through its roof. What I found was mind-blowing. The building was easily the size of two or three huge shopping centers, all under a single roof . . .

In giant bays between the walls were what looked like cigars of different sizes, sitting in gigantic racks. . . . Thick mazes of scaffolding and interlocking steel pipes were everywhere. Within these were what appeared to be two huge cylinders being welded side to side, and I had an overwhelming sense that this was a submarine, a really big one, with two hulls. (Mayer 2007, pp. 116–17)

At the time, the US intelligence community’s consensus was that the Soviets were building a new type of assault ship there. After describing some additional observations, McMoneagle added:

I did a detailed drawing of the submarine, adding dimensions, as well as noting the canted[/slanted] [ballistic missile] tubes, indicating eighteen to twenty in all. (Mayer 2007, p. 117)

Somehow McMoneagle even offered a launch date (January) for the submarine.

Together, such examples appear to represent sincere reports of “extraordinary knowing”. In another analogous book, *An End to Upside Down Thinking: Dispelling the Myth That the Brain Produces Consciousness, and the Implications for Everyday Life*, the author Mark Gober provided some additional remote viewing examples (Gober 2018). Gober also included some declassified official U.S. government assessments with regards to the remote viewing work. In one of these documents, a science panel consisting of Dr. Donald M. Kerr (Director of Los Alamos National Laboratory), Dr. Fred Zacharison (physics professor at California Institute of Technology), and W. Ross Adey (Chief of Staff, Research Division, Veterans Administration Hospital) produced a “Principal Findings” document stating (in capital letters) that:

IMPLICATIONS ARE REVOLUTIONARY

MERITS CONTINUED FUNDING IN THE NATIONAL INTEREST

EVIDENCE TOO IMPRESSIVE TO DISMISS AS MERE COINCIDENCE

LACK OF PHYSICAL MODEL DOES NOT PRECLUDE EXISTENCE

INITIATE A FIVE-TO-TEN YEAR PROGRAM

INVOLVE ADDITIONAL LABS. (Gober 2018, pp. 71–72)

Another official supportive conclusion came from the prominent physicist Freeman Dyson, and was given in the preface of *Extraordinary Knowing*. There he wrote that, “ESP is real but belongs to a mental universe that is too fluid and evanescent to fit within the rigid protocols of controlled scientific testing” (Mayer 2007, p. xi). These phenomena are perhaps very rare, essentially ignored by scientists, and reflexively dismissed if not laughed at by nominal skeptics; but they strongly suggest that on occasion, human consciousness can include some very mysterious abilities. Such abilities certainly seem implausible from a DNA-based evolutionary perspective.

An additional striking, but little known, phenomenon, terminal lucidity, is noteworthy (Bering 2014). This was succinctly reported on in a *Scientific American* blog entry by Jesse Bering. Bering quoted an initial investigator; the German biologist Michael Nahm, in saying that terminal lucidity involves the return of:

normal or unusually enhanced mental abilities in dull, unconscious, or mentally ill patients shortly before death, including considerable elevation of mood and spiritual affectation, or the ability to speak in a previously unusual spiritualized and elated manner.

The clinical examples offered were extraordinary in that they included patients who had been “gone” for long periods, including “one man who had been completely catatonic for nearly 2 decades”, but somehow snapped out of it to display a normal-like and sometimes “spiritualized and elate[d]” disposition in the end. One stunning documented case involved a young German woman, Kathe Elmer, who was severely impaired her whole life. In fact, she was so retarded that she had never spoken a word and showed little regard for her environment. Yet, somehow amidst a very difficult demise Elmer was observed by a number of individuals including the asylum director, Friedrich Happich, as singing:

dying songs to herself. Specifically, she sang over and over again, “Where does the soul find its home, its peace? Peace, peace, heavenly peace!” For half an hour she sang. Her face, up to then so stultified, was transfigured and spiritualized. Then she quietly passed away.

What can you do with this from a scientific perspective?

To his credit Jesse Bering—with a job in psychology and at one point a blog at *Scientific American*—wrote in an understated fashion that, “on face value, one has to admit that the story of Kathe Ehmer is something of a puzzle”. Bering had some personal motivation in this matter, though, since he had been with his dying mother who had managed “five minutes of perfect communion with me when, ostensibly, all her cognitive functions were already lost”.

This phenomena appear consistent with the existence of a deeper-self or soul. The existence of a coherent presence from a severely mentally-handicapped individual suggests some form of an independent, nonphysical consciousness.

Furthermore, it is unfair and unfortunate that the paranormal realm has been effectively blocked off by science. Religious people trying to find support for—and also challenges to—their own beliefs should also consider some paranormal reports.

6. Some Accepted Behavioral Conundrums

There are also formidable challenges to genetics and materialism from accepted phenomena. Some of my earlier writings included two examples of this variety. One involved the apparently normal functioning of individuals for whom their hydrocephalus condition had greatly reduced the volume of their brain tissue (Lewin 1980). The associated brain researcher, John Lorber, was stunned to find that a number of such individuals appeared to have only approximately 5 percent of normal brain volume, yet somehow they appeared to function normally.

The second previous example involved a musical prodigy who apparently had innate inclinations—and even skills—with regards to playing the cello and also composing music (Treffert 2010, pp. 55–56). It is very difficult to imagine such prodigal behaviors falling out of a nature-plus-nurture framework with the requisite DNA origins. In Darold Treffert’s book, *Islands of Genius*, there are a number of similar examples, which contributed to his conclusion that prodigal behavior typically involves “know[ing] things [that were] never learned”.

Herein I look at some examples of musical prodigies, beginning with the Russian classical pianist Evgeny Kissin. Kissin's mom and dad were respectively a piano teacher and an engineer, and, moreover, they were living in Moscow in a style that might be characterized as Soviet Jewish Intelligentsia. They had initially assumed that Evgeny's sister, Alla, would follow her mom and play the piano, while Evgeny (or Zhenya) would go the engineering route like his father. At eleven months, though, the boy managed to sing an entire Bach fugue after listening to Alla practice it. Thereafter, Evgeny pursued singing in response to just about "everything he heard". This was so relentless that his mother became quite concerned about it.

Then, at twenty-six months, Evgeny made his appearance at the piano. He:

sat down at the piano and with one finger picked out some of the tunes he had been singing. The next day he did the same, and on the third day he played with both hands, using all of his fingers. He would listen to LPs and immediately play back the music. "Chopin's ballades, he would play with those little hands, and Beethoven sonatas, Liszt's rhapsodies," [his mom reported]. At three, he began improvising. He especially liked to make musical portraits of people. (Solomon 2012, p. 408)

He liked to quiz his family on these portraits.

Kissin displayed exceptional skills early and eventually that led his reluctant piano teaching-mother to take him to a prominent piano teacher at the famous Gnessin State Musical College in Moscow. There, at age 5, the teacher, Anna Pavlovna Kantor, would later report that:

I saw a light in him. Without knowing how to read music or the name of notes, he played everything. I asked him to translate a story into music. I said we were coming into a dark forest, full of wild animals, very scary, and then step by step the sun rises, and the birds start singing. He began in the piano's lower register, in a dark and dangerous place, and then, lighter and lighter, the birds awakening, the first rays of the sun, and finally a delightful, almost ecstatic melody, his hands running along the keys. I didn't want to teach him. Such imagination can be very fragile. (Solomon 2012, p. 408)

At age 7 he began to write down his compositions. Zhenya would later state that, "[w]hen I would return from school, I would, without taking my coat off, go to the piano and play", and, "I made my mother understand that that this was just what I needed" (Solomon 2012, p. 409).

His development was extraordinary and certainly would seem to have been in large part innate. Is it realistic to think that DNA could be behind young Zhenya's musical inclinations and aptitude? For context, our mental adaptations have been described as supposedly being fallout from natural selection, in particular, as it operated within, "the small foraging bands in which our [species] spent ninety-nine percent of its existence" (Pinker 1997, p. 207). In effect, those adaptations should have been shaped as a result of our having been on "a camping trip that never end[ed]" (Pinker 1997, p. 188).

A prodigy of historical note was the remarkable musical savant, Thomas Bethune, or Blind Tom (Treffert 2010, pp. 87–92). Born in 1849 as the son of the slaves Charity and Domingo Wiggins, he and his parents were sold the following year to General James N. Bethune in Columbus, Georgia. General Bethune then decided to allow the blind infant to have the run of his plantation. Although Tom had other challenges in addition to his blindness—"[h]e was restless, explosive, and required constant supervision" (Treffert 2010, p. 89), he displayed a remarkable affinity for music and more generally sound. This became apparent after his exposure to the piano playing of General Bethune's daughter. As Darold Treffert noted via a quote of Tom's contemporary, Dr. Edward Sequin:

Till 5 or 6 years old he could not speak, scarce walk, and gave no other signs of intelligence than his everlasting thirst for music, but at 4 years already, if taken out of the corner where he laid dejected, and seated at the piano, he would play beautiful tunes; his little hands having already taken possession of the keys, and his wonderful ear of any combination of notes they had once heard. (Treffert 2010, p. 88)

Somehow, Blind Tom could from a young age simply hear something played and then play it back. Furthermore, he could also retain it for future usage. His ultimate repertoire was estimated at about 7000 musical pieces. He also had an analogous capacity to hear and then accurately repeat verbiage he was exposed to. This despite having a personal vocabulary, which may have peaked around 100 words.

Beginning at age 8, Tom became a touring sensation and as such made substantial money for the Bethunes. As a result of the success of his remarkable performances, there were those who tried to debunk his musical genius along with his memory. Thus, routinely as part of his performances there was an opportunity for members of the audience to test Blind Tom. In one scenario at a White House performance, an 11-year-old Tom faced some skeptical musicians. Those musicians played two original compositions for him—one was 13 pages in length and the second was 20 pages in length. Tom reportedly played these back accurately.

Darold Treffert wrote that a general assessment eventually came from a panel of 16 “outstanding” musicians. That assessment included:

[w]hether in his improvisations of performances of compositions by Gottschalk, Verdi, and others, in fact in every form of musical examination—and the experiments are too numerous to mention—he showed a capacity ranking him among the most wonderful phenomena in musical history. (Treffert 2010, p. 88)

Somehow Blind Tom, although reportedly untrainable, found a way to be phenomenal musician. This despite having a career that was significantly limited to a commercial role for his legal guardians. The author Mark Twain was so impressed that he attended a number of Tom’s concerts and admiringly referred to him as the “archangel”.

Moving along to another prodigy example discussed in Andrew Solomon’s book on unusual children, *Far From the Tree*. The prodigy was a boy named Kit Armstrong. Kit’s prodigious abilities showed up early and this included being able to count at 15 months. His mother May then taught him addition and subtraction at age two. He then went on to teach himself multiplication and division. Solomon then suggests that by age three Kit was asking about things for which the theory of relativity was required for an explanation. His mother May was not pushy and in fact she was concerned about his rapid development and hoped he might “grow down” in kindergarten (Solomon 2012, p. 456).

While completing second grade, Kit also managed to finish off high school math. By age nine, Kit was ready to try college and he enrolled at Utah State University. At ten he toured Los Alamos National Laboratory (LANL) with his music manager, Charles Hamlen. At LANL a physicist took Hamlen aside and told him:

unlike the postdoctoral physicists who usually visited, Kit was so bright that no one could ‘find the bottom of this boy’s knowledge’. (Solomon 2012, p. 456)

Within a few years Kit had a residency at MIT and there he helped edit some papers in chemistry, physics, and math. About Kit’s apparent ability to pick up so much information and expertise his mother said:

[h]e just understands all things. Someday, I want to work with parents of disabled children, because I know their bewilderment is like mine. I had no idea how to be a mother to Kit, and there was no place to find out. (Solomon 2012, p. 456)

If academics are looking for cognitive and developmental conundrums to ponder, examples like this are not hard to find.

Kit Armstrong’s lasting extraordinary contributions, though, have been with his piano performances and composing career. When Kit was five years old, his mother May wanted to find a hobby for him. May then went outside of her own interests and decided to try piano lessons. Consistent with his intellectual prowess, Kit raced ahead on the piano. After his first lesson, Kit returned home to make his own staff paper and proceeded to attempt a composition. Solomon reports

that Kit's facility with the language of music had "come to him whole" and that he could simply hear music on the radio and then "play it back" (Solomon 2012, p. 456). This is an extraordinary but perhaps loose claim, though.

To connect with Kit's love of music, his mom moved them to London so he could study at the Royal Academy of Music. There he became the first student of the pianist Alfred Brendel (who coincidentally also did not come from a musical background). When Kit was thirteen a journalist who had been a strong critic of placing children in serious performance scenarios attended one of his concerts. Of that performance the journalist later wrote:

[h]is playing was so cultured, his joy in performing so obvious, his commitment as he stretched his small frame to reach the low notes so total, that my objections seemed mean-spirited. (Solomon 2012, p. 457)

Like a number of other prodigies you can read about Kit Armstrong's career on the internet.

Given the presumed genetic foundation of life and in particular that DNA should provide "[t]he entire behavioral information available to the newborn" (Mayr 2001, p. 253), such prodigious behaviors represent giant tests. In Steven Pinker's *How the Mind Works*, after a largely dismissive discussion about the phenomena of geniuses—as in they are pretty much like the rest of us—he goes on to add that they may, "have been dealt a genetic hand of four aces" (Pinker 1997, pp. 361–62). Even if geneticists were finding a basis for the variations in intelligence, prodigies would still appear implausible. Their abilities and seemingly innate inclinations are baffling. In his loose book, *From Bacteria to Bach and Back*, Daniel C. Dennett claimed (in italics) that, *genes don't account for genius* (Dennett 2018, p. 24). He later went on to point to memes (repetitive behavioral phenomenon hypothesized to be analogous to genes in their dynamics) as an explanation. Memes seem like a step back from genes here, though. Why cannot these men simply state their puzzlement?

7. Conclusions

It is not hard to directly question the scientific understanding of life. If the crisis in genetics continues, then more people will likely consider alternatives. People interested in questioning that vision might begin by looking at unusual behaviors. Do such behaviors seem scientifically plausible? DNA was supposed to grossly explain life, but that is increasingly unlikely. It is perhaps noteworthy that this genetic deficit appears consistent with the (Nobel laureate) physicist Eugene Wigner's intuition about a possible contradiction at the intersection of the "laws of heredity and of physics" (Wigner 1960). Wigner's intuition is being vindicated as assumptions about DNA's (physical) inheritance roles are failing.

Additionally, as might be inferred from the earlier quote by David Goldstein citing the need for researchers to show "a whole lot more humility", one has to be wary in reading the almost always optimistic genetics literature. If genetics really finds a significant basis for a personal characteristic—say the tendency towards aggressive behavior—it will certainly produce prominent front page stories.

Efforts to make sense of religious perspectives would seem to have to challenge the DNA-based model of life. As is, that model is presumed to successfully describe evolution and life in a largely deterministic, material-only fashion. That intelligent life would have emerged from only physics seems implausible, but nonetheless it appears to be generally accepted. That deeper content, including the existence of souls, got established seems much more unlikely. If educated people simply accept the directionless nature of the scientific vision of life, then how can they realistically accept the existence of deeper aspects such as those required by religious perspectives? One established alternative, intelligent design, would seem to be failing along with genetics. If DNA is not the vehicle for many of our specifics, then by what means would intelligent design operate?

Additionally, the unfolding heritability deficit is suggesting that the seemingly excessive proclamations about our genome's junk content—one prediction had it that only "8 percent plus or minus 1 percent" is functional—could have been optimistic. It is worth remembering that a broad-footed salamander has a genome about fifty times bigger than our own.

I go on to add some final points. Firstly, in Justin L. Barrett's book, *Born Believers—The Science of Children's Religious Belief*, Barrett laid out the evidence that young children tend to have an innate understanding of the existence of souls/God/gods, that they are believers in what he termed a "natural religion" (Barrett 2012). *Born Believers* contains some notable examples, including ones in which atheists' positions were rebutted by their young children. Barrett wrote that "[c]hildren are prone to believe in supernatural beings such as spirits, ghosts, angels, devils, and gods during the first four years of life" (Barrett 2012, p. 3). Later he wrote that:

[e]xactly why believing in souls or spirits that survive death is so natural for children (and adults) is an area of active research and debate. A consensus has emerged that children are born believers in some kind of afterlife, but not why this is so. (Barrett 2012, p. 120)

Given contemporary fixations, though, these remarkable observations were simply placed by Barrett within the materialist vision. Even as a practicing Christian, he concluded that these are simply delusional tendencies derived from evolution and experience—"biology plus ordinary environment" (Barrett 2012, p. 20). That seems like a remarkable act of faith, though. Extrapolating our evolution-shaped genomes to provide a basis for our natural religious beliefs is difficult to grasp. Barrett did on the other hand provide a quote from an Indian man suggesting an alternative:

that on death, we go to be with God and are later reincarnated. As children had been with God more recently, they could understand God better than adults can. (Barrett 2012, p. 2)

I have done some writings exploring this life-after-life possibility, including an earlier *Religions* article (Christopher 2017a), but primarily suggest here that there are enormous mysteries to consider. These mysteries suggest that other factors influence life and that such factors might be consistent with some religious beliefs.

The reincarnation model provides some logical connections. Commonly believed within that sequential life paradigm was that there is a draw experienced by the incarnating soul to its parents-to-be. If such a draw were roughly between similar beings—analogue to the assortative mating phenomena (Baron-Cohen 2012)—then that dynamic could produce its own crude heredity pattern (Christopher 2017a; Christopher 2017b). For example, if an incarnating relatively reserved soul were drawn to similarly-inclined future parents, then that rebirth dynamic could produce an apparent inheritance for the tendency to be reserved. Moreover, a number of behavioral conundrums appear easily approachable from a life-after-life perspective. Furthermore, a possible general feature of reincarnation could be the continuity of personality across incarnations. Personality in fact mysteriously varies across many species (Angier 2010).

On the other hand, the complementary God (or gods) aspect of religions seems considerably harder to make objective arguments for, but it is nonetheless part of our innate understanding. Existing objective arguments in this case tend to focus on the limitations of the contemporary physical explanation of the universe and its history. A less intellectual and more intimate approach might start with the innateness of our belief in God or gods.

A second concluding point here relates to two articles found in the April and May 2020 issues of *Scientific American*. Both deal with traditional cultures and their difficult transition into the modern world. The first is April's "The Aid Tsunami: How disaster relief ravaged an indigenous community" by Ajay Saini and Simron J. Singh. A healthy island-based traditional community, the Singhalese, had their lives upended by the 2004 tsunami and then overrun by modern life (essentially a second long-lived tsunami). The second important troubling story is May's, "Living With the Forest: Pygmies thrived in the Congo Basin—until development coupled with conservation arrived" by Jerome Lewis. Another remarkable tale of traditional ways and the major derailment encountered by them in the modern world.

The one commonality—and overlap with this article's agenda—is that both traditional cultures were seemingly strongly bolstered by their traditional spiritual or religious beliefs. The authors of

both articles had lived with their respective groups prior to their disruptions and came to really appreciate their intertwined spiritual and nature-oriented ways. It would seem that as human beings there are a number of ways of connecting with our spiritual roots. If we can both try to respect those different approaches and also stay grounded with our living challenges, this might be a reasonable general strategy.

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