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Brains with character: Reading and writing neuronarrative

Yaczo, T.F.

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Chapter Four

Wonder Under the Bridge

Consider the following anecdote:

I am disturbed that my son, a nine-year-old fourth grader, does not fit the mold of most boys. ... He is not athletically inclined and so he doesn't pursue sports. ... He is not competitive in a typical sense. ... My son is very imaginative. He loves to draw, to write stories, to act things out with his toys. He'll occupy himself with those make-believe stories for hours. He's sensitive and concerned about others; also he has a lot of fear. Others take advantage of him. He says the fifth graders bully him and even kindergartners throw rocks at him. My son is not gay. We've seen him get crushes on girls in his class. But he is very sensitive, very artistic, very gentle by nature. ... I want guidance on how to help my son be who he is in a world where sports, aggression, and dominance are common denominators among his peers—but don't fit who my son is. (qtd. in Gurian and Stevens, *Minds of Boys* 284-85)

This is “Leigh” emailing about her son's difficult time in school and life. It is also Leigh emailing about her own difficulty, as a caregiver, to reconcile the persona of a young-adult son against the figure of any nine year-old who ought to “fit the mold”—that is, “fit the gender”—of “most boys” today. She postures her disturbance as one not concerned with how to deal with “a world where sports, aggression, and dominance are common denominators,” but about how to ensure her son's “mold” might adapt to that preexisting world. That is, her rhetoric invites one to consider how to account for her son in the world, and not how to consider changing the social relations of that “world” in which her son must participate.

How individuals conclusively “fit” or fail to fit their gender requirements in cultures is an attrited topic. Yet, I offer the anecdote to demonstrate the unique opportunity another has drawn from it: Michael Gurian—therapist, author, entrepreneur, and corporate spokesperson—responds to Leigh by assuring her that her son “is simply, by nature, different from the mass,” further confiding that his “nature” captures “the very interesting brain difference between the sensitive boy and the more masculine male” because he is “a bridge brain” (285f.). Gurian's response to nine-year olds fitting a “mold” therefore also appeals to a need to describe psychosocial participation through a gaze and grammar of brains: their contours, structures, connections, and relationships toward other brains. Literally, in and through other words, there is a biological explanation awaiting Leigh's son's gender misbehavior.

Leigh's letter is in fact addressed to Michael Gurian, and the exchange is staged in one of his books (coauthored with Kathy Stevens) entitled *The Minds of Boys: Saving Our Sons from Falling Behind in School and Life*. As noted, he uses the correspondence opportunity to establish Leigh's son as a "bridge brain," a term he coins and which he hopes "describes these kids of boys (and girls who also don't fit the mass of girls)" (286). After all of the entreaties in the twentieth century to "bridge the gap between the two cultures" of science and the humanities, here we encounter a writer who crafts a manifestation of the bridge metaphor to solve the ontological crisis gender polarity presents for a mother like Leigh (Collin and Pedersen 66).

Michael Gurian, who produces various types of media materials on education, relationships, and corporate leadership with a mind toward the physical and biological substrates informing gender roles, is not himself a neuroscientist, biologist, or professional educator. Gurian engaged in some post-graduate work in educational psychology for a year, but his formal education includes a bachelor's degree in English and philosophy, some graduate coursework in English and semiotics at the University of Washington, and an MFA from Eastern Washington in creative writing. According to his website, Gurian "is the *New York Times* bestselling author of twenty-eight books published in twenty-two languages and co-founder of The Gurian Institute,"²⁰ which, according to the Institute's website, "conducts research internationally, launches pilot programs and trains professionals" in "learning through a gender lens"; the site adds: "Michael Gurian has been called 'the people's philosopher' for his ability to bring together people's ordinary lives and scientific ideas."²¹ Gurian contributes to media outlets, such as *The New York Times*, the *Wall Street Journal*, *Forbes*, and *Time*, and has appeared in interviews on "Good Morning America," the "Today" show, CNN, PBS, and NPR (Rivers and Barnett).

While Gurian's appeal is widespread, interpretations of his work are mixed. The Institute's largest clientele is school systems, and by 2001, the Institute had trained "more than fifty thousand²² teachers in more than two thousand schools and districts" in applying "gender science on a large scale to the education of children" (Gurian and Stevens, *Boys and*

²⁰ See michaelgurian.com; accessed 12 May 2012.

²¹ See gurianinstitute.com/media; accessed 12 May 2012. The "gender lens" training is "the critical training missing from most post-secondary education related to how boys and girls learn differently."

²² The Gurian Institute website updates this number today to 60,000.

Girls 1). By 2008, around 300 of the 360 single-sex public school programs in the US were approaching their curriculum from a neuroscientific “basis” (Weil 42). On the other hand, some scientists and theorists consider Gurian’s and the Gurian Institute’s rhetoric, as an example of “peddling junk science” (Rivers and Barnett), as employing “unreferenced” scientific claims and with “no attempt to look up real data” (Eliot, “Single-Sex” 365, 372), as “dressing up stereotypes in neuroscientific finery” (Fine 157), and “illustrative” of “specious neuroscience explanations that construe gender differences as innate, static, and unavoidable” (Busso and Pollack 8-9).

His alleged uses or abuses of neuroscience are of secondary interest to me. For me to analyze Gurian’s texts by contesting the accuracy or authority of the ways he integrates “brain science” into his work would be to enter a surgically narrow debate about concerns that neuroscience determines, adjudicates, and lays out in advance. To that end, Rebecca Jordan-Young’s book *Brain Storm: The Flaws in the Science of Sex Differences* (2010) is more comprehensive and procedural than what I could ever hope to offer. In contrast, for me to elucidate only the misogyny (and misandry) within his project of “gender science” would be to embark on a moralistic and paranoid criticism that seeks to negate his claims at the level of sex and sexism alone: that what he claims is “a fundamental misunderstanding of biology” and gender, or that the take he offers is symptomatic of “popular interpretations of neuroscience” that are “cherry-picked” and “not the whole story” (Eliot, *Pink* 9, 291, 8). This second option also happens to take on an inflection that renders his readers unintelligent consumers-at-the-trough. Cordelia Fine, in the otherwise well-researched and well-written *Delusions of Gender*, condescends Gurian’s target audience as “unwary” readers (157), and that, without her guidance, are likely unobservant (109) or imperceptive (63), too. I think at face value, Gurian writes for a general audience, under the assumption that a general audience is capable of caring about neuroscience and the rearing of children if an advocate makes it sound like something worth caring about. And that should be okay; in fact, both the wide appeal and wide circulation of his ideas makes the task of analyzing how his neuro-based narratives work to shape an understanding of our contemporary all the more apt. Neither the genuflection to neuroscience carried through the former analysis nor the critical-theoretical elitism contained in the latter gets me closer to understanding these implications. What interests me, however, is the character Gurian creatively introduces to the story world of neuroscience: “the bridge brain.”

However easy it may prove for scientists and theorists to peel away Gurian's neuroscientific populism as low-hanging fruit concerning contemporary debates on neuroscience (e.g., Busso and Pollack; Eliot; Fine; Halpern et al.; Williams), it is precisely for this reason that I wish to take his appeal and advocacy seriously. Gurian's publications, DVDs, keynote speeches, and training seminars not only attest to a superior communicative ability, but also to a widespread allure for set of ideas calibrated to negotiate the "low level of neuroscientific literacy among the public" (Busso and Pollack 12). When Gurian founded his Institute in the 1990s, a perceived illiteracy of neuroscience prompted its creation. "Currently, we do not know enough about brain development and neural function," writes John Bruer in 1997, "to provide useful insights for educators about instruction and educational practice" (4). "Scientifically," he adds, "it's a bridge too far" (5). The need to make sense of both neuroscience and a perennial educational crisis drive the distribution of Gurian's rhetoric, for he fulfills that need by furnishing literature for the perceived neuroscientific 'illiterates.' Employing elements of reportage, social commentary, and unapologetically "self-taught" sidewalk smarts, he entertains a topical issue for a mainstream readership (Heller). And the impact of his communication is important: he, often with a co-author, has published no fewer than nine articles on "gender science" as an "Education Resource" in the repository of the Institute of Education Sciences, which, as the primary research arm of the US Department of Education, provides information for school boards, teachers, and administrators in the entire country.²³ His connection—through narrative—to neuroscience, educational policy, and parenting psychology speaks to the importance his creativity can have in shaping economic, scientific, and social forces.

More relevant to the concerns this dissertation takes up, I sense that the attraction his stories and recommendations about neuroscience and society occasion is intimately linked to conceptualizing the power effects that neuronarrative operationalizes in culture. For reasons

²³ These include "Single-Sex Classrooms Are Succeeding" (2009, with Kathy Stevens and Peggy Daniels), "Gender-Friendly Schools" (2010, with Kathy Stevens and Kelley King), "How Boys Learn" (2006, with Kathy Stevens), "Teaching to the Minds of Boys" (2006, with Kelley King), "The Brain—His and Hers" (2006, with Kelley King), "With Boys and Girls in Mind" (2004, with Kathy Stevens), "Boys and Girls Learn Differently! A Guide for Teachers and Parents" (2001, with Patricia Henley), "The Good Son: Shaping the Moral Development of Our Boys and Young Men" (1999), and "A Fine Young Man: What Parents, Mentors, and Educators Can Do To Shape Adolescent Boys into Exceptional Men" (1998).

just noted, his oeuvre of texts and media objects represents an extended interpretation—a captioning—of neuroscience data and images for mass circulation. His work resides in the interstitial space of scientific reporting and literary writing, and, therefore, provides a productive opportunity to investigate a narrative expression of neurology that does work on cultural understandings and uses of neuroscience.

This interstitial space, itself a type of narrative bridging, demonstrates the cooperative literacy at play that this chapter analyzes. Gurian cites neuroscientific writing in order to make “bridge brain” a legible character for his readers. However, a closer look at the narrative operations involved shows that the neuroscientists with whom the Gurian Institute cooperate also inscribe the “bridge brain” character into the visual rhetoric of brain scans. This chapter’s first section recites some of Gurian’s translations of neuroscience in conversation with Catherine Malabou’s insights on ‘difference’ in order to situate the “gender science” that informs the characters Gurian’s books and media animate. After examining his conceptual foundations, the second section reads Gurian’s use of “bridge brain” to ask what kinds of character formations Gurian’s narrative implies, sediments, or staves. Finally I return to the notion of matter, and propose some consequences a materialization of “bridge brain” bears on neurological narratives circulated in culture across the concept of ‘neuronarratives.’

The Wonder of Sex

Taken together, the titles of two of Michael Gurian’s main books, *The Wonder of Boys: What Parents, Mentors and Educators Can Do to Shape Boys into Exceptional Men* and *The Wonder of Girls: Understanding the Hidden Nature of Our Daughters*, pose the question of apprehending masculinity and femininity as what it means to do or shape children according to a nature that awaits the reader’s understanding. Hailing one to *wonder*, here, is immediately bound by the pledge of understanding: acknowledging, appreciating, and actively *shaping*. Nature, already present and hidden, tarries for the reader’s wonder. One might therefore ask by what terms wondering becomes coextensive with “understanding” as a disclosure. Wondering “of boys” and “of girls,” then, would be to invite a revealing, a disclosure of an understanding awaiting audience. It might therefore also be argued that the grammatical void abutting the call to wonder—in the titles, a distinction between *Do* and *Understanding*—works to privilege an ability to shape sons over a sense of simply revealing the disposition of daughters.

“Wonder is the first of all the passions. It has no opposite, because if the object presented has nothing in it that surprises us, we are not in the least moved by it and regard it without passion,” writes Descartes (qtd. in Malabou, *Changing* 11). If one presses Gurian’s grammar, the call to wonder is therefore a beckoning of surprise, of astonishment, at the presence, appearance, and constitution of boys and girls. But they are also already opposites, or at least with opposition to each other, if the treatment of this wondering through a partition and separate publication can attest to anything. “To wonder is to open oneself up to difference before granting it a value or establishing hierarchies,” Catherine Malabou adds (11). Crucially, Gurian does not hail one to wonder at children but to wonder at brains-as-minds (as the themes and titles *The Minds of Boys* and *Boys and Girls Learn Differently!* also evidence); but where might this opening to difference be found in Gurian’s wondering? Moreover, *how*?

“Where It All Begins: The Biology of Boyhood” and “How Her Mind Works: The Secrets of the Female Brain” each, respectively, constitute some of the first chapters to *The Wonder of Boys* and *The Wonder of Girls*. While it is curious and unsettling to me that women are spoken of as “hidden” or containing “secrets,” what is pertinent to the present analysis is this initial narrative scene: wondering, as an opening up to difference, is here styled not as differences among boys *or* girls, but differences between boys *and* girls. “The” brains are different from each other, not from one another.

If Gurian’s project is to carry an understanding of neuroscience through sex and gender relations, and to teach how to properly manage them to his clients, one may ask how his dualistic logic orders the molecular gaze of the psychosomatic self. Who is the other in this encounter? Though Gurian is not directly the addressed, Malabou presses this interpretation, yet rebuts that one ought to view “wonder precisely as the opening to gender difference” (*Changing* 11). Thus, in the dualist view according to Malabou, the Gurian texts ought to function to open oneself to gender difference before interpretation, before determining relations of value and hierarchy. Further,

The other strikes us first through gender. Or rather, what is other in all others is gender, which is neither determined nor judged, since wonder suspends predication. Gender can only appear through its difference from another gender. Consequently, wonder, ‘the point of passage,’ allows the sexes to maintain a degree of autonomy grounded in their difference; it thus offers a space of freedom and desire, a possibility of separation or alliance. (12)

Wonder precisely suspends an ordering and an othering of gender and sex against itself. If the gaze prioritizing gender polarity operates under the auspices that the mind is a manifestation of the brain, then wonder prevents assimilation or alterity of difference.

Interestingly, the other for Gurian is the void itself: the “unnatural,” the point of passage where gender and sex are not grounded across difference but through difference. “This [book] is needed, because it reveals the *nature* of your daughter,” writes Gurian in the opening to *The Wonder of Girls* (xiv). In parallel, Gurian explains at the outset of *The Wonder of Boys* that “we stop feeling as if we’re fighting against boys and masculinity” if “we start realizing how to work with boys and maleness” when one acknowledges how “a boy is, in large part, hardwired to be who he is” (5-6). Wonder here is gender and sex as differences and differentiation, rather than possible difference *within* gender and sex. Putting aside the tautology of “be who he is” and its feminized reciprocal for a moment, Gurian’s urge for one to wonder—to be curious, to step away, to be surprised at the extraordinary and unfamiliar—is already vitiated by these first few pages: the reader is in for a biology lesson of development. To wonder, here, is predicated upon *arresting* the point of passage, the space of play, contradiction, and mutual reinforcement; for gender and sex are not only collapsed but appear only through their difference from each other. “Nature” contains nothing unexpected.

The concept of nature is by no means a stable one. *Nurture the Nature* is both another recent title from Gurian as well as the governing pedagogy toward his clients. Gurian recognizes nature independently of culture: children have “core natures” and parents “must focus on the positive and negative pressures that try to mold, change, or even destroy that nature” (*Nurture* 4). Cultural influences (including self-help books, one would presume) are positioned outside this core nature, which one must “observe and appreciate as it unfolds before your eyes” (12). Nature for Gurian is pre-scripted. To nurture the nature of a subject(ivity), or to take a “nature-based approach” to masculinity or femininity, is to nourish it into its ideal, already recognizable form. Indeed, tilled throughout his many narratives, “core selves” only find their nutrition through their now-possible-to-understand neuroscientific blueprints (Gurian and Stevens, “With Boys and Girls”).

To revisit to the opening anecdote, how Leigh understands and interprets the cultural legibility of her son against “most boys,” and the category’s relation to “male” as a scientific object of investigation through history, is an imperative point of departure for giving context

to Gurian's derivative notion of "bridge brain." Increasingly, the desire to see "the" brain *in vivo* accelerates the determination for many researchers in and outside the neurosciences to characterize cohorts of people—the addict, the serial killer, the liar, the male, the female, the genius, the Republican, etc.—in terms of "neural signatures," by calculating oxygenation levels of neural cells or higher "activity" of electro-chemical interactions (Choudhury 159). "Such categories, however," writes neuroscientist and history of science researcher Suparna Choudhury, "are not natural kinds; they are often culturally constructed, rather than rooted solely in the body or the brain" (159). Choudhury's use of 'natural' describes a set of cultural practices *and* biological germinations that work to produce personalities: a cooperative literacy. Malabou reminds that belief in the bedrock-like idea of nature is part of a central impasse, writing that, "We must explore closely this connection between sex and the brain that endows both with a degree of *originary suppleness* without which there would in effect be a 'biological essence of beings,' a pure fantasy, which is no doubt hard to shake off, *but only in ideology*" (138; emphasis added). Although Choudhury and Gurian are each speaking of something social and biological, the meanings underpinning their uses of 'nature' and 'natural' could not be farther apart.

Where Gurian fails to wonder is in the very moment he pleads for it. For his detractors—the nebulous authors he pejoratively refers to as practitioners of "social constructivism"—well, "they're in that old model—a feminist model," he says, and "the new millennium needs something post-patriarchal and post-feminist" (qtd. in Jayson). Beset by the naturalness of "man" and "women," Gurian still struggles to account for how maleness, masculinity, femaleness, and femininity could have single, identifiable forms and locations in the brain when they each take such varied forms in people's lives. His remedy is to advocate a change of the emplacement of character in the brain: the "bridge brain," who assimilates any remaining exceptions to gender polarity. Against this, Malabou's work in *Changing Difference* does not evacuate the meaning(s) or usages of "feminine," but delocalizes the *place* of sex and gender as it is 'naturalized' and culturally informed by scientific knowledge of the brain. Choudhury advocates a critical neuroscience that questions the contingencies of the grammar and cultural scaffoldings attending to conclusions that reward easy utilizations of the brain. Critical neuroscience for her therefore brings "an awareness of how the defining features of a category may differ depending on context" (162). In that sense, when Gurian applies "bridge brain" as a conceptual balm to parents or teachers, I am left asking in what

ways might it function as alibi to cultural decisions previously affirmed? Or that need affirmation contemporarily? Upon what does Gurian base this category of knowledge?

In formulating how to “nurture the nature” of men and women and boys and girls (what is referred to in his media as applying “gender science”), Gurian takes his cue from select scientific reports and books as well as the sagacity of his accumulated experiences, both personal and derived from other parents’ and teachers’ stories. Quite forward about his research methods, Gurian explains that:

Over the twenty years I have been researching male and female biology, I have had to develop a method by which to discover what biological research is most helpful and accurate. I begin by learning what primary researchers in various countries have discovered through their clinical trials, then I see if these facts in their hard science fit cutting-edge research in soft sciences like psychology, anthropology, and sociology. I’ve learned that in studying both hard and soft science, it is crucial not to stray too far from people’s real lives or from good common sense. Thus I try to match what we’ve learned in clinical trials and other research with people’s everyday lives. (*What Could He* 270)

The practice of “matching” others’ research with “common sense” is elsewhere confirmed. “Most people find what I say intuitive,” explains Gurian in an interview. “What I do is study the brain science and immediately move to practical application,” he adds, “I’m not purporting to be the scientist. I’m a philosopher and taking what I understand is the science and saying that might explain why boys do such and such. ... I’m...making an interpretation that’s practical” (qtd. in Jayson). Speaking from a place of ‘practical interpretation’ is why I continue to find Gurian’s texts interesting as a cultural alloy: an encounter of science and social studies that fuses to authorize certain forms of life and living as intelligible, and how that is wielded as a concern for management (i.e., proper “nurturing”) rather than the possibility of wonder. The science he interprets and accepts as “practical” further unpacks what type of “nature” he urges clients to “nurture.”

Although narrated in many versions, with an ear to different audiences, Gurian’s project is to diffuse information that argues that the arrival and development of male and female brains yields distinctive organs as biological givens with fixed psychological and physical needs meted out in particular psycho-social situations. The “nature” of boys’ and girls’ brains as a fixed category of inquiry has shifted quite dramatically in the past decade, although “the identification of sex differences in the brain is one of the longest-standing

projects of neuroscience” (Jordan-Young 50). For information asserting biological-material brain and personality differences between males and females (that is, how he understands that “a boy is... hardwired to be who he is”), Gurian selects from research in brain organization theory.²⁴ Similar to Leigh’s concern about men, in *Changing Difference*, Malabou meditates that “If ‘woman’ is to be understood as both a biologically and culturally determined reality, then we must acknowledge that the ‘feminine’ no longer appears linked to ‘woman’” (5). How might one write “as” a woman, or “as” feminine when the terms of those usages and experiences are seemingly incompatible and interdependent in so many articulations? To span the gap between ‘masculine’ and ‘male brain’ and between ‘feminine’ and ‘female brain,’ Gurian bequeaths a notion outside brain organization theory: “bridge brain.”

Abridging Brains

Who exactly is a “bridge brain” for Gurian, and what does this character imply for forms of living and forms of brains? Where or for whom, apart from Leigh and her son, does the characterization “bridge brain” find explanatory power? And, in the first instance, from what narrative or neuroscientific authority does it acquire explanatory power?

In the Biblically inflected parent’s guide *Raising Boys By Design*, Gurian and co-author Gregory Jantz describe the characteristics of male bridge-brains:

²⁴ Succinctly, brain organization theory purports that “because of early exposure to different sex hormones [sic], males and females have different brains” (Jordan-Young 1). Research conclusions upholding brain organization theory tend to have a seductive cultural allure, perhaps owing to the ‘battle of the sexes’ rhetoric they tend to encompass in popular accounts. “Brain organization studies are big news precisely because no such translation [of how the world of science is interpreted in the context of broad social knowledge] is necessary,” writes Jordan-Young; “they seem to tell us something immediately important about how fundamental differences in human sexuality and gender come about” (61). In Gurian’s charts that divide “Brain Gender Differences,” brains “process” and “message,” and nerve cell “filaments” are “‘telephone wires’ of the neuronal network” (*Boys and Girls* 20ff.). Brain elements, and their organic development from chromosomal blueprints, function as communicators within brains and are even conveyed as such in their outward expressions, such as why boys—like Leigh’s son—have difficulty communicating their feelings. Helpfully, Fausto-Sterling’s analysis of hormones and sexing the brain invites one to critically ask how knowledge about the body *acquires* gender, as well as how “gender and sexuality become somatic facts” (235). This perspective provides an insight into the cultural concerns that influenced brain organization theory’s development as well as how those concerns play out as stable categories of biochemical knowledge like “male” and “female.”

This brain-in-the-middle is a bridge between genders. This boy may need extra help and understanding from you [the parent], his teachers, and his support network as he navigates the sometimes cruel world of male testosterone and aggression. He may need you to urge him forward a little more on occasion but also to let him hold back and form his own way of being and doing. This boy might be extrasensitive to criticism. Constant challenge, shaming, and aggressive criticism may feel like traumatic bullying. It can make him dangerously depressed, so it is important to read his nature closely and nurture that nature carefully. (Gurian and Jantz, *Raising Boys* 32)

As discussed in the previous section, the incitement “to read his nature” is a practice that conceptualizes reading as witnessing the ‘unfolding’ of a developmental neurobiology.

‘Reading’ is also freighted by another textual basis of the brain: added to the linear narrative of neurobiological development is a method of optically writing neurobiology. While not entirely reducible to text, the inclusion of brain scans works to further inscribe the characteristics of the “bridge brain” narrative. “A brain scan of his brain structure and neural processing might look more like a woman’s than another man’s,” Gurian and Jantz write (31). The optics summoned helps rhetorically position bridge brains in the parlance of observable neurology:

What research into bridge brains is showing us scientifically is this: (1) every one of us has both our own gender’s and the other gender’s hormones and brain characteristics (hormones and the brain are “human,” and we all share them); (2) yet if we are biologically male, we will tend toward being more male on the brain/chemistry spectrum, and if female, we’ll tend toward female; and (3) some of us are closer to the other gender on the spectrum than others are. Some of us, in other words, are neurological “bridges” between genders. (Gurian and Annis 16)

The tensile strength keeping the presupposition “if we are biologically male” from failing completely compels Gurian and Stevens to build a physical and psychic bridge “in other words” that offers more ductile properties. “The most female [brain] we can imagine,” writes Gurian, has “high serotonin, high oxytocin, large corpus callosum, [and] many language centers. This brain is defined by lack of testosterone surges in the womb. In a woman, this brain might be called, in popular language, ‘very feminine.’ In males, we would call it a ‘bridge brain’” (*What Could He* 19). Note that the brain slips between “male” and “it,” though the conclusion that it “*is*” a “bridge brain” confirms suspicions of the term as a diagnostic device—a way of marking identity by way of the copula-cum-biology. More evidence of this is found when Gurian writes, “You yourself might often see bridge brain

women in the technology sector, just as you might see bridge brain men in the social services sector,” adding that “bridge brain men” are “more likely than other men to multitask, care a lot about verbal and emotional material, and not be as competitive as other men or women around them” (Gurian and Annis 17). Particular anatomy, like the corpus callosum, “Tends to be denser in the female brain, containing more neural connections between hemispheres,” notes Gurian and Stevens in a chart supplementing images of brain scans (*Boys and Girls!* 21). The corpus callosum, they add, “Tends to allow the female brain to process more information more quickly between the two hemispheres, connecting language and emotion processing centers more efficiently.” ‘Seeing’ brain characteristics augments the effort involved in reading brains.

The visual story of a “bridge brain” expands to characterize someone “whose neural functions seem more like and *actually scan more like* the other gender” (Gurian and Jantz 31; my emphasis). Scans play an essential role in inscribing the “bridge brain” character onto the physical material of brains. Gurian supplies these images as evidence:



Figure 1.1. Female at Rest.



Figure 1.2. Male at Rest.

Source: Brain scans courtesy of Dr. Daniel Amen. Used by permission

- *SPECT imaging*, similar to PET and MRI, uses single photon emission computed tomography to provide lower-resolution images; it is much less expensive than PET. As you can see in the SPECT scans in Figures 1.1 and 1.2, the male and female brain look quite different in terms of brain activity. (These SPECT scans appear courtesy of one of the Gurian Institute’s scientific advisors, Daniel Amen, M.D. He and his team at the Amen Clinics have done thirty-eight thousand brain scans.)

Fig. 1. Sex differences are visually established by referring to images as translations of the brain (Gurian and Annis 8).

The book *Leadership and the Sexes: Using Gender Science to Create Success in Business* explains that Gurian created the term in 1998 “to help people understand the exceptions,” and uses it to describe people “whose brains share a number of characteristics of the other gender’s brain, transgendered individuals, and people who just sense their brains may be toward the middle of the gender/brain spectrum” (16). For Gurian, it personifies all that which does not “fit” the contours of a stable “male” and “female” dyad, yet narratively locating “bridge brains” as occupying a place of “exceptions” toward “the middle,” which includes transgendered individuals, forms that character through a description that grounds a biological and psychic cooperation. The following image visualizes a “male bridge brain”:

It is much easier to see male bridge brains than female ones (because the male brain at rest shows up with so little activity, whereas the female's neural web shows up with more activity). If you compare Figure 1.3 to the scan of the male brain in Figure 1.2, you'll notice much more activity in the middle of the brain in this one—in the areas of emotional and verbal expression.

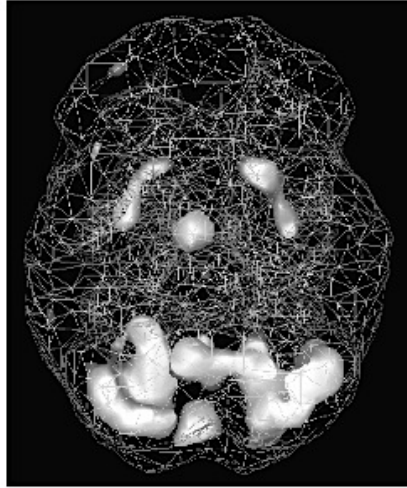


Figure 1.3. Male Bridge Brain.

Source: Daniel Amen, M.D.

Fig. 2. A visual contrast from the previous images establishes the existence of a “male bridge brain” (Gurian and Annis 17).

The triptych provided for readers (Figs. 1 and 2) therefore tells a story about the interstitial space that the character “bridge brain” occupies in narrative. Gurian writes the psychic characteristics of a “bridge brain” textually, but the incorporation of Daniel Amen’s scans also serves to write those characteristics visually. It forms a cooperative narrative that demands we read “bridge brain” through that cooperation. Looking at the triptych Gurian provides, I cannot help but thinking that, for me, they function as a response to the question *what would it look like to scan a metaphor?* Here personality and characterization shape and give form to neurological writing. Gurian’s social-linguistic formulation of “bridge brain” gives form—through the very techniques and conceits of neurological inscription (brain images and recourse to particular anatomies)—to ‘neuroscientific literacy,’ while the quoted images also form literacy of a brain with character by way of Amen’s neuroscience.

Bridges, which conjure images of architectural connections, have various utilities and also find themselves as perennial metaphors for correlation. As passages, conduits, and links, they offer a transitory tie between at least two physical places or associations. Musically, a

bridge is a contrasting section in a performance that prepares for the return of the original section or the refrain. It is transitional, part of a larger whole, such as in James Brown's tease "take me to the bridge / Can I take 'em to the bridge" on many versions of the song "Sex Machine." Idiomatically, we burn bridges to avoid the painful consequences of continued connection with a person or group or idea. But what is the place of the bridge if it is to be understood as the *place* of sex? If one is on a bridge, occupying the site of it, one is offered a privileged vantage point from which to ascertain that which abuts the bridge: the two sides opposed. That is, bridges separate as much as they conjoin. And those who occupy the site of separation-conjunction are generally not favorably imagined in cultural representations. For the otherwise homeless, a bridge can be shelter; to the suicidal, a place from which to end life; or, when a bridge affords a life-saving escape route, it can even provide a point of greedy opportunism, as with the trolls who live under one in the Norwegian fairy tale *Three Billy Goats Gruff*. Or, as Russell Banks explores in *Lost Memory of Skin* (2011), the land underneath a causeway in Miami, Florida serves as an encampment for sex offenders court-ordered to exile themselves from any location children might gather. Gurian's "bridge," however, happily invites notions of a zone of "exceptions," where those who "share a number of characteristics of the other gender's brain" can reflect on their "natures" that are "different from the mass." This ghettoization is achieved by constituting "bridge brains" as the "exceptions...in human evolution": the "other gender's" brains, through his discourse of evolutionary nature, anchor the available cultural categories of "male" and "female" as two biologically coherent, opposing synaptic terrains (Gurian, *What Could He* 9). Those who live life under Gurian's bridge oscillate between being a person under constant "stress" of others' masculine and feminine expectations (Gurian and Stevens, *Boys and Girls!* 227) or being an ideal husband or wife (Gurian, *What Could He* 67-69).

The bridging shaped into existence by Gurian connects a psychic apparition to a physical construction. In a lay way, it answers his clients' questions of why a woman could ever possibly want to build a profession in manufacturing or tech services. In a direct sense, though, for Gurian, "bridge brains" describe a place of negations. The "bridge brain" operates as a fungible concept pegged to an exchange rate of hormones and synapses—that is, "maleness" and "femaleness." As a result, "bridge brain" becomes a heuristic tool, and is wielded as a foil against which the abutments "male" and "female" may maintain their perceived natural foundations.

As an explanatory device and a personified bio-metaphor, then, the place of a “bridge brain” is not only a characterization but also an ontology, describing something originary and transcendent. “Bridge brain” describes a person’s essence. Indeed, Gurian infuses his descriptions of “bridge brains” with the notion of “core self,” a term, for him, synonymous in its operations with the “nature” of a person. As noted above, that one “is” a “bridge brain” or that one “sees bridge brain men” in situations that do not “fit” their gender roles corroborates this bridge core-self ontology (as does Gurian’s analysis of Leigh’s son from the opening anecdote). To provide contrast, in the philosophical genre of the molecular gaze forwarded by Malabou, the slippage between woman and femininity—that is, Being and being—is not something understood as needing to be bridged but to be plasticized. At first, the question is somewhat displaced by the pluralization of sexes and genders: “Beings form many different figures and the question of alterity digs out space for an infinite number of arrivals in the flesh of difference” (*Changing* 36). However, she captures Gurian’s “bridge brain” solution to the quandary of core-self rupture otherwise, writing that, “despite this, the mode of relation has itself never been rethought. The gap is still its only mode of being” (36). What Gurian substitutes in this gap with a neurobiological neologism, Malabou interrogates as the plasticity of difference. She locates an ontic exchangeability in Heidegger via Hegel²⁵ and demands that one consider the plastic structure of essence—the structural potential for exchange (here, the originary suppleness of Being and being as synaptic expressions)—to understand that “Difference is a trader, not a principal for selection or for dual segregation” (39). In the final analysis of this component of *Changing Difference*, Malabou writes that

This point brings us back to the shared etymological origin of *genus* and *gender*: *genos*, genre as essence. If this essence is thought of as “changing,” if transformability defines its ontological status, the problem is no longer that the “feminine” can be reduced to “woman”... The question is that while the feminine or woman (we can use the terms interchangeably now), remains one of the unavoidable modes of ontological change, they themselves *become passing, metabolic points of identity*, which like others show the passing inscribed at the heart of gender. (40; emphasis added)

What Malabou underscores is that the potential for exchange—itsself found in neural plasticity—that lies at the nexus of ontological difference must be affirmed and

²⁵ “Being and being are different but they exchange modes of being,” she writes, “There is no gap without exchange or reciprocal metamorphosis” (*Changing* 36-37).

acknowledged. The very terms “male,” “female,” and “bridge” brains are here revealed as transitory neurological coordinates: both legible and illegible in cultural contexts.

The ontology of “bridge brain” Gurian also localizes. Images, brain scans, and charts are employed to exhibit the neural signatures of the term (as well as for “male” and “female” brains) to make it graphically available as topography (see Figs. 1 and 2). “Bridge brain” might suggest a productively liminal, transitory space as with Malabou, but Gurian articulates this as fixed and non-contingent, for the organs of gender are visible and measureable. While Gurian does speak to plasticity, he is loath to confront its originary modifiability, its disruption of biological etiology.²⁶ Instead, he writes its fields of action in the brain to coincide with his three characters: male, female, and bridge. Most lucidly in this vein, Gurian writes that,

The gender of the human brain is not plastic, not a new skill to be learned, not a new mode of communication. It is as hardwired into the brain as a person’s genetic personality. In the same way that you cannot change a shy person into an extrovert, you cannot change the brain of a boy into the brain of a girl. (Minds of Boys 60; emphasis original)

According to Gurian, difference is visible, and shape-shifting characters are something outside the realm of possibility in the world he creates. Difference is not only recognizable as fulfilling the terms “male” and “female” but as essential difference in the “hardwired” appearance of those terms against “bridge brain.” The brain may be (somewhat) plastic, but gender has its biological contours; it is a physical terrain, a “genetic personality,” and, by nature, fortified against the encroachment of learning, communication, development, and emergence. Sex and gender constitute a “core self” flanked only by the aberration—the different infrastructure and circuitry—“bridge brain.”

Character Matters

Although Gurian includes transgendered individuals as part of the community of “bridge brains,” the ontology is by no means shorthand for transgender. David Valentine, in his recent “ethnography” *Imagining Transgender*, asks how “sites, places, and people became

²⁶ “Overall neural plasticity” is a “mythical concept,” according to Gurian; it represents “a magical changing device,” and one’s knowledge of plasticity in any other way is the fault of “our educational system” (*Minds of Boys* 60).

comprehensible to activists, social service providers, journalists, public policy makers, anthropologists, and others through the category transgender” throughout the 1990s (14). He positions his analysis as “a call to think about gender and sexuality as political formations: not simply in terms of the politics that attach to gendered and sexual systems, experiences, bodies, and identities but in the very constitution of gender and sexuality *as social and analytic categories*” (19). Thinking through Gurian’s character “bridge brain” over the past few years, I cannot help but be reminded of Valentine’s analysis. In moments where I reflected on the idea that the forging of vocabulary makes personalities comprehensible, Valentine’s genealogy of ‘transgender’ seems to me so close to Gurian’s creation. Yet, what keeps pulling me back from Valentine is the “neurological” abridgement in Gurian’s formation: the material artifice, the synaptic scaffolding interior to the very form “bridge brain.”

Earlier I suggested that discourses of neuroscience—as apprehensible scans of “neural signatures”—characterize cohorts of people, such as the addict, the serial killer, the liar, the male, or the female. The operation I continue to find most relevant at work with the character “bridge brain” is its reciprocal. “Bridge brain” moves from the figurative to the conceptual to the material. My use of ‘material’ above refers to a type of physical, chemical, and caloric evidence, which the glyphs and inscriptions of and ‘within’ the brain—that are only legible through certain technology, such as the SPECT scans Gurian provides and the references to “brain characteristics” he supplies—contain. Gurian’s larger premise in relation to the possibility of brain genres, as John Frow helps me recognize, is that there are “cognitive patterns underlying metaphors” that work to secure those imaginative coordinates (“Reproducibles” 1631). What do I mean by this?

First, “bridge brain” is a figural description used to characterize “boys and girls who possess nearly equal qualities of both the male and female brains” (Gurian and Stevens, *Boys and Girls!* 16). These figures, further, “are, in a sense, the bridge between male and female cultures because their brains are the most ‘bi-gender’” (16). Gurian “coins” the figure of the bridge brain in order to describe a personhood not describable by the neurologically and sociologically debated terms “man” and “woman” that he otherwise wishes to keep secured with references to ‘nature.’ Departing from this figuration, Gurian proceeds to abstract and generalize “bridge brain” conceptually. We are authorized to envision the more-aggressive tech-sector woman, the empathetic primary school male teacher, the multitasking and meek

husband, the emotionally depleted wife who plays soccer and puts shin guards on her birthday list, and even the individual who discovers a better “fit” with their brain by transitioning to another gender. A world of qualities associated with what it means to ‘be’ a “bridge brain”: these contours and colorations provide conceptual mental representations of the categorical character. Crucially, this is not just psychic. For, finally, Gurian engraves the “bridge brain” character into biological material. Rather than simply a social and analytic category, Gurian and neuroscience cooperatively write into form an idea that was previously formless. The characteristics of the character “bridge brain” become properties of the brain itself. We are invited to see the shapes, outlines, and activities of the bridge-brain metaphor *in vivo* through scientific reading machines.

The work that Gurian’s character “bridge brain” does for narratives of neurobiology teaches me something about the catalytic relationship of texts in culture. Characters give form and meaning to neuroscientific culture—by writing the cognitive patterns underlying those metaphors—instead of only receiving form from neuroscience in the shape of characters with brains.

What are the operations behind this work? Recall that Gurian bemoans “social constructivism” as an outdated “model” (Jayson). Theories of social construction (such the idea that gender is culturally acquired) “works against who your child really is—*against the nature of your individual child*” (*Nurture* 10). But how salient is the idea of social construction against which Gurian discovers the ‘nature’ of “bridge brains”? To analyze the matter behind the bridge-brain metaphor, we need to look at Gurian’s advocacy “in place of these conceptions of construction” (Butler 9). It is Judith Butler who compels us “to return to the notion of matter, not as a site or surface, but as a *process of materialization that stabilizes over time to produce the effect of boundary, fixity, and surface we call matter*” (9). Butler’s radicalization of prior social construction theories “alerts us to the fact that the body, not just consciousness, is a crucial link in the circuit of social production and reproduction, both constituted by and also constituting a given social order” (Cheng 112).

The power of discourse, which in the case of Gurian’s “bridge brain” I understand as the power of widely circulated narratives, is central to understanding the social order that bridge-brain characters determine. Specifically, Foucault speaks of “discourses ... as practices that systematically form the objects of which they speak” (*Archaeology* 49). The cumulative effect of Gurian’s invocation and characterization of “bridge brains” is to achieve the

encapsulated self-evidence of them. Narratives—both neurological and anecdotal—materialize “bridge brains” to the point that they become an ontology: a lived inhabited space of personality and physical means. “That matter is always materialized has, I think, to be thought in relation to the productive and, indeed, materializing effect of regulatory power in the Foucaultian sense,” writes Butler (9-10). I take it, through Butler, that the “materiality” supporting “bridge brains” in terms of personhood “designates a certain effect of power” because “power operates successfully by constituting an object domain...as a taken-for-granted ontology,” and therefore “its material effects are taken as material data or primary givens” (Butler qtd. in Cheah 113). The SPECT-scanned brain triptych Gurian provides (Figs. 1 and 2) are meant to be read as “incontestable referents” by its onlookers: they materialize the idea of “bridge brain” by their appearance as “outside of discourse and power,” as supposedly non-cultural and non-socially constructed somatic facts (113).

Yet, science indeed operates both linguistically and as part of socio-cultural activities. “Recognizing that neuroscience is itself a cultural activity that may influence those under study by utilizing concepts and ways of seeing that are culturally and historically contingent,” writes Choudhury, “reminds us that culture is not a ‘thing’ or an essence located in the brain that can be ‘revealed’ by neuroscience” (165). Further, neuroscientists, as we learned in the previous chapter of this dissertation, are not immune from cultural narratives, and, instead, engage their work cooperatively with them and as a result of them. Cognitive linguist George Lakoff and philosopher Mark Johnson argue that “formal scientific theories are attempts to consistently extend a set of ontological and structural metaphors” since these “ontological metaphors” are so often “taken as self-evident, direct descriptions of mental phenomena” (220, 28). To this end they reason that “the power of a metaphor to create reality rather than simply to give us a way of conceptualizing a preexisting reality” attests to the ways that “metaphor plays a very significant role in determining what is real for us” (144, 146). The reality, now read as the ‘nature,’ of a “bridge brain” person designates brain and body, history and futurity, to the metaphor from which Gurian first imagined it.

The character “bridge brain” that Gurian designs is road-tested. It helps Leigh orient the nurturing of her son in relation to a type of brain she had not previously recognized. It shapes the pedagogical perspectives of at least sixty thousand educators in the US. Gurian’s character also cooperates with those neuroscientists with whom Gurian corresponds, like Daniel Amen, by seeking out those characters in SPECT scans and etching their neural

topographies ‘materially.’ Neuroscience, in this sense, comes to characterize this particular brain through its literary effects. And while Malabou’s critical theory helps me understand the stakes of neurological essentialisms,²⁷ Gurian’s materialization of the metaphor “bridge brain” into a character—visually accessible, fibrous and fatty, full of chemical and cellular history, genealogy, and future voltage—also helps me come to terms with its implications for neuronarrative today.

²⁷ “The *biological* quarrel of essentialism and anti-essentialism has no more meaning than the *ontological* quarrel,” she writes. “The plasticity of gender does not refer to the halted evidence of form any more than the plasticity of essence. We must rethink the relation of philosophy and science today, not in order to isolate a ‘feminine’ continent that would be, for example, the mechanics of fluids, but rather to show, always according to the hypothesis of an originary transformability of presence and nature, that *the place of sex has moved*” (*Changing* 137).