

Chapter One

Both/And

Science, Religion, and the Fluidity of Identity

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Typically, authors in the science-religion field start with the dichotomy between science and religion, understood as foreign to each other: yin *versus* yang, male *versus* female. The authors then seek to reconcile them in one way or another, transforming warfare into harmony and creating sameness out of fundamental difference. But what if this entire approach, dominant in the science-religion field, is mistaken?

In this chapter, we focus on the binary of gender (male and female) and how an understanding of gender fluidity can create a new ethical framework. We begin by introducing the complexities of sex, gender, gender expression, and sexuality, which offer an expansive ontology. We explore expressions of gender fluidity within Western Christianity; we then reconsider science through the lens of gender fluidity, showing that applications of science do not rise above these complexities. Finally, we argue for using gender fluidity—as highlighted in our discussion of religion and science—as a model for an ethical space in which the dichotomous either/or, us/them gives way to a continua of lived experiences which command equal respect and empathy. In the end, gender fluidity—the fluid movement across sexual and gender differences that “cannot be crossed and must not be crossed”—becomes not only a model for one field but a core of a way of being in the world.

SEX AND GENDER

Sex, gender, and sexuality are aspects of human identity. The varieties of sex, gender, and sexuality within human experience, and their interrelationships, are massively complex.

Sex is determined by genetics and environment. Because humans are a sexually dimorphic species, different physical sex characteristics, or phenotypes, express the underlying genotypes. The sexual dimorphism found in humans is caused by genetic markers, which carry the blueprints that control the production of hormones within the body; for example, the XX genetic marker carries instructions for different hormone production than the XY genetic marker. Differences between sexes are manifested both in primary sex characteristics, such as genitalia and internal reproductive organs, and in secondary sex characteristics, such as breast growth and increased facial hair. These phenotypical differences are caused by hormone production, which is influenced by genetic markers and/or by the environment.

The most common genetic sexes for humans are XX-female and XY-male, but there are many other genetic possibilities that can determine sex, including XX-males, XY-females, XXY, XYY, XO, etc. In addition, genetic sex does not always match the physical sex characteristics that appear. For example, XX-males have the genetic marker XX, like XX-females, but XX-males' phenotypical characteristics are more in line with XY-male phenotypes, including XY-male genitalia, facial hair, and other features. In short, while sex is a genetically determined characteristic, the genetic sex does not always match the phenotypical sex of an individual. If an individual has ambiguous primary sex characteristics, or if an individual's genetic and phenotypical sex do not align, the person may be considered *intersex*. Note that the concept of intersex is a socially constructed category. Like all social and cultural categories, its semantic range and connotations are constantly being reevaluated and adapted.¹

While biological sex is determined by genetics and hormones, gender more clearly expresses a variety of socially constructed roles. Socially constructed gender roles affect the divisions of labor within society, ranging from intimate household-based tasks such as childcare or food preparation to public tasks such as politics or religious leadership. Gender roles also affect how individuals are expected to perform in their individual lives, including areas such as dress, movement, language, and social interaction. When people's gender identity differs from their genetically determined sex—Joan's genetic and phenotypical sex, for example, is male, whereas her gender identity is female—they are considered to be *transgender*. The terms Assigned-Female-At-Birth (AFAB) and Assigned-Male-At-Birth (AMAB) more accurately identify sex and gender realities than the dichotomous terms *female* and *male*. An individual may have been born with the phenotypical sex characteristics of a female or male without being gendered in the same way.

These data suggest an emphatically non-dichotomous ontology: neither genetic sex nor gender can be understood within a two-part logic. Even in

cultures where the most visible genders are masculine and feminine, actual gender includes feminine males, masculine females, individuals who are agender, nonbinary, or androgyne, etc. In addition, a person's gender includes both their gender identity and their gender expression. *Gender identity* is an individual person's experience of their gender, their "personal sense of identity as masculine or feminine, or some combination thereof."² But the person's *gender expression* may be masculine, feminine, both, neither, or multiple (fluid). Just as genetic sex and phenotypical sex may or may not align, gender identity and gender expression also may or may not align. For example, an individual who identifies herself as a woman may express herself through dress, language, and social roles which are socially considered to be masculine.

Finally, *sexuality or sexual orientation* is the sexual desire an individual person experiences. While the classification of sexual orientations is affected by sex and gender, sexual orientation is clearly not determined by either one. Another range of concepts must be used: sexually attracted to people of a different sex or gender (heterosexual); sexually attracted to people of the same sex or gender (homosexual); sexually attracted to people of the same sex or gender as well as different sexes or genders (bisexual or pansexual); not experiencing sexual attraction or desire (asexual); etc. There does not need to be any connection between a person's sex and gender and their sexuality or sexual orientation. For example, Rachel is an AFAB woman who is sexually attracted to women, and Samuel is an AFAB transman who is sexually attracted to women. While the genetic and/or phenotypical sex of both is female, and while both are sexually attracted to women, their sexual orientation will be classified differently because of their different genders: Rachel is homosexual because her gender is the same as the gender to which she is sexually attracted, and Samuel is heterosexual because his gender is different from the gender to which he is attracted.

The possible identities expand further. Instead of a single dichotomy, "male" *versus* "female," we now recognize no less than four different factors: genetic sex, gender, gender expression, and sexual preference. Each one offers at least four possibilities: male/masculine, female/feminine, both, neither. Picture these 16 possibilities listed along the top of a chart, and 16 possibilities listed down the side, representing the types of attraction to another person. That yields a staggering 256 different boxes or kinds of relationship. And yet this move from the traditional 2 to 256 possibilities is only the beginning. Each of the 16 factors is actually a continuum, not merely four discrete options within one of the four categories. Now add the indeterminacy of translation across cultural and subcultural systems: is a particular square on the chart in Mexican Spanish really the same as in Sanskrit? Or think of

semantic differences between Toledo, Ohio and San Francisco—or, for that matter, subtle differences of meaning between 15-year-olds and 65-year-olds living in Berkeley. The options expand exponentially, deconstructing any attempt at a fixed system of boxes.

To any science that would restrict the categories to a discrete, limited set of options, this explosion of possible identities and relationships will appear off-putting, bizarre, or unnatural. More than just a non-dichotomous approach to human being and identity, we have a rather queer ontology.

GENDER AND QUEER STUDIES

Gender Studies, which emerged in the 1970s, is the interdisciplinary study of literature, history, art, anthropology, politics, and other fields in which sex and gender are placed at the forefront. Although Queer Studies arose within Gender Studies, we follow many other authors in the belief that it has significant implications that are not limited to the study of gender alone. As Susannah Cornwall notes, “the very concept of queer has built into it from the start an idea of elusiveness, uncertainty, non-fixity, and a resistance to closed definitions.”³³ To be categorized as queer is to be placed outside the boundaries of acceptability, to be rendered abnormal. One can turn this exclusion into a place of resistance, giving it its own name and identity: we are the LGBTQ community and we oppose the injustices of heteronormativity. Note that to affirm this label of exclusion is *to embrace an identity of exclusion*, an act that locates us in a liminal place of contradiction. We deconstruct the act of being queered, but only at the cost of unsettling our own identity.

The definition of “queer,” and with it queer theory, thus becomes uncertain and elusive—permanently unsettled. If queer means anything that is “at odds with the normal, the legitimate, the dominant,”³⁴ then both “queering” and “being queered” may begin to name a much broader social phenomenon, expanding from their original context in sexual politics. The terms are also dynamic: actions and identities that are now viewed as normal, legitimate, and acceptable may in the past have been abnormal, illegitimate, and deviant. Queer may become unqueer, and the unqueer, queer.

Two more implications follow. When “queer” labels whatever is not normal or legitimate, or whatever is excluded by the dominant group, then it can become a transferable badge of honor, worn by other persons or groups. When anything and everything can be queer, then the significance of the term is lost. But the opposite can also occur when queerness and queer theory come to be viewed through too narrow a lens. Cornwall notes that this is a particular problem within queer theology, which other theologians tend to

treat as if it were only concerned with sexuality. Although queer theology in fact means multiple things to multiple theologians—from sex to resistance to deconstruction—its semantic range is often lost. This leads to what Cornwall calls the “image problem”: “the assumption or *perception* that queer theology is just to do with sex or, even more narrowly, just to do with homosexuality . . . may present a potential obstacle to its utility for theologians.”⁵ This foreshortening to sexuality alone ties the term so tightly to one specific location that its queerness is lost altogether.

In short, queer theory can be understood both narrowly and broadly. A narrow reading of queer theory focuses on issues of sex, gender, and sexuality, while a broad reading of queer theory takes into consideration anything that transgresses boundaries. Narrow and broad readings of queer theory are not mutually exclusive; they can and do affect each other.

Discussions of science and theology have much to learn from the exploration in these last pages. Gender fluidity is not only an ontology, as we argued above, but also an *epistemology*, a way of approaching the world. It spawns an “abnormal” and “warped” analysis of established fields of study and, we will argue, new forms of caring. In an article on lesbian/gay and queer theology, Mary Elise Lowe noted that queer theology had borrowed six insights from queer theory: “the method of deconstruction, the assertion that all meaning is constructed, the insight that gender is performed, the claim that identity is unstable, and the commitment that persons are constituted by discourses and subjected in the process.”⁶ In the following pages, we will engage two of the insights in particular: the concept of gender as performance, and the belief in the instability of identity.

GENDER FLUIDITY IN RELIGION

Gender emerges as a fluid category in religious writing in the West. It is and has been assigned to and removed from religious figures and concepts, with ramifications for theology and for relations between humans and the divine. Some of the clearest examples of gender fluidity can be seen in relation to the figure of Jesus Christ, as portrayed by authors ranging from theologians to poets. In this section we look at several examples of gender fluidity, mostly drawn from Western Christianity: the Bride figure of the New Testament and its potential identification with the Church; gender fluidity in John Donne’s religious poetry and sermons; a contemporary Christian movement that encourages gender fluidity in role play based on Bridal Theology; and the fluid genders of deific figures, with examples of the figure of God in the Hebrew Bible.

In several books of the New Testament, a figure called the “Bride” is mentioned. Though the Bride works as a counterpoint to the Jesus-as-Bridegroom motif that appears in the Gospels, the identification of the Bride has never been concretely determined, thus leaving it open to interpretation. In the Book of Revelation, New Jerusalem is identified as a bride, for example in Revelation 21:2, where New Jerusalem appears “prepared as a bride adorned for her husband.” This appearance of New Jerusalem as a bride follows the motif of identifying Jerusalem, Judah, and Israel as the bride(s) of God in the Hebrew Bible, as seen in Hosea, Deutero-Isaiah, Jeremiah, and Ezekiel. Another potential identity for the Bride can be found in Ephesians 5:22–23, which discusses the parallel relationships of husband-wife and Christ-Church, implying that the Church fills the role of the Bride within the Jesus-as-Bridegroom motif. This interpretation of Church-as-Bride and Jesus-as-Bridegroom can also be found in 2 Corinthians 11:2–4, in which Paul admonishes the Church in Corinth, stating that he “promised [the Corinthian Church] in marriage to one husband, to present [the Church] as a chaste virgin to Christ.” These latter texts, which portray the Church as the Bride to Jesus-as-Bridegroom, influenced *bridal theology*, which views the relationship between Christ and the Church as a husband-and-wife relationship. Following the structure of a husband-and-wife relationship, Christ is viewed as the male spouse and the Church—including the male followers of Christ—are viewed as the female spouse(s).

The 17th-century theologian and poet John Donne gendered both himself and his soul as female in different religious and devotional texts. An example of Donne’s fluidity of gender in poetry can be found in his Holy Sonnet X, “Batter my Heart,” in which Donne uses two different types of female-based imagery to explore his relationship to God. First he describes himself “like an usurp’d town” that desires to be overtaken by God. Towns—like land—are characterized as female, and Donne’s self-identification as an “usurp’d town” genders him as female and as “Labor[ing] t’admit [God].” By the end of the sonnet, Donne has again gendered himself as a female-bodied person who has been “betroth’d unto [God’s] enemy,” and who desires God to “Take me to you, imprison me, for I, / Except you enthrall me, never shall be free, / Nor ever chaste except you ravish me.”⁷

Donne’s love and desire for God is expressed in gendered terms, with Donne imagining himself as feminine in his relationship with God. Donne’s gender-fluid literary identity appears also in his sermons, where he repeatedly genders his spirit as feminine and imagines himself—and other male Christians—as female partners in a marriage with God. A prime example is found in Donne’s Washington wedding sermon, preached on May 30, 1621. Within this sermon Donne explores the parallels between secular marriage, spiritual

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marriage, and eternal marriage. While discussing the spiritual marriage between Christ and the soul, Donne describes his soul as the female captive who may be married to her captor, stating that he can “see [Christ’s] face in all his temporall [sic] blessings, having shaved her [Donne’s soul] head in abating her pride, and pared her nails in contracting her greedy desires, and changed her clothes not to fashion her self after this world, my soul being thus fitted by himself, Christ Jesus hath married [sic] my soul.”⁸ Imagining himself as gendered female, performing female gender and sexual roles, allowed Donne to more deeply explore the relationship between humans and the divine.

A contemporary example of the fluidity of gender in Christian thought and theology can be found in the Family International, a modern denomination that began in the 1960s. Within Family International, teenagers and adults are encouraged to imagine themselves as female-bodied lovers of Jesus while they have sex or masturbate. This imaginative role play is meant to strengthen the loving relationship between the individual members of the church and Jesus. This practice is encouraged for all members, regardless of their own sex and gender. This practice stems from the Family International’s understanding and usage of bridal theology, as they “believe that the marital metaphor used in the Bible to describe the intimate spiritual relationship between Jesus and His Church is meant to represent the passionate union of heart, mind, and spirit that Jesus seeks with each of His followers.”⁹ We must note that the Family International denomination only recognizes heterosexuality as a valid sexuality. The concern for avoiding the appearance of homosexuality within the denomination likely plays a role in the encouragement for men to view themselves as women/female-bodied when imagining sexual acts with Jesus. Though the Family International is not supportive of the LGBTQ community, we have including them in this discussion to highlight the way gender is viewed as (at least partially) fluid within contemporary Christian practices, even non-LGBTQ-friendly Christian communities.¹⁰

Gender fluidity also occurs around deific figures. One example is the fluidity of God’s gender within the Hebrew Bible, which can be found in the names used for God. Within the Hebrew Bible God has a variety of names, including Shaddai, which also appears seven times as El Shaddai. The term (El) Shaddai is commonly translated into English as “(God) Almighty.” A more literal translation of the Hebrew term, though, may be either “God of Mountains” or “God of Breasts.” The term *el* means “god”; the term *shaddai*, however, has several possible definitions, allowing a wide range of interpretation. One possible etymological link for *shaddai* may be the Akkadian term *šadum*, which means “mountain.” A second possibility is the Hebrew term *shad*, which means “breasts”; the Hebrew *shad* may also be connected to the Akkadian *šadum*. This second translation is particularly interesting, since the

term “breasts” adds an element of fluidity to God’s gender presentation and performance of gender roles.¹¹

Additionally, the name El Shaddai appears in the Hebrew Bible seven times, with five occurrences in Genesis and one in Exodus. Of these six, five are linked to blessings of fertility. The term Shaddai (without the accompanying El) is also used in Genesis 49:25, during Jacob’s blessings for his sons. In this verse, Jacob states, “. . . from the God of your father, who will help you, and *Shaddai*, who will bless you, blessings of heavens from above and blessings of the deep lying below, and blessings of the breasts and the womb.” The blessings linked to the term Shaddai include sexually female imagery such as Shaddai’s breasts and womb. In short, within the Hebrew Bible God can be and is portrayed with female sexual characteristics and as playing female gender roles.

These examples—from the use of gender in the Church-as-Bride and Jesus-as-Bridegroom motif to the fluidity of God’s presented gender and sex in the Hebrew Bible—show how fluid gender and gender roles often are within religion, in this case Western Christianity. When we read and imagine these roles in religious practice, we are reminded of the two key aspects of Queer Studies that Mary Elise Lowe identifies: understanding gender as performance, and recognizing the instability of identity. In the above examples, gender is performed in theological writings of John Donne and when men and women imagine themselves as the female-bodied lover of Christ during intercourse and masturbation. Similarly, the instability of identity is not only human; the identity of the Hebrew God also shifts in different contexts, expressed through the different names that the canonical authors used. Freed from sexual and gender dichotomies, our identities flow freely into queer places. Even the very male/masculine God of the Torah grows breasts and opens her fertile womb.

SCIENCE AS A COUNTEREXAMPLE?

The religious examples we have explored show the fluid nature of gender and sexual self-understandings on the part of believers, a fluidity that manifests also in their ideas of the divine. Is science queer in similar ways?

At first blush science looks like a radically different case. Of course, there are scientists who are gender fluid, and many clearly affirm their own queer identities. But the scientific community as such views the lifestyles and self-conceptions of individual scientists as incidental to their work, in the same way that race, gender, socio-economic status, class, or nationality are viewed as incidental.¹²

Consider the contrast. “Religion” is notoriously difficult to define; universal standards imposed by scholars or members of a particular tradition beg the question for individual communities who dispute these boundaries. Categories of religious belief and practice are queer in the broader sense of the term, since opposition to norms, transformation of identities at the individual and corporate level, hybridity and syncretism—in short, every conceivable form of boundary crossing—are visible in a vast variety of religious phenomena. By contrast, since at least Francis Bacon (1561–1626), scientists have defined science and scientific success in rigid terms. Verifiability, falsifiability, replicability, the centrality of natural laws and quantitative reasoning, the testability of theories by data, and above all the objectivity of this process—these are the features that, in one way or another, have contributed to and continue to define the present practice of scientists working across the scientific disciplines.

Of course, one can stand outside science and say that these should not be the norms, the required conditions for something to count as science. Clearly there are gray areas, just as there are numerous cases of scientists breaking these standards.¹³ On the one hand, there are no a priori reasons why the word “science” cannot be given different meanings. Culturally and historically there have been many different alternatives: medieval science (*scientia*), science as philosophy as in German idealism (*Wissenschaft*), Taoist science¹⁴, Buddhist science¹⁵, and many segments of classical Indian thought, such as the science of reincarnation. On the other hand, over the last few centuries, science has become a clearly defined global institution. Acknowledgments of the nature and value of the scientific enterprise have been made by significant numbers, and perhaps even majorities, of people from every culture of the world. Interestingly, even advocates of alternative ways of knowing the world use empirical science as the standard, arguing that ~~there~~^{their} activities meet these standards.¹⁶

The institution of science as such is not gender fluid, but could it be fluid in a broader sense? It does, after all, challenge boundaries that are part of common sense and the everyday realities of most human beings: whether mass is solid, whether humans are qualitatively distinct from other animals, whether values exist, whether actions are free, whether God exists. But when it comes to questions of what counts as science, one generally does not find fluid definitions. Leading scientists have resisted the notion that quantum phenomena are indeterminate, that other mammals have culture, that incredibly small “strings” could be the foundations of all reality, or that our universe is part of a massively larger multiverse. Yet there has been no wavering among scientists on what is required; these theories will count as scientific only if they make empirically testable predictions that, when actually tested, can be verified by scientists around the world.

Significantly, scientists have discovered and continue to study many cases of sexual and gender fluidity. The traditional male-female dichotomy in biology was based on the size difference between gametes; small gametes (sperm) are produced by males and large ones (eggs) by female. But the groundbreaking work of the Stanford biologist Joan Roughgarden has undercut many of the traditional sexual boundaries. Her studies of clown fish, for example, trace the change of sex from male to female and back. “If [the female] is removed, the remaining male turns into a female, and one of the juveniles matures into a male.”¹⁷ Once the assumption of fixed sexual categories was removed, a mass of new data began to emerge. In different species sexes change simultaneously, or sequentially, or they crisscross back and forth. The widespread belief that sexual and gender categories are fixed in biological organisms turn out to be false; nature is far queerer than we imagined.

But the queering of the natural world is not the same as the queering of science. In fact, the brilliant work that Prof. Roughgarden and others have done has been taken as a sign of the importance of the scientific method as traditionally defined and practiced. One final point: the fact that Joan Roughgarden is a transgendered woman scientist has clearly influenced the phenomena that she studies, as she herself emphasizes. But to the scientific community, this fact does not queer science. Prof. Roughgarden’s conclusions about clown fish are or are not verified by the data (in fact, they have been). By contrast, both she and the broader scientific community agree that the implications that she draws from her work for ethics, politics, and worldview are not themselves part of the science.

QUEERING THE INTERPRETATION OF SCIENCE: THE CRUCIAL ROLE OF THE RELIGION-SCIENCE DISCOURSE

When it comes to interpreting and applying science, however, the sharp dichotomy between science and non-science quickly collapses. When scientific results are interpreted philosophically, scientific criteria no longer control the process. Scientists are no more likely to be authorities on religious matters than football players are authorities on tooth paste or deodorant.

Scientists, in short, do not stand above the fluidity of interpretation; they swim in it, just like the rest of us. And yet even the craziest non sequiturs that they claim to derive from their work continue to have an immense influence on culture and politics, and indeed on the worldview that has come to dominate the modern period. Science, many scientists tell us, has proven *materialism* (only matter/energy exists, and all beliefs in spiritual realities

are false), *reductionism* (all more complex phenomena, organisms and ideas, however much they may appear to be real and to have effects in the world, are reducible to lower-level objects and laws), *determinism* rather than freedom (neurons, genes and, ultimately, sub-atomic particles and forces cause all phenomena to be what they are), and *relativism* (nature of value-free, so human existence must likewise be).

Particularly disturbing is the dogmatic certainty with which these alleged implications of science are proclaimed by its self-designated spokespersons, such as the former professor “for the public understanding of science” at Oxford University, Richard Dawkins. Their famous quips represent dichotomous thinking at its most blatant:

The more the universe seems comprehensible, the more it also seems pointless.

—Steven Weinberg¹⁸

Reductionism, given its unbroken string of successes during the next three centuries, may seem today the obvious best way to have constructed knowledge of the physical world, but it was not so easy to grasp at the dawn of science.

—E.O. Wilson¹⁹

Wires and chemicals, that’s all we are, wires and chemicals?

—Allan Basbaum²⁰


‘You,’ your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behavior of a vast assembly of nerve cells and their associated molecules. As Lewis Carroll’s Alice might have phrased it, ‘You’re nothing but a pack of neurons.’

—Francis Crick²¹

These scientists are the most dichotomous of all when it comes to the relationship between science and religion:

The truth . . . is that the conflict between religion and science is unavoidable. The success of science often comes at the expense of religious dogma; the maintenance of religious dogma always comes at the expense of science.

—Sam Harris²²

Violence, irrational, intolerant, allied to racism and tribalism and bigotry, invested in ignorance and hostile to free inquiry, contemptuous of women and coercive toward children: organized religion ought to have a great deal on its conscience 

—Christopher Hitchens²³

Faith is the great cop-out, the great excuse to evade the need to think and evaluate evidence. Faith is belief in spite of, even perhaps because of, the lack of evidence.

—Richard Dawkins²⁴

This dogmatism parading as science has been one of the main inspirations for the rapid growth of studies on science and religion. Scholars in this new field have emphasized the immense social damage caused by these attacks on the unique features of human existence, values, spirituality, and the sacred. But their research has also established the lack of justification for claims that seek to differentiate and exclude. Science as such does not by itself settle claims in all other domains of human existence. Generalizations from science to “reality as a whole” simply ignore the complex webs of cultural, linguistic, and historical identities. Thomas Hobbes wrote in 1648, for example, that everything is merely “matter in motion,” from which he derived the value judgment that life is “nasty, brutish, and short.” Yet from the fact that a given science can predict the dynamics of matter in motion it does not follow that material particles are the only form of reality.

At first it might seem as though the “science only” dogmatists are among the most queer (in the broad sense of the term) of all, because they cross standard boundaries and redefine them as they go. But to cross the boundaries of what is normally considered acceptable without acknowledging one’s own queerness in the process is an act of hegemony and violence, a move to eliminate the difference of the other. The contribution of studies of science and religion is to bring this dynamic to the surface. In what ways does scientific practice come to function in religious ways when it is raised from method to worldview? In what ways are the supposedly neutral scientists functioning more as “true believers”?²⁵ Have scientists become the high priests of our day, and has technology become the Holy of Holies, hidden behind the curtain so that only the high priests truly understand it?

It is no coincidence that the study of religion and science would play a unique role in this deconstruction of the universalizing claims of the scientists. After all, it is the scientific spokespersons themselves who have castigated religious beliefs as the queerest and religious practices as the most disgusting and most taboo of all. Religion-science scholars have been able to

pull back the curtain, revealing the ones who are turning the dials and pulling the levers to create the universal Wizard of Oz. At first it may have appeared that the universalizers of science were the ones most adept at challenging structures and making categories fluid. In the end, however, it turns out that they have treated their own categories as the most inviolate, whereas it is often (but not always) the religious believers who are bending categories and moving fluidly around and within them. The implications of science for the rest of human existence are not monolithic; they are subtle, changing, ideally life-giving and transformative.

To see this point, we close this section by returning to the broader work of Joan Roughgarden as a scholar in Gender Studies, which is *not* a value-neutral discipline. The studies published by Roughgarden reveal the gender fluidity in nature itself. As she emphasizes, “male and female functions don’t need to be packaged into lifelong distinct bodies. Hermaphroditic vertebrate species are successful and common.”²⁶ Interpreting these results through insights from human gender studies transforms our view of the world around us, and thus also of ourselves:

“Gender” usually refers to the way a person expresses sexual identity in a cultural context. Gender reflects both the individual reaching out to cultural norms and society imposing its expectations on the individual. Gender is usually thought to be uniquely human—any species has sexes, but only people have genders. With your permission, though, I’d like to widen the meaning of gender to refer to nonhuman species as well. As a definition, I suggest: *Gender is the appearance, behavior, and life history of a sexed body.* A body becomes “sexed” when classified with respect to the size of the gametes produced. Thus, gender is appearance plus action, how an organism uses morphology, including color and shape, plus behavior to carry out a sexual role.²⁷

The results have deep ethical and political implications. As Roughgarden writes,

Scientists must start to teach the truth, and organizations who present nature to the public must start offering an accurate picture. Scientists are professionally responsible for refuting claims that homosexuality is unnatural. The dereliction of this responsibility has caused homosexual people to suffer persecution as a result of a false premise of “unnaturalness,” and to suffer low self-worth and personal dignity. Suppressing the full story of gender and sexuality denies diverse people their right to feel at one with nature and relegates conservation to a niche movement—the politics of a privileged identity.²⁸

Here the acknowledgement of gender and sexual fluidity has significant social and political implications, just as the denial of fluidity in the name

of static dichotomous concepts is damaging to those whose lived existence moves around and through and between the categories. The fluidity of gender has much to teach us about the fluidity of categories in general. Queerness in the specific sense of sexual and gender fluidity opens our eyes to queerness in the broad sense. We can now seek and find a place beyond the either/or world of male/female, spurned/embraced, in/out, right/wrong.

SEX/GENDER FLUIDITY AS WORLDVIEW: TOWARD A QUEER ETHICS

What is my sex, my gender, my gender expression? Who do I long for as a partner? These questions concern fundamental ways of being in the world. In recent decades feminism, Gender Studies, and now Queer Theory have radically shifted the understanding of how the four interact. Widely held beliefs notwithstanding, the debate is not just about “sexual orientation”; it concerns one’s entire life-orientation. As we have seen, these questions touch on what is and how we know it—ontology and epistemology. They cross boundaries into religion, science, and other fields. They also open the door to a distinctive approach to ethics.

Studies of sex and gender have undercut dichotomous thinking, but Queer Studies has not always welcomed the resulting fluidity. Some respond by bifurcating into insiders and allies, with the message to allies that “you can help us, but you are not us.” Others erase the differences altogether: “we are all queer now,” without realizing that, when everyone is queer, no one is.

There is an alternative, however, which we will introduce in narrative form. Consider John, a WASP (white Anglo-Saxon Protestant) heterosexual man who lives in an upper middle-class American suburb. Imagine him not overly reflective or empathetic. If John views life through a dichotomous lens—either/or, us/them, yes/no—then he will view people who are different from him as “others.” Any number of things can separate him from these “others”: gender, sexuality, race, religion, language, country of origin, economic class, etc. Locked in these either/or dichotomies, John will have difficulty viewing “the others” as people who should receive the same respect and empathy that he has for himself and those like him.

Also, bifurcated in this way, John will be forced into the same deconstructive dilemma just identified. On the one hand, he may relate to some of “those others” by dividing people into insiders and allies. Where he is not “one of them,” he can at best become a helpful ally to “them,” helping “them” from outside. (Of course, he can also become their enemy and adversary.) On the other hand, he may declare himself part of the group: “We are all immigrants

here,” or “All the religions ^{of} the world are one, so all of us are brothers and sisters.” This over-generalization has the very real danger of erasing unique experiences and silencing the voices of the underprivileged. Given only these two options, John will either essentialize each difference or erase it altogether. With these two options, either some people are sexually queer and John helps “folks like them” from the outside, or everyone is queer now, which denies the unique experiences of the LGBTQ community. Neither response is ideal.

We advocate a new paradigm. One can shift from an either/or, yes/no worldview to a worldview of continua, in which individuals—regardless of their differences—share certain common experiences of personhood. If John adopts this paradigm of fluidity, he learns to imagine himself in the position of his neighbors. Just as religious rituals may prompt individuals to imagine themselves as a different gender, John can imagine himself living life as a different person in sex, gender, gender expression, or sexual attraction—or, for that matter, as having a different race, culture, language, or socio-economic identity. Imagining the lived reality of one’s neighbor ^s opens the door to a both/and identity; one recognizes shared experiences *and also* acknowledges real differences. The practice of imagination makes it possible to begin ^{ing} to experience ^{ing} multiple sides of what were once strict dichotomies. Imagination births empathy and understanding; together, they grow a new ethical space.

It is important to note that this paradigm of fluidity does not change John’s actual lived reality. John remains a WASP, wealthy, heterosexual man; he will not become a person of color, nor will he become LGBTQ. His lived reality and that of his neighbor ^s will remain different. However, John can acknowledge that he lives on a continua of sameness and difference, and that he may also be “othered” by people who view him as a bit queer not because of his sexual orientation or gender expression, but for other reasons. He can acknowledge that his lived reality is only one possibility, recognizing the legitimacy and importance of lived realities that are different from his own. By imagining himself living his neighbors’ lives, John will recognize his neighbors’ humanity, and therefore treat each of his neighbors with the same respect and care as John expects for himself, regardless of his neighbors’ physical and/or social location. By recognizing the fluidity of his own identity, as well as the fluidity of the identities of other persons, John can enter into the space of a queer ethics.

CONCLUSION

As we have seen, the queering of religion and science is a world- and life-view. As we study them, the worlds of science and religion turn out to be far

less rigid and ^{like far} for more fluid than many acknowledge. Sometimes gender fluidity appears explicitly in the phenomena that science studies or in religious beliefs and practices; at other times, as we have seen, it is in the applications of discoveries and the living out of beliefs that traditional dichotomies collapse. ^{like} No less than the rest of nature, the expression of our humanity is complex, multi-factorial, and as far from bifurcated as one can imagine.

In these pages we have sought to evoke and to reflect upon the new paradigms that seek to comprehend this shift. The queering and fluidity of gender within both science and religion expresses a non-dichotomous worldview. They engender a worldview not of dichotomies but of continua. This paradigm becomes revolutionary when one considers its potential transformation of questions of identity and justice, whether social ^{or} racial ^{or} or ecological.

WORKS CITED

- Baker, Eileen. "From the Children of God to the Family International: A Story of Radical Christianity and De-radicalising Transformation." In *Handbook of Global Contemporary Christianity: Movements, Institutions, and Allegiance*, vol. 12. Edited by Stephen J. Hunt. Leiden: Brill, 2016. 402–21.
- Biale, David. "The God with Breasts: El Shaddai in the Bible." *History of Religions*, 21, no. 3 (February, 1982): 240–56.
- "The Bride of Christ." *The Family International*. Accessed February 26, 2017. <http://www.thefamilyinternational.org/en/about/our-beliefs/bride-christ/>.
- Bronowski, Jacob. *Science and Human Values*. New York: Harper & Row, 1956.
- Capra, Fritjof. *The Tao of Physics: An Exploration of the Parallels between Modern Physics and Eastern Mysticism*. Boston: Shambhala, 2010.
- Cornwall, Susanna. *Controversies in Queer Theology*. London: SCM Press, 2011.
- Crick, Francis. *The Astonishing Hypothesis: The Scientific Search for the Soul*. London: Simon and Schuster, 1994.
- Dawkins, Richard. Speech to the Edinburgh International Science Festival, April 15, 1992.
- Donne, John. "Holy Sonnet X: Batter my heart." In *John Donne's Poetry*. Edited by Donald R. Dickson. New York: W. W. Norton & Company, Inc., 2007.
- . "Preached at a Marriage [the marriage of Mistress Margaret Washington at the church of St. Clement Danes, May 30, 1621]." In *The Sermons of John Donne* 3, no. 11. Edited by George Reuben Potter and Evelyn Mary Spearing Simpson. Berkeley: University of California Press, 1957. Accessed March 29, 2017. <http://contentdm.lib.byu.edu/cdm/compoundobject/collection/JohnDonne/id/3161/rec/1>.
- Ferris, P. J. and U. W. Goodenough. "Transcriptions of Novel Genes, Including a Gene Linked to Mating-type, Induced by *Chlamydomonas* Fertilization." *Molecular Cellular Biology* 7 (1987): 2360–66.

- Ferris, P. J., C. Pavlovic, S. Fabry, and U. W. Goodenough. "Rapid Evolution of Sex-related Genes in *Chlamydomonas*." *Proceedings of the National Academy of Sciences* 94 (1997): 8634–39.
- Gould, Stephen J. *The Mismeasure of Man*. New York: Norton, 1996.
- Halperin, David M. *Saint Foucault: Towards a Gay Hagiography*. New York: Oxford University Press, 1995.
- Harris, Sam. "Science Must Destroy Religion." *Huffington Post*, Jan. 2, 2006, updated May 25, 2011; http://www.huffingtonpost.com/sam-harris/science-must-destroy-reli_b_13153.html
- Hitchens, Christopher. *God is not Great: How Religion Poisons Everything*. New York: Twelve [Hachette, Warner], 2007.
- Kurian, George Thomas and Mark A. Lamport, editors. "Children of God." In *Encyclopedia of Christianity in the United States*, vol. 2. Lanham: Rowman and Littlefield, 2016. 727.
- Lowe, Mary Elise. "Gay, Lesbian, and Queer Theologies: Origins, Contributions, and Challenges." *Dialog* 48, no. 1 (March 2009): 49–61.
- Lutzky, Harriet. "Shadday as a Goddess Epithet." *Vetus Testamentum* 48, no. 1 (January, 1998): 15–36.
- Morrow, Deana F. "Sexual Orientation and Gender Identity Expression." In *Sexual Orientation and Gender Expression in Social Work Practice: Working with Gay, Lesbian, Bisexual, and Transgender People*. Edited by Deana F. Morrow and Lori Messinger. New York: Columbia University Press, 2006. 3–17.
- Raymo, Chet. *Skeptics and True Believers: The Exhilarating Connection Between Science and Spirituality*. New York: Walker Books, 1998.
- Roughgarden, Joan. *Evolution's Rainbow: Diversity, Gender, and Sexuality in Nature and People*. Berkeley: University of California Press, 2004.
- Torrance, T. F. *Theological Science*. Oxford: Oxford University Press, 1978.
- Wallace, B. Allan. *The Taboo of Subjectivity: Toward a New Science of Consciousness*. Oxford: Oxford University Press, 2000.
- , ed. *Buddhism and Science: Breaking New Ground*. New York: Columbia University Press, 2003.
- Steven Weinberg, *The First Three Minutes: A Modern View of the Origin of the Universe*, 2nd ed. New York: BasicBooks, 1993.
- "What is intersex?" *Intersex Society of North America*. Accessed February 26, 2017. www.isna.org/faq/what_is_intersex.
- Wilson, Edward O. *Consilience: The Unity of Knowledge*. New York: Knopf/Random House, 1998.

NOTES

1. "What is intersex?" *Intersex Society of North America*, accessed February, 2017, www.isna.org/faq/what_is_intersex.
2. Deana F. Morrow, "Sexual Orientation and Gender Identity Expression," *Sexual Orientation and Gender Expression in Social Work Practice: Working with*

Gay, Lesbian, Bisexual, and Transgender People, ed. Deana F. Morrow and Lori Messinger (New York: Columbia University Press, 2006), 8.

3. Susanna Cornwall, *Controversies in Queer Theology* (London: SCM Press, 2011), 9.

4. David M. Halperin, *Saint Foucault: Towards a Gay Hagiography* (New York: Oxford University Press, 1995), 62, quoted in Susanna Cornwall, *Controversies in Queer Theology*, 12.

5. Cornwall, *Controversies in Queer Theology*, 26.

6. Mary Elise Lowe, "Gay, Lesbian, and Queer Theologies: Origins, Contributions, and Challenges," *Dialog* 48 no. 1 (March 2009), 52, quoted in Susanna Cornwall, *Controversies in Queer Theology*, 27.

7. John Donne, "Holy Sonnet X: Batter my Heart," in *John Donne's Poetry*, ed. Donald R. Dickson (New York: W. W. Norton & Company, Inc., 2007), 140.

8. John Donne, "Preached at a Marriage [the marriage of Mistress Margaret Washington at the church of St. Clement Danes, May 30, 1621]," in *The Sermons of John Donne*, vol. 3, no. 11, ed. George Reuben Potter and Evelyn Mary Spearing Simpson (Berkeley: University of California Press, 1957), <http://contentdm.lib.byu.edu/cdm/compoundobject/collection/JohnDonne/id/3161/rec/1>

9. "The Bride of Christ," *The Family International*, accessed February, 2017, <http://www.thefamilyinternational.org/en/about/our-beliefs/bride-christ/>.

10. George Thomas Kurian and Mark A. Lamport, editors, "Children of God," *Encyclopedia of Christianity in the United States*, vol. 2 (Lanham: Rowman and Littlefield, 2016), 727.

For a more comprehensive survey of the Family International, including allegations of sexual abuse within the Family International, see Eileen Baker's "From the Children of God to the Family International: A Story of Radical Christianity and De-radicalising Transformation," *Handbook of Global Contemporary Christianity: Movements, Institutions, and Allegiance*, vol. 12, ed. Stephen J. Hunt (Leiden: Brill, 2016), 402–21.

11. David Biale, "The God with Breasts: El Shaddai in the Bible," *History of Religions*, 21.3 (February, 1982), 240–56; Harriet Lutzky, "Shadday as a Goddess Epithet," *Vetus Testamentum*, 48, no. 1 (January, 1998), 15–36.

12. Jacob Bronowski, *Science and Human Values* (New York: Harper & Row, 1956), especially chapter 1.

13. E.g., among many examples, Stephen J. Gould, *The Mismeasure of Man* (New York: Norton, 1996).

14. Fritjof Capra, *The Tao of Physics: An Exploration of the Parallels between Modern Physics and Eastern Mysticism* (Boston: Shambhala, 2010).

15. B. Allan Wallace, *The Taboo of Subjectivity: Toward a New Science of Consciousness* (Oxford: Oxford University Press, 2000); Wallace, ed., *Buddhism and Science: Breaking New Ground* (New York: Columbia University Press, 2003).

16. T.F. Torrance, *Theological Science* (Oxford: Oxford University Press, 1978).

17. Joan Roughgarden, *Evolution's Rainbow: Diversity, Gender, and Sexuality in Nature and People* (Berkeley: University of California Press, 2004), 33. See also the important work of Ursula Goodenough on sexual and gender transitions in microor-

ganisms, e.g. P. J. Ferris and U. W. Goodenough, "Transcriptions of Novel Genes, Including a Gene Linked to Mating-type, Induced by *Chlamydomonas* Fertilization," *Molecular and Cellular Biology* 7 (1987): 2360–66; P.J. Ferris, C. Pavlovic, S. Fabry, and U. W. Goodenough, "Rapid Evolution of Sex-related Genes in *Chlamydomonas*," *Proceedings of the National Academy of Sciences* 94 (1997): 8634–39.

18. Steven Weinberg, *The First Three Minutes: A Modern View of the Origin of the Universe*, 2nd ed. (New York: BasicBooks, 1993), Epilogue, 154.

19. Edward O. Wilson, *Consilience: The Unity of Knowledge* (New York: Knopf/Random House, 1998), 33.

20. Public comment made at a neuroscience conference in Berkeley in 1999.

21. Francis Crick, *The Astonishing Hypothesis: The Scientific Search for the Soul* (London: Simon and Schuster, 1994), 3.

22. Sam Harris, "Science Must Destroy Religion," *Huffington Post*, Jan. 2, 2006, updated May 25, 2011; http://www.huffingtonpost.com/sam-harris/science-must-destroy-reli_b_13153.html

23. Christopher Hitchens, *God is not Great: How Religion Poisons Everything* (New York: Twelve [Hachette, Warner], 2007), 56.

24. Richard Dawkins, speech to the Edinburgh International Science Festival, April 15, 1992.

25. Chet Raymo, *Skeptics and True Believers: The Exhilarating Connection Between Science and Spirituality* (Walker Books, 1998).

26. Roughgarden, *Evolution's Rainbow*, 35.

27. Roughgarden, *Evolution's Rainbow*, 27.

28. Roughgarden, *Evolution's Rainbow*, 128.