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## Cognitive Neuroscience and the Question of Theological Method

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Today cognitive neuroscientists “enjoy tremendous social prestige,” according to religion and psychology scholar Kelly Bulkeley (2003, p. 124). They are, he says, the “preeminent authorities on the subject of human nature.” In a review essay, he equates today’s heightened interest in cognitive neuroscience with the 1970s hype surrounding sociobiology. Pastoral theologians have been remiss in our neglect of this research, hunkered down with our old favorites (psychoanalytic, family systems, narrative therapy etc.), while psychologists across campus move on to new theories. Esteemed forerunners Sigmund Freud, Carl Jung, and William James conversed with the “most advanced scientific psychology of their day,” Bulkeley notes, whereas many of us in theology today have not kept up with what psychologists consider the “most creative new developments in their field” (p. 123). How can we continue to ignore (as I have)<sup>1</sup> what he and others recognize as “revolutionary new discoveries in brain science” that force a “wholesale reconsideration of human mental life” (p. 126)?

One outcome is certain: brain science will have a huge impact on contemporary society (see Restak, 2006). A decade past The Decade of the Brain in 1990-2000, declared by George Bush and the US Congress to enhance public awareness about brain

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<sup>1</sup> Two important exceptions are James Ashbrook (1996, 1997) and David Hogue (2003).

research, interest in neuroscience has not waned. Attending to this burgeoning research seems especially important for a discipline interested in human nature and selfhood. Cognitive science has implications for an almost endless range of topics of direct relevance—human development, memory, addiction, emotion, empathy, language, learning, trauma, ritual, meditation, and so on. Riding the wave of this latest crest might actually reinvigorate the field. Indeed, Bulkeley concludes his essay asserting, “Not since the early part of the twentieth century has leading scientific psychological research provided such fertile material for religious thought and reflection” (p. 129).

Contrary to what one might assume, cognitive neuroscience is not a single science. It began in the 1970s out of recognition that several insular disciplines (psychology, computer science, neuroscience, philosophy, linguistics, and the social sciences) shared common interest in the mind (Graves, 2008, pp. 15-17). Cognitive neuroscience is the study of the mind in the area where these disciplines intersect and interact. So it is inherently interdisciplinary and open to theology, as computer and cognitive scientist Mark Graves suggests (p. 19). A Darwinian orientation has also shaped its development. Or, as Bulkeley says more candidly, think of it as “sociobiology with PET [positron emissions tomography] scans and brain lesion studies” (p. 124). Cognitive neuroscience explains change in terms of evolutionary adaptation. So it asks of religion the same question it asks of anything else: how does it contribute to human survival and flourishing through its impact on brain and behavior? Or in Bulkeley’s words, “How do religious beliefs, rituals, and experiences promote the adaptive fitness of the individual? Does belonging to a religion help people propagate their genes more effectively?” (p. 123).

If pastoral theologians are going to engage this research, there are good reasons to revisit method. Minimally, cognitive science raises new questions. Or, more accurately, it resurfaces old problems of reductionism in new form. Just as Freud threatened religion by attributing it to mental illness and insecurity, cognitive science threatens it by relegating God to brain activity. If brain imaging can locate religious experience in particular regions of cerebral matter, is God no more than (mis)firing neurons or a personality quirk (e.g., Alper, 1996)? If religion is merely an evolutionary adaptation, developed because of its contributions to social cohesion or some other good, can it not be replaced with less volatile institutions and practices, a claim that sounds eerily like Freud's own (1932)? Interestingly, cognitive neuroscience threatens to reduce not only religion but psychology itself, showing emotion's origins in "quantitatively determined states of specifiable material particles"—Freud's words for his own initial aim in his 1895 treatise, "Project for a Scientific Psychology" (1954).<sup>2</sup>

Equally troubling is an inverse problem of what I would call *religious reductionism* or the collapse (or broadening) of science into religion. What exactly is *neurotheology*, for example, a term that some researchers use to describe the study of the brain's capacity for spiritual experience (that first appeared in Aldous Huxley's utopian novel, *Island*)? There may be good reasons for its use. But the term itself confuses the boundaries between science and theology. More troubling yet are cognitive scientists who discover that popularizing their findings and drawing wider conclusions sells more books. Is there something wrong with either complete rejection of religion or merger of science

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<sup>2</sup> See Bulkeley (2010) for a study of the neuroscientific themes in Freud's work.

and theology? If so (and I think so), how do we articulate that? Only by clarity about disciplinary boundaries and method in relating the two enterprises.

The Steering Committee of the Society for Pastoral Theology (SPT) gave me the question that guides this essay and the plenary that preceded it: “What methodology should pastoral theologians use when we engage other disciplines (in this case neuroscience)?” I could give a simple answer that would make for a short essay: the same method as with any other science. While the science changes, the methodology for theological inquiry remains the same. But I agree with the committee that the “question of method has not been addressed enough.” Progress in the neurosciences provides extra incentive.

So my focus here is more method than neuroscience. I explore innovation in neuroscience and religion in only a limited illustrative way.<sup>3</sup> I begin by identifying reasons why a turn to method is merited and then lay out some methodological options, arguing for the revised correlational theory that has guided much scholarship in pastoral theology, modified by liberation and postmodern theory, as still the most viable, flexible, and faithful. I lift up a few spiritual characteristics of such an approach and then briefly illustrate this method in one area—gender, race, and science—arguing that theologians should appreciate how brain research challenges mind-body dualism that has separated cognition from its embodied forms *and*, at the same time, stand ready to make substantive contributions, including a critique of the limits and hazards of science. In short, I argue

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<sup>3</sup> Thanks in part to email conversation with colleague Kelly Bulkeley and doctoral student Laura Rosser, I discovered several good resources with which others new to the area might want to begin: Bulkeley (2004, 2005); Jeeves and Brown (2009); Gay (2009); Graves (2008); and Peterson (2003).

for a rare but genuinely mutual or two-way engagement between science and theology. Each should stand corrected and enriched by the other.

### Epistemology, Methodology, and Other Simple Questions

Twenty years and three children ago this June, I gave my only other SPT plenary when asked by an earlier committee to address the subject of epistemology. In the society's early years, recognition that social location influences assumptions about truth and knowledge forced consideration of the issue of epistemology. A year or so before my paper, now retired pastoral theologian Carroll Saussy had dared to exclude men in her work-in-progress presentation on women, self-esteem, and god imagery (see Saussy, 1991), vanquishing them literally, not just figuratively, to the outer circle of the discussion. The rule: they could listen but not speak, an almost intolerable position for those formed by a mostly white male academy with the presumption of prominent voice. Saussy had been encouraged by her academic sisters who felt angered by one more slight, however slight and well-intentioned—discussion about a new journal conducted largely without women. The initial business meeting recommendation for the journal never went through because the men saw (or were made to see) the problem. By the time we got to Saussy's session, the women had critical mass and decided an embodied experience of no voice for the men might demonstrate how religious practice shapes self-perception and power. Sometimes mere information about sexism or racism or heterosexism by itself does not produce empathy. One must inhabit the stigmatized position.

I tell this story partly because I want it recorded somewhere in the society's memory on the occasion of its 25<sup>th</sup> anniversary. I tell it *not* as a tale of shame but to honor

the strength and compassion of a society capable of weathering the storms of difference and taking painful but important steps forward. I also tell this story because some of my earlier plenary claims about epistemology *as grounded in biology but shaped by culture* pertain to our understanding of method in neuroscience (Miller-McLemore, 1992a). My speaking on both epistemology and methodology is actually a happy coincidence. One cannot really determine method without making claims about knowledge.

Questions about epistemology arose years ago because of major advances in gender studies. How do we know what we know about God, faith, and care if gender so powerfully shapes knowledge? I had two sons, four and one year old, and a third on the way. Colleague and friend Herbert Anderson suggested the question that influenced my research. Do you know any differently as a biological mother? I offered a cautious yes, claiming a distinct kind of maternal knowing that works at the intersection of culture and body, affected powerfully but not ultimately by hormones and physiology (see 1992a; 1992b). It was a daring argument because women have suffered the negative consequences of centuries of fatalistic natalism that equates motherhood and adulthood and defines a woman's fulfillment as dependent on giving birth. I wanted to dispel the myth of biology as destiny at the same time as I wanted to understand the contours of a particular kind of embodied knowing. Certainly neuroscience can help us with this tricky relationship between culture and physiology, gender and sexuality, and so forth, but not without comparable dangers of misuse and abuse of biological and scientific "facts."

So epistemology and methodology matter. *They are as much about power as they are about precision because they determine where knowledge and truth reside.*

Pastoral theologians tend to neglect method.<sup>4</sup> Don Browning and Don Capps, two major scholars in the field educated at University of Chicago who sometimes stand in adversarial relationship, agree on this. Browning writes a good deal on the subject (e.g., 1991); Capps had less interest, putting most of his thoughts into one essay, written partly in response to student request (1999; see also 1990). But even Browning acknowledges that “mapping the terrain” is “inherently ambiguous and potentially dangerous.” “It is possible,” he says, “for any traveler to become so preoccupied with charting the course of one’s journey that one never has time to actually make the trip” (1987, p. 10). Since pastoral theologians attend to human suffering and its transformation, getting sidetracked in this way is problematic. Most of us aspire to think compassionately or wisely or justly more than methodologically. As a result, we have “spent too little time” on method, Browning says (p. 10), including questions about the proper use of cognate disciplines.

We are not alone in this. In recent years, Yale postliberals have accused Chicago revisionists of becoming so obsessed with how to go about doing theology that they never get around to it. Several years ago, feminist theologians such as Rebecca Chopp accused liberal theologians of excess worry about the cognitive crises of belief among elite non-believers in scientific society and neglect of practical crises of survival and justice among the world’s population (Chopp, 1987; see also Lamb, 1982).<sup>5</sup> Many contemporary

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<sup>4</sup> An important exception is the decision to include a chapter on method in the update (Ramsay, 2004) of *The Dictionary of Pastoral Care and Counseling* (Hunter, 1990). Joretta Marshall (2004) does an excellent job describing four kinds of methodological questions and identifying the relevant articles in *The Dictionary* (p. 136).

<sup>5</sup> In Chopp’s words, “While liberal-revisionist theologians respond to the theoretical challenge of the nonbelievers among the small minority of the world’s population who control the wealth and resources in history, liberation theologians respond to the practical challenge of the large majority of global residents who control neither their victimization nor their survival” (1987, p. 128).

systematic theologians no longer worry as much about convincing the secular public about religion's value. Kathryn Tanner, influenced significantly by postliberalism, says theology should be more concerned with "Christian social practices" as its "primary subject matter" than with how it stands relative to philosophy, other disciplines, and the non-Christian public in general (1997, p. 71).

Discovery in neuroscience presses the question of method anew, however. Method is especially critical for pastoral theologians, perhaps more than other scholars in theology because of our focus on careful description, action, and practice—three interests we share with the broader enterprise of practical theology. In new twentieth-century definitions of pastoral theology and care, attending carefully to a problem, understanding its details, listening closely, and so forth precedes action and response. Good description and effective action both require extensive interchange and even temporary dependence on the sciences precisely because of their descriptive and action-oriented expertise. Moreover, because practice is complex, many disciplines are essential to understanding it. So pastoral theologians should actually spend *more*, not less, time on method. The question Charles Gerkin framed years ago in the leading line of *The Living Human Document* as the "root question" for the new movement of pastoral theology after several decades of borrowing from the sciences is still quite relevant: "How can pastoral counseling be at the same time both an authentically theological and a scientifically psychological discipline?" (1984, p. 11).

One final reason for staying with an otherwise dry subject: pastoral theologians do not always agree on how to relate to the sciences. This is true even though many people in the field follow the twentieth-century liberal trajectory that runs from Browning and



David Tracy to Seward Hiltner and Paul Tillich. We presume a correlational approach with liberationist adjustments. But I am hard pressed to point to a book or article devoted to explaining and defending it. Instead, one of the clearest statements on how to relate to the sciences, Deborah Hunsinger's *Theology and Pastoral Counseling* (1995), argues for a more confessional approach based on Barthian *analogia fidei* or knowing God through faith alone. Major works that use correlation, such as Elaine Graham's *Transforming Practice* (1996), are often one-sided in the opposite direction, giving culture considerable say and claiming little about the truths or wisdom of Christianity.

In other words, it is hard to find a careful exegesis in pastoral theology of correlation and what the longer Christian tradition calls *analogia entis* (analogy of being or knowing God through analogy with creation) unless one goes back to books few read anymore, such as Browning's *Atonement and Psychotherapy*, who argued in 1966 that the "analogical process must operate in both directions" (p. 165).

### Methodological Options

The brain is an amazing organ. A *Christian Century* review (Peterson, 1999) of the late pastoral theologian James Ashbrook and co-author Carol Albright's *The Humanizing Brain* (1997) offers testimony. Just think about the miracle of the brain, the review suggests:

Every brain contains approximately 100 billion cells called neurons. Neurons connect with one another to form complex communication networks that, among other things, enable us to walk, talk and breath without thinking about it. There are a staggering 100 trillion neuron connections in the brain. As anyone who uses

a comparatively simple desktop computer can testify, it seems a miracle that such a complex system could work without crashing. Yet the brain smoothly, day in and day out, enables us to perceive color, distinguish the year and place of wine by taste, and (sometimes) understand calculus. Black holes seem boring by comparison (Peterson, 1999, p. 85).

If that doesn't put us in awe of God and creation, then what would? Or at least, that is the upshot of Ashbrook and Albright's exploration. Theologians can use brain science to understand and know God, they say.

Can neuroscience really tell us about God or the sacred, however? I am not so sure. But if not, how should neuroscience and theology relate to one another? In his inimitable way, twentieth-century neo-orthodox theologian Karl Barth called this kind of *analogia entis* the "invention of antichrist" and a good reason not to become Roman Catholic (1936, I/4, p. xiii), a tradition that supports such natural theology. For Barth and Reformation leader John Calvin long before him, no genuine knowledge of ourselves comes without prior contemplation of God (Calvin, 1539). Hunsinger draws the implications of this view for pastoral theological method: there is a "radical discontinuity" between human experience and God that "only God can overcome." Sin and death essentially "negate any continuity" (1995, p. 38). She uses Barth's interpretation of the Council of Chalcedon on the relationship of Christ's divine and human nature to pattern a three-fold relationship of "indissoluble differentiation" and "inseparable unity" between theology and psychology and "indestructible ordering" of revelation over human knowledge (p. 65, citing Barth III/2, p. 437). Of course, Hunsinger is not the first or the only person to recommend this position. Thomas Oden's early 1966

work, *Kerygma and Counseling*, contrasted with Browning's otherwise similar book on psychologist Carl Rogers's insight into the power of acceptance to affect healing: Against the "overwhelming confidence that theological learnings can be derived from therapeutic learnings," Oden argues, we "only know by being known by God" (pp. 116, 124; see also Loder and Neidhardt, 1992; Loder, 1998).

Although I do not agree with this position, I appreciate its clear distinction between scientific and theological knowledge. I do not want to reassert a flat-footed *analogia entis* that assumes we can easily deduce God from brain studies. Nor do I want to deny nature or reason's revelatory potential. In contrast to both positions, I think a less naïve natural theology is needed, one that draws no simple analogies but recognizes that greater engagement and debate between science and the humanities could serve both enterprises well. A correlational approach tries to walk a fine middle ground between total rejection and unquestioned acceptance of *analogia entis*.

Retired professor of physics and religion Ian Barbour describes four positions in the science-religion relationship that are helpful here: conflict, independence, dialogue, and integration. Writing as a modern man deeply formed by the sciences, he spent most of his professional life trying to sustain a place for religion in what he sees as a science-dominated world, tackling questions similar to those that sparked this essay. "What view of God is consistent with the scientific understanding of the world? In what ways should our ideas about human nature be affected by the findings of contemporary science?" (1997, p. xiii). My interest in his work resides in the rubric he develops to describe the

options more than his own answer. Spelling out four positions allows him to position himself within his own typology and gives us a resource to do likewise.<sup>6</sup>

Today John Milbank's *Theology and Social Theory* (1990) and Richard Dawkins's *The God Delusion* ((2006) represent fresh examples of the *conflict* position, similar in fervor to those previously more familiar, such as Freud and religious fundamentalism. In Barbour's typology, scientific materialism and biblical literalism share traits, even though we tend to put them at opposite ends of the spectrum. He names only biblical literalism here but I think what he says can be generalized to other forms of religious orthodoxy. "Both believe that there are serious conflicts between contemporary science and classical religious beliefs. Both seek knowledge with a sure foundation. . . . [B]oth claim that science and theology make rival literal statements about the same domain" (1997, p. 78). In the conflict model, science and religion are seen as competing and exhaustive explanatory views of reality. One must choose between them.

Another vivid example is the recent reassertion of biblical therapy at Southern Baptist Theological Seminary, ironically one of the pioneering institutions in the liberal pastoral theology movement and home of a major contributor, Wayne Oates, and my own Vanderbilt predecessor and co-founder of this society, Liston Mills. Contrary to their aspirations, Biblical therapy presumes that "scripture is sufficient to answer *comprehensively* the deepest needs of the human heart" (cited by Winfrey 2007, p. 24,

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<sup>6</sup> For comparable typologies, see Carter and Narramore (1979) and Osmer (2008). Carter and Narramore outline a typology similar to Barbour's but with the explicit purpose of making an evangelical argument for integration. Osmer lists fewer options and focuses on different kinds of dialogue (pp. 163-172). He points out that some postliberal scholars, such as Hans Frei (1992), use the term *correlation* but do not understand it as "mutual influence between equals." Instead when theology enters into dialogue with the sciences, it "transforms their insights as they are placed in the altogether different language game of theology" (Osmer, 2008, p. 169).

emphasis added). According to the seminary's president R. Albert Mohler, wisdom comes "only from God and from God's word" (p. 24). Secular psychological sciences have only led us astray.

The *independence* position is not far removed. It also places science and religion in separate spheres, but with less adversity. What one learns through science presents no threat to religion and vice versa because their bodies of knowledge are independent. The language and practices of science and religion "serve very different functions in human life," in Barbour's words. "Each must tend to its own business and not meddle in the affairs of the other" (1997, p. 84). Science can neither contribute to nor conflict with revelatory truth. It makes statements that are verifiable on empirical grounds (facts); religion is non-verifiable and based on faith (revelation). They are different language games, serving distinct communities and traditions, as in George Lindbeck's postliberalism (1984). Tillich's neo-orthodox correlation actually falls partially into this camp because he argues that science provides insight into questions of existence but answers come from Christian doctrine.

Both *dialogue* and *integration* push past conflict and independence and see science and religion as more akin than different. Religion offers reasonable interpretations of human experience, using methods similar to those used by the scientist, and science involves presuppositions and moral commitments similar to those of religion.<sup>7</sup> *Integration* argues for a broad metaphysics that encompasses science and

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<sup>7</sup> Barbour is less adept at showing what science has to gain from theology than the reverse. But one of his best contributions is to challenge science as wholly other than religion and therefore the "most reliable path to knowledge" (1966, p. 4). As he says in an early book, science is a "more human enterprise" and theology a "more self-critical undertaking" than commonly understood (1966, p. 4).

religion within some greater whole. Both liberals and conservatives appeal to this latter position. Barbour does so using process philosophy. Ashbrook and Albright locate integration in the brain's own capacity to create meaning. They argue, for example, that exploring the brain helps "understand the ways things really are" and puts us on the "threshold" of resolving the split between religion and science (p. xx). Some evangelicals also unite scripture and psychology under the belief that "all truth is God's truth, wherever it is found" (Carter and Narramore, 1979, p. 13).<sup>8</sup> *Dialogue* seeks no such synthesis or unity. It emphasizes the differences between science and religion, even as it hopes to find ways each might influence the other.

People can occupy more than one position. Barbour himself argues for a blend of independence, integration, and dialogue (1997, p. 105). Hunsinger employs a more correlational method than she herself admits, allowing science to reshape theological claims (Miller-McLemore, 1998). I see merit in the independence position even though I want to articulate the parameters of a more strictly dialogical approach, partly because scholars in pastoral theology often presume it but without sufficient defense and nuance.

#### The Parameters of the Revisionist Correlational Method

I can hardly help but prefer a correlational approach, raised in a Midwest university town in the 1960s in a religious tradition, Christian Church (Disciples of Christ), that emerged partly out of Enlightenment confidence in human reason and then educated in the 1980s in a graduate school where professors Browning, Tracy, Langdon

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<sup>8</sup> Recent literature by evangelical psychologists promotes a similar integrative approach. See, for example, McMinn (1996), Moriarty (2010), and Johnson and Jones (2000).

Gilkey, and James Gustafson were all working out some form of critical dialogue with the sciences. If scholars could earn royalties every time someone quoted them, Tracy would be rich. Practical theologians use his terms repeatedly—dialogue, conversation, correlation—to sum up their approach. This method has also informed pastoral theology as a practical theological subdiscipline focused on spiritual care of persons. In his work in pastoral theology, Browning’s modification of Tillich’s one-directional correlation of secular questions with the Christian message drew heavily not only on his study under Hiltner at Chicago but also on his colleagues Tracy, Gustafson, and Gilkey down the hall.

The third chapter in *Blessed Rage for Order* details the components of Tracy’s revisionist model. “In its briefest expression,” Tracy says in the first sentence, “the revisionist model holds that a contemporary fundamental Christian theology can best be described as philosophical reflection upon the meanings present in common human experience and language, and upon the meanings present in the Christian fact” (1975, p. 43). The rest of the chapter breaks this down into five theses and explores the two sources (Christian texts and common experience and language) and methods for studying, correlating, and assessing each one. He chooses the term *revisionist* because he understands his method as a continuation of liberal and modern aspirations “in a genuinely postliberal situation” (p. 32). By the latter, he means a time not only of modern scientific disenchantment with religion but also postmodern disenchantment with science, technology, and reason. But this second “disenchantment with disenchantment” need not lead to what he calls a “return to mystification, Christian or otherwise,” which I understand him to mean a nostalgic restoration of pre-modern belief (p. 33). Instead, his

revisionist method is post-liberal not because it has forsaken liberal ideals but because it seeks new methods and resources for pursuing them.

So a basic difference between a revisionist method and postliberalism and radical orthodoxy is its liberal ideal, what Tracy and others have sometimes called *public theology*—that is, its continued commitment to making Christian faith intelligible for a wider non-Christian public and, inversely, to using non-Christian resources to enrich Christian faith. In this pursuit, the use of modern critical theory (e.g., Marx, Freud, Habermas, feminism, Foucault, etc.) retains its place, as does the desire to reinvigorate Christian symbols and wisdom in the public realm. Both anti-secular Christianity (e.g., Hauerwas and Willimon, 1989) and anti-religious secularity (e.g., Dawkins) should be challenged.

Browning carries this agenda forward in his last published book before his death in which he advocates for a “Christian humanism” or an understanding of Christianity that recognizes the value of the sciences and wards off both the “new fundamentalists of our day and the new atheists” (2010, pp. 9, 13, 150, 154). Both trends miss the social goods that come from exchange between long-standing religious traditions and new scientific discovery. Tracy agrees: “If humanists, including theologians, . . . continue to accept their marginalized status, then the alternatives are the short-run enchantment of self-fulfillment and the long-run despair of societal value bankruptcy” (1981, p. 14). It is worth noting explicitly here an implication that neither Browning nor Tracy nor Barbour emphasize: A critical revised correlational method, as distinct from other approaches, makes demands on the sciences. It asks scientists to take seriously the knowledge available through religious traditions and communities.



Another attribute distinguishes revisionist method. Tracy underscores his conviction that Christians have no access to pristine Christian truth or orthodoxy. Both contemporary experience and Christian revelation come to us already interpreted and shaped by cultural context. “We do not receive either the Christian tradition or the contemporary situation in an immediate form” (1983, p. 63). So revisionist method picks up and extends Tillich’s challenge to Barth in its understanding of both Christian fact and human situation. Tillich tried to distinguish his own position by declaring that the task of theology is not just the “statement of the truth of the Christian message”; it is also the “interpretation of this truth for every new generation” according to the situation (1951, p. 3). But for Tracy reason, experience, science, and so forth are not just a “medium” (Tillich, 1951, p. 40) of religious truth (receiving but not producing it); they are also possible sources, what I would call a qualified *analogia entis*.

Equally important, every “classic” (Tracy’s word for particular yet enduring revelatory disclosure<sup>9</sup>), even the Christian gospel, “bears with it the history of its own conflictual history of reception” (1994, p. 14). We know God “not immediately but mediately, that is, through the social and historical mediations of a particular culture” (1983, p. 63). The range of possibilities in correlating situation and Christian fact include identity, analogy, and conflict. But there is no room for flat and final triumph of one side over the other. Christian revelation does not have the final word, the most ultimate answer, and so forth. Indeed, in conversation there is presumably *no last word*.

Tracy modifies but retains this dialogical structure when moving from fundamental to systematic and practical theology or, as he sees it, from abstract to more

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<sup>9</sup> For definition and exploration of the “classic,” see Tracy, 1981, pp. 99-154.

concrete forms of theology and from academy to church to society, the different publics distinctive to each form. Each theology develops different means of assessing its validity, from metaphysical to hermeneutical to pragmatic analysis. “Practical theology,” Tracy wrote in a 1983 essay in the first edited volume redefining the term, “is the mutually critical correlation of the interpreted theory and praxis of the Christian fact and the interpreted theory and praxis of the contemporary situation” (1983, p. 76). The only difference between this definition and similar definitions of fundamental and systematic theology is the addition of *praxis*. Unfortunately Tracy’s understanding itself stands at great distance from practice and his inability to bring highly conceptual work to bear on the spiritual and pastoral life played out in his failure to add a third and final volume to his trilogy on the three types of theology. The most we have is this chapter and his work in volume two, *Analogical Imagination*, on the different publics and attributes that characterize each type (1981, pp. 56-69, 69-79).

My own more comprehensive understanding of correlation benefits as much from Gustafson (2004), Gilkey (1993), and Browning (1991), all of whom merit more citation and exposition than space and time allows. In fact, I risk plagiarism as I turn to graduate school notes layered over by my own lecture notes to spell out a strategy that draws on their combined efforts to work between faith and science.

In correlation, science and religion are separate *and* related. Correlation, in other words, includes a moment of independence. As Barbour says, independence is a “good starting point” because it “preserves the distinctive character of each enterprise” (1997, p. 88). When science is narrow, heuristic, non-dogmatic, charting out material causes and consequences, explaining and predicting in limited ways, using public methods to

determine knowledge open to review, analysis, and confirmation by anyone with reasonable judgment, theology has no right to prejudice its results. Likewise, when theology addresses ultimate struggles and horizons of existence, science has less to contribute. In other words, they cannot conflict in an ultimate sense—an idea with roots in Tillich—because science *qua* science cannot fully entertain questions about the reality of God or human freedom, failure, or bliss. Nor can theology question scientific findings when they are focused on a partial account of a particular reality.

So when should there be dialogue? Dialogue occurs under four conditions: when theology makes statements about the empirical world (what Browning calls the “rhythms of nature,” 2010, p. 151) to which sciences may contribute; when science becomes dogmatic or ideological and begins to form culture; when science requires normative and philosophical guidance for its goals and direction; and, finally, when visions of the “good life” in theology and science conflict. The goal of dialogue is neither integration nor triumph of science over religion (or vice versa) but clear articulation of boundaries, corrections, and intersections. In a summary statement in an Appendix on method in the second edition of *From Culture Wars to Common Ground*, Browning captures well the desired outcome:

When done rightly, good theology will look a lot more like good social science; that is, it will describe the world it is addressing with much more care and nuance than theology generally does. The converse is also true. When done rightly, good social science will look a lot more like good theology; that is, it will take more responsibility for revealing and critically defending the implicit norms and ideals that unwittingly guide its descriptions of the social world (2000, p. 335).

In the past ten years, Browning began to use Paul Ricoeur's phrase "critical hermeneutics" (Ricoeur, 1981, p. 87) to describe his method (Browning, 2001, 2006, 2010). He adopts the term as a way to make room for both *explanatory knowledge* distinct to science that Ricoeur calls *distanciation* (1981, pp. 64-65; see also Ricoeur, 1966, pp. 12-13, 87-88; 1970, pp. 436-438) and *interpretative knowledge* or *verstehen*, the non-empirical participatory grasp of a subject distinct to religious traditions. Not only does theology need the sciences for its help with the former. Science, Browning argues, "will do better if it works hard to understand (in the sense of *verstehen*) the complexity of religious traditions" (2010, p. 5). Science is, in fact, always embedded within a particular social history that affects its explanations. So all interpretation or knowledge requires the rhythm of understanding-explanation-understanding that Ricoeur defined and defended.<sup>10</sup> In short, it is the inclusion of "explanation as a submoment of understanding" that makes hermeneutics *critical* (Browning, 2010, p. 24).<sup>11</sup>

Although I understand why Browning takes up the term *critical hermeneutics*, I still prefer *revisionist or critical correlation* as the best way to describe method in interdisciplinary study because as a descriptor it is easier to grasp. It graphically depicts in its very connotation what the method looks like. What it loses, however, is Browning and Ricoeur's interest in specifying the different kinds of knowledge in science and theology. They are not just talking about method; they are constructing an epistemology

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<sup>10</sup> Ricoeur also talks about the value of "mixed discourse" of archeology and teleology, explanation and interpretation, energetics and hermeneutics.

<sup>11</sup> Browning turns to philosophy to define method. I find as helpful Kohut's psychoanalytical assessment of a similar dynamic in therapeutic empathy between explanation and understanding. See Kohut, 1994, pp. 105, 94, 186.

as well. Critical hermeneutics affirms the value of both empirical and interpretative knowledge.

In recent years, liberation, postmodern, and practice theory have modified but not completely negated the viability of a correlational or critical hermeneutical approach. Most liberation theologians retain a version of correlation but they argue that it must privilege “*those excluded or absent from the conversation,*” in Mark Kline Taylor’s words (1990, p. 64, emphasis in the text). It must move from cognitive debate to transformative practice, what Taylor calls “cultural-political theology” (1990, p. 23) and Chopp calls a “critical praxis correlation,” that attends to and improves the condition of the downtrodden—in other words, a theology more akin to practical theology. They also question the view of human experience as common or universal and the conceptual distinction of experience and tradition as two separate poles.

Theologians influenced by postmodernism and practice theory go further. Many rely on different postmodern sciences or schools of thought, such as poststructuralism, anthropology, and political and philosophical theory, to reexamine fundamental categories presumed by liberal, early liberation, and postliberal theology, such as experience and subjectivity (Fulkerson, 1994), culture (Tanner, 1997), and tradition (Taylor, 1990). Christian theology is not a philosophical enterprise that stands above culture requiring correlation with secular sources. It is itself a practice or “a culture-specific activity, something that takes place within *a* culture,” in Tanner’s words (1997, p. 64, emphasis in the text). Hence scholars like Fulkerson and Tanner adopt an anthropological rather than correlational approach. They use the sciences to “locate theology in a very particular place on the cultural map” (Tanner, 1997, p. 67; see

Fulkerson, 2007)). As Fulkerson argues, experience is neither the “medium” Tillich describes nor the “first-order” source some liberations and feminists presume but instead a thick “reality that needs to be explained” (1994, p. viii). The problem with this approach is that its proponents seldom examine the pros and cons of reliance on anthropology or wonder about the normative assumptions behind the sciences they use. Consequently, they do not spend much time speak directly to them in an evaluative or constructive way. New findings in cognitive neuroscience call for greater engagement.

### The Spiritual Stance of a Correlational Theologian

The dialectical nature of the correlational method leads me to two complimentary observations. Christian doubt and suspicion are as powerful a methodological stance as confession and proclamation. Not knowing about God is an acceptable research and faith position with biblical and historical roots, evident, for example, in the Gospel of John’s doubting Thomas (John 20: 24-29) or the spiritual tradition of apophatic theology. Doubt leaves room for learning; suspicion allows for criticism. And given the “radically ambiguous” nature of Christianity in history and society in Tracy’s words (e.g., the use of the symbol of the cross to both heal and harm), this stance makes even more sense (1983, p. 70). There are potential fruits of uncertainty if cultivated or practiced, such as modesty, humility, reverence, surprise, awe, and vulnerability.

This position has particular meaning for pastoral theologians influenced by psychoanalytic method. Erik Erikson describes a transformation Freud underwent on his way to becoming the first psychoanalyst: Freud had to discard the “prevailing role of dominance” he learned as a neurologist, the “all-knowing father role” and adopt a “role

for which there was no ideological niche in the tradition of his profession” (1964, p. 30). This meant relinquishing the “security of seemingly more ‘objective’ methods” and putting “self-observant vigilance above the satisfaction of seeming professional omnipotence” (1964, p. 43). This shift in stance from assurance to humility follows naturally from two principles Erikson identifies as necessary to understanding the human mind: One can study the mind “*only by engaging the fully motivated partnership of the observed individual, and by entering into a sincere contract with him*” and one cannot “*see in another what you have not learned to recognize in yourself*” (1964a, p. 30, emphasis in text). Self-psychologist Heinz Kohut hones this method when he argues that, for psychoanalysis as the “science of the human soul” (1978, 2, 686, n. 1, cited by Strozier, 2001, p. 337), the only way to understand the psyche is through introspection and empathy (Kohut, 1959).

At the same time, since sciences still rule (at least in the academy, if not in culture), the humanities must also make a clear case for themselves. The descriptive moment in pastoral theology is important and here science matters greatly. But even here theology and faith already shape what we see and notice. Moreover, theological truths known through religious practices, traditions, and communities about what many theologians see as “empirical” realities, such as sin, idolatry, and grace, offer explanations of reality that go beyond scientific analysis. Moral and theological categories are “necessary for an adequate grasp of reality” in the words of two proponents of Latin America liberation theology (Hassett and Lacey, 1991, p. 7). In addition, explanation and understanding stand in distinction from one another. Science has a lesser role in understanding than in explanation. Theologians tackle what my Vanderbilt

colleague Volney Gay calls “wicked problems” (2010), such as poverty, health care, and world peace, a term that comes from two scholars in policy science who recognize major impediments to creating adequate public policy via science alone (1973). Wicked problems lack definitive solutions typical of the “tame problems” usually addressed by the sciences. They require interdisciplinary and multi-level engagement.

Here again theology has affinities with psychoanalysis. As Germanic studies scholar Eric Santner argues, “Psychoanalysis differs from other approaches to human being by attending to the constitutive ‘too muchness’ that characterizes the psyche; the human mind is, we might say, defined by the fact that it includes more reality than it can contain, is a bearer of an excess, a too much of pressure that is not merely physiological” (2001, p. 8). Introspection, a way of knowing distinctive to both psychoanalysis and Christian faith (and theology), is still an essential means of understanding the human mind. As Bulkeley says, “introspection remains an indispensable source of insight into the fullness of human experience—not the *only* source, but perhaps the best source for some purposes, and certainly a source that has to be taken seriously in brain-mind research” (2005, p. 4).

Moreover, although Gay says the humanities will make progress by turning wicked problems into more manageable puzzles, such a solution may not work completely for theology. Theology has a responsibility not just for wicked *problems* but also for what might be called *wicked dimensions of life* not easily explained or understood, such as pain, hope, injustice, joy, and evil. Theology is “compelled by concerns,” as Fulkerson says, “that may not be fully articulatable” (2007, p. 13) or that are “limit-questions” in Tracy’s words (1975, p. 94). The brain itself is a wonder all its



own. Even neuroscientists are far from agreed about how it works. Diversity in explanation abounds. And an amazing host of questions remain unsolved. No matter how much progress in cognitive neuroscience occurs in the years ahead, this reality is unlikely to change completely.

Taking these two complementary observations together, the best spiritual stance in working as a theologian in critical dialogue with science is *receptivity* rather than religious assurance, on the one hand, and *measured proclamation* of particular theological truths rather than modesty or relativism, on the other. This leads to one final observation on theology's unique perspective as understood through Gustafson's theocentric method. By definition, science wants to know how religion and spirituality are useful (or not), how they contribute to (or prevent) the advancement of individuals and civilization. Religious confession, Christian and otherwise, relativizes and ultimately refutes such instrumental interpretations (e.g., spirituality or certain religious meditative techniques are good for our mental health, marriage, or other relative ends). In Gustafson's dramatic words, when the study of God and spirituality inevitably turns to human benefit, "God is denied as God" (1981, p. 25). Faith serves a higher transcendent end (e.g., glorifying God, mutual love) (see Browning, 2010, chapter 4). This remains one of the most important contrasts between science and Christianity and a key remediation theologians offer. Maybe life is not all about humans, individual happiness, and social success. Maybe it is about reverence, gratitude, and service to something greater and sometimes completely unarticulatable or beyond human limits.

Physiology as Destiny? Just a Reminder

I want to illustrate briefly this approach in one area shaped by science and theology of special concern to me—gender and race. A revised correlational method flags the abusive use of Western science as destiny *and*, at the same time, appreciates the emerging knowledge about the influence of brain function, chemistry, body motion, and sensate affections on human behavior.

In the past, the misuse of the sciences has had the most destructive impact on the most marginalized—populations with whom Christianity should be concerned. Racism, sexism, heterosexism, and other prejudices slip in just as easily through science as through religion. In fact, science gives an extra boost of empirical proof to earlier philosophical and theological claims about inferiority. We only need to re-read early empirical “findings” to remind ourselves. It is worth remembering that modern science developed right alongside colonialism. In 1896, president of the prestigious American Association of the Advancement of Science, Daniel G. Brinton declared “the black, the brown and the red races differ anatomically so much from the white . . . that even with equal cerebral capacity they never could rival its results by equal efforts” (cited by Hopkins, 2005, p. 147). Eighteenth-century scientists, such as Dutch naturalist and medical expert Pieter Camper and German physician Franz Joseph Gall, even argue against equal cerebral capacity, analyzing skull shape and equating head dimensions with Caucasian intellectual superiority. As systematic theologian Dwight Hopkins shows in a detailed overview (2005, pp. 131-159), eighteenth-century philosophy, science, and religion came together to construct a rather incredible theory of white superiority. When nineteenth-century evolutionary science spawned the eugenics movement, its founding father Francis Galton declared, “The average intellectual standard of the negro race is

some two grades below our own” (cited by Hopkins, p. 146) as justification for forced sterilization.

Freud is, of course, an easy and appropriate target for criticism for making equally scurrilous assertions about gender based on scientific “fact.” As a direct result of what he calls the “inferiority of the clitoris” (1963 [1925], p. 190), he says he “cannot escape the notion (though I hesitate to give it expression) that for women the level of what is ethically normal is different from what it is in men.” He insists, “we must not allow ourselves to be deflected from such [scientific] conclusions by the denials of the feminists who are anxious to force us to regard the two sexes as completely equal in position and worth” (p. 193). Several 1960s psychologists inherit his mantle of sanctioned infallibility. Naomi Weisstein begins a well-known paper that laid the ground for a new psychology of women with several telling examples (1968). By “*somatic design*,” observes Erikson, a woman “harbors an ‘inner space’ destined to bear the offspring of chosen men, and with it, a biological, psychological, and ethical commitment to take care of human infancy” (1964b, emphasis added). Harvard Medical School psychiatrist Joseph Rheingold says, “anatomy decrees the life of a woman . . . when women grow up without dread of their biological functions and without subversion by feminist doctrine . . . we shall attain the goal of a good life and a secure world in which to live it” (1964, p. 714). Bruno Bettelheim remarks, “we must start with the realization that, as much as women want to be good scientists or engineers, they want first and foremost to be womanly companions of men and to be mothers” (1965).

We could trace similar troubling statements about homosexuality and pathology among some of these same scientists. And there are contemporary examples in cognitive

neuroscience, such as the use of mammalian reproductive patterns to describe men as biologically programmed to philander and women to protect the nest (e.g., Pinker, 1997), theories about the clitoris, such as Stephen Jay Gould who sees it almost like Freud as an undeveloped superfluous penis (Zuk, 2002, p. 142, cited by Bulkeley, 2005, p. 64), the comparison of the Old Testament God with the brainstem and the New Testament God with the neocortex (Ashbrook, J. B. and Albright, 1997, pp. 124-127), or what Bulkeley describes as some of the more “preposterous speculations” (2005, p. 22) about certain civilizations favoring the left or right brain. In short, norms operate behind the most objective empirical research. The step from science to morality and religion is relatively small.

For those who adopt a revised correlational position, sciences are not just tools. They are hermeneutical culture-defining conceptual systems and practices. So it behooves theologians to engage them and to ask tough questions. When neuroscientists like Stephen Pinker venture into what he calls “Grand Theorizing” (1997, p. 21) and conclude national best-sellers with chapters on “family values” and the “meaning of life” as Pinker does, theologians and religion scholars have a legitimate and vital role to play (even a responsibility), evaluating the merits of such claims and asserting distinct views of nature and reality emanating from religious traditions and communities. They stand in a good position to catch and correct slippage between fact and norm and to address culture-biology tensions when they resurface in neuroscience and among those who use the findings. Hopkins, for example, concludes his race theory overview with a turn to such correction and reconstruction, arguing for *imago dei* and *mission dei* as better ways to understand human nature and purpose (2005, pp. 159-160). Because there is and will

remain an avid “market for books “ that extrapolate and apply cognitive neuroscience to “issues like art, morality, and religion” (Bulkeley, 2003, p. 125), the need for comparable scholarship in religion and theology’s becomes all the greater.

### Embodiment Matters and So Does Empirical Science

Culture matters. Culture constructs what people recognize as disease and health as much as biology (see Watters, 2010). Women’s depression, for example, has social and political causes; individual pathology has cultural roots. But biology matters too. Brain science has demonstrated this all over again. Neuroscience can help explain the material dynamics of religious experience, showing that certain parts of the brain are “softwired” for it.<sup>12</sup> New imaging techniques explain why mystical experiences, in which boundaries between self and world break down, feel the way they do. Or, at least in one interpretation offered by Andrew Newberg and Eugene D’Aquili (2001, p. 6) with which other researchers are not in entire agreement, the area of the brain responsible for sensory perception shuts down while another area, the prefrontal cortex, in charge of highly sophisticated cognitive tasks, goes into overdrive. In their interpretation, without immediate access to one’s proximate surroundings, one feels at peace with the whole.

This research is only the tip of the iceberg of what might be discovered about how our physically-embodied spiritual minds work. Correlational receptivity for this kind of exploration is important. This research undermines the body-soul dichotomy more typical of those who occupy a conflict or independence position. It also challenges those at either

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<sup>12</sup> I intentionally say *softwired* instead of *hardwired* because, as I have argued, biology is not determinative but always and entirely embedded in history and society. See Browning, 2006, p. 5 and Hogue, 2003, p. for 195 for a similar argument.

end of the spectrum who argue for a kind of asymmetry or prioritization, whether ultimately positioning the soul over body or, the reverse, biology over culture.

Theologians have focused on the *heart* or *soul* with insufficient recognition that its impulses, emotions, and desires are located in the *brain*. Body, mind, and soul are not such separate spheres (see Hogue, p. 18; Dalasi, 1994). In diagrams and descriptions of brain physiology and function, I could hardly help but notice the close proximity of two organs (the hippocampus and the amygdala) with powerful influence on emotion and the pituitary gland, which controls the secretion of hormones, and wonder about possible future findings on women, pre-menstrual symptoms, menopause, depression, self-esteem, pleasure, and so forth. Hormones affect male and female brain development in utero and beyond (Brizendine, 2006, 2010). Further research on right and left brain hemispheres and their relative interconnection and specialization may also shed more light on gender differences. Equally fascinating discoveries are emerging about brain function, race, emotion, and stereotyping (see Ito, et al., 2005; Ambady, et al., 2005).

However, anyone who makes hard and fast claims about race and gender behavior as hard-wired has drawn hasty conclusions. The brain activity that makes perception possible is itself an amazing combination of biology and sociality. People see what the structures and patterns of their brains allow them to see. But these structures and patterns have a remarkable plasticity. They are shaped by environment, social influences, and even meditative practices. So, as Bulkeley says, “our sense of external reality is in fact an elaborate creation of our own minds” (2010). He cites Nobel Prize winning biologist Eric Kandel, “[O]ur knowledge of the world is based on our biological apparatus for perceiving the world . . . [P]erception is a *constructive* process that depends not only on

the information inherent in a stimulus but also on the mental structure of the perceiver” (2000, p. 383; see also Hogue, p. 25; Doidge, 2007).

So correlation requires critique and reconstruction. But it also affirms and welcomes scientific knowledge. Psychology and science are as capable of supporting and refining religion as undermining it. They can also undermine racism, sexism, and heterosexism. For example, as Hopkins observes, genetics reveal that there is “more genetic variation among black/African persons than between white/European persons and black/African persons” (2005, p. 128. So, at the genetic level, races are more alike than different.

As cognitive neuroscience produces new knowledge at lightening speed, scholars in religion and theology are left with the important challenge of honing what we have to offer to keep the conversation genuinely two-way. Postmodernism may have undermined confidence in reason and convinced almost everyone that value-free science is a modernist myth. But this has not had a big impact at the grassroots where the so-called hard sciences dominate university funding and faculty numbers. Fact, prediction, control, and quantitative research still hold sway over interpretation, meaning, and qualitative knowledge. The success of the neurosciences is a powerful example, partially built on its deft use of sophisticated sciences (chemistry, electrophysiology, molecular and genetic biology, etc.) to create imaging technology and medical techniques that afford new discovery.

Certainly scientific and technical proficiency have an important place. But only the humanities can perfect what philosopher Martha Nussbaum describes as the “critical, reflective, and empathetic” competence of good citizens capable of exchanging ideas in a

global society “on the basis of respect and understanding with people from many different backgrounds” (Nussbaum, 2010, p. 15). In her view and the opinion of many others, the costs of eliminating support for the humanities are dire—the collapse of democracy and civil society itself.

So even as theology hopes to learn a great deal from the sciences, it brings an age-old stance of caution and wisdom about the wider social, political, and religious context in which science occurs, a context science often brackets or ignores to do its work well. Modern science has sparked incredible advances capable of reshaping human grasp of the divine. It has also supported as fact absurdly oppressive claims, such as brain size as a determinant of mental capacity, thereby confusing fact with cultural prejudice and religious norm. Theology and the humanities need to sustain a vibrant voice in the production of knowledge. Theologians and religion scholars should learn from the sciences but be aware of their limitations and prepared to offer fresh theological perspectives and a corrective when scientists are tempted to assume too quickly that they have resolved life’s unanswerable questions.

*I dedicate this article to Don S. Browning whose funeral occurred June 10, 2010, a week prior to its delivery at the Society for Pastoral Theology in Chicago. He wraps up its thesis in one sentence when he says to Christian ethics about its use of psychology what I have tried to say to theology about engaging neuroscience: “Christian ethics must critique these psychologies at the same time that it learns from them” (2006, p. 3).*



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