Biology, Destiny, and Bad Science

Rosalind C. Barnett and Caryl Rivers

There are ominous signs that new versions of biological determinism have returned, with the claim that women are not meant, by nature or by psyche, for achievement. Myths about gender difference now "prove" that women should be confined to jobs that use their special "relational" abilities, that women's brains are not designed for leadership, and that they "cheerfully choose" low-paying jobs. We hear that even when they do get good jobs, the smartest women reject them for home and hearth. The media have embraced this narrative with gusto, and there is a real danger that these ideas are seeping into law and public policy as well.

The limitations of women's brains are on the front line in this battle of ideas.

One trendy new theory is that women's brain structures make them ill-suited for leadership. In *The Essential Difference* (featured on the September 8, 2003, cover of *Newsweek*), psychologist Simon Baron-Cohen of Cambridge University claims the male brain is the "systematizing brain," while the female's is the "empathizing" brain.

What are the advantages of the male brain? They include mastery of hunting and tracking; trading, achieving, and maintaining power; gaining expertise, tolerating solitude, using aggression; and taking on leadership roles. The advantages of the female brain? Here we find making friends, mothering, gossip, and "reading" your partner.

It's interesting how all the leadership roles in society require the male brain, while the female brain lends itself to the domestic arena. All those women lawyers, journalists, accountants, and investment bankers are clearly out of place. Not only are empathizing women expected to pick up on what those close to them are feeling, but, according to Baron-Cohen, *any* other person's emotion triggers empathy in the "natural" woman. Describing this mechanism, he says, "Imagine that you not only see Jane's pain but you also automatically feel concern, wince, and feel a desire to run across and help alleviate her pain." Would any woman so fully occupied with caring for everybody around her have the ability to lead others? It's not likely. She'd barely have the time or the energy to get dressed in the morning. She'd also be a prime candidate for depression and burnout. And why should anyone support more legislation backing women's equal access to good jobs if women's brains suit them only for taking care of others and make them incapable of leading?

Baron-Cohen's work on empathy is a distressing example of sweeping generalization based on almost no credible data. He doesn't bother to ask whether women's empathy is a product of their brain structures or (more likely) of the fact that society assigns them the job of caring for others. These are the jobs that Baron-Cohen suggests for women: counselors, primary school teachers, nurses, carers, therapists, social workers, mediators, group facilitators, or personnel staff. Note that these are largely low-paying, female-ghetto jobs with little power. As evidence of the female caring brain, Baron-Cohen cites one study of day-old babies in which the boys looked at mobiles longer and the girls looked at faces longer. Did the infant girls simply have better eyesight? We have no idea. The notion that such a study would be the foundation for ideas about boys' and girls' future careers is nonsense, but that's just what happened. In September 2003, *Parents* magazine ran an article on differences between boys and girls, mentioning Baron-Cohen. The infant study was cited as evidence of boys' superior spatial skills. "Born to Build," the magazine said of boys. (Girls' verbal skills

were noted, but in a muted way. No headline announced, "Born to Write.")

Alleged brain differences were also at issue in a fractious squabble over why there aren't more women writers on the op-ed pages of America's newspapers. A *Washington Post* article in March of 2005 ventured the idea that women's brains made them too cautious to express strong opinions. "Women, being tuned in to the more cautious (and more creative) right brain," said the *Post* story, "are more reluctant to do something unless they're sure they're going to get it right."

TOO OFTEN, with brain research, sweeping assertions are made on what one researcher calls "a thimbleful of evidence." New "discoveries" about the human brain appear and are debunked faster than hemlines go up and down. Here's an alternate theory about why women don't write as many opinion pieces as men. New research finds that women in areas that are generally thought to be male are seen as either competent and unlikable or incompetent and likable. In other words, a woman with strong opinions on the op-ed page is far more likely to be disliked than a man—and perhaps less likely to get the nod from male editors. Perhaps most important, it's harder for women to get on the Rolodexes of op-ed editors than it is for men. And, of course, there's the one-woman-speaks-for-all syndrome. Often, you see three white guys weighing in on the same subject on the same page in the same week, but once Ellen Goodman or Maureen Dowd writes on a subject, the door is closed.

The fracas over op-eds illustrates the ways in which generalizations about women's brains are being used to avoid the whole subject of discrimination. Switching the topic to brain structures or hormones usually means taking the focus away from the real reasons that women are often absent from the top levels in many fields.

Is there real evidence for the idea that male and female brains are engineered for very different functions? The short answer is no. This is reductionism at its most blatant. There do seem to be some structural differences in male and female brains, but nobody knows what they mean. Steven Rose, director of the Brain and Behavior Research Group of the Open University in Britain, notes that the men and women who appear to be using different parts of their brains to solve problems come to the correct solutions in about the same amount of time.

The Harvard "Math Wars" were another part of the trend toward biological determinism. Why did Harvard president Lawrence Summers suggest that women were absent from high academic posts in math and science because they were innately less able than men? Was it because for the past few years the idea that women by their very nature are not suited for achievement has become part of the cultural zeitgeist? Summers has apologized for his remarks and admitted he got the science wrong, which he did.

The best research says that there are few differences between males and females:

- Psychologist Janet Hyde of the University of Wisconsin, in a meta-analysis (a combination of many studies) of the math scores of four million students, found few differences. Boys outperformed girls in 51 percent of the studies, girls outperformed boys in 43 percent, and there was no gender difference in five percent of the studies. Even when differences were found, they were tiny.
- Psychologist Diane Halpern of Claremont McKenna College, in a definitive overview of math and cognitive abilities that are supposed to show substantial sex differences, found such differences to be trivial. Overall, she says, although there are slight differences, boys and girls are far more alike than different.
- Some argue that male hormones give men an inborn advantage at math. Because these hormones kick in at puberty, we should see a striking difference in boys' and girls' math scores at this time. Researchers Erin Leahey and Guang Gao at the University of North Carolina, Chapel Hill, followed twenty thousand four-to-eighteen-year-olds to track specific math abilities. They noted, "based on prior literature, we expected large gender differences to emerge as early as junior high school." It didn't happen. Instead, they found the trajectories of male and female math scores nearly identical all across the age range.

But just as important is the mountain of

evidence showing that girls are steered away from math and science. Children learn at a young age that boys are supposed to be better at math than girls, and the downward spiral begins: In the third and fourth grades, boys and girls like math equally. Between fourth and twelfth grades, the percentage of girls who say they like science decreases from 66 percent to 48 percent. In those same years, the percentage of girls who say they would prefer not to study math anymore goes from 9 percent to a whopping 50 percent.

Kids, parents, and teachers buy into the idea of girls' deficiencies in math, even when the facts say otherwise. One study in 2000 of six hundred third- and fourth-grade children, found that their parents and teachers said they believed that boys were more talented in math—even though the test scores of the actual children showed no gender difference.

Though there will be new outreach programs at Harvard for women in math and science, over the long term, how many people will remember only that the president of Harvard said girls can't do math? How many school advisers will tell female students not to bother taking tough math courses, and how many parents will steer their daughters toward careers in other fields? That would be a tragedy, because we know women can succeed in math and science because of the gains they've made when barriers have been dismantled. For example, women now account for 45 percent to 50 percent of the biology doctorates and 33 percent of those in chemistry. Moreover, in the last thirty years, women Ph.Ds increased from 0.6 percent to 17.3 percent in engineering, from 2.9 percent to 15.5 percent in physics, from 2.3 percent to 22.8 percent in computer science, and from 7.6 percent to 29 percent in math. These immense gains can only be explained by a major effort to open the doors to women.

BUT MAYBE MATH isn't the real problem. Maybe women don't hold enough high-level posts in business and academia because, by their nature, they can't take the risks that top jobs demand. Or maybe they aren't motivated to succeed. This chant is heard again and again.

Harvard University's Steven Pinker writes in his widely reviewed 2002 book *The Blank Slate* that men are risk-takers but women "are more likely to choose administrative support jobs that offer lower pay in air-conditioned offices." George Will wrote in 1999 that women "cheerfully choose" low-paying jobs, and in a 1994 *New Republic* article, journalist Robert Wright flatly declares women's lesser drive as a fact, not bothering to cite any evidence. A *Fortune* cover story in October of 2003 questioned women's ambition, asking, "Power: Do Women Really Want It?"

At the same time that women's lack of risk-taking ability was being decreed as dogma, one woman sailed around the world solo, setting a world record; another rowed alone four thousand miles across the Pacific Ocean; a female A-10 pilot flew her bullet-riddled plane across the Iraqi desert to make a perfect landing at her home base; a woman commanded the space shuttle; women mountaineers conquered the planet's highest peaks; and in the last few years, women have regularly won the grueling Iditarod dog sled race. This seems not to impress the cadre of pundits who simply repeat over and over the idea of women's lack of risk-taking ability. Why should facts get in the way of a sexy argument?

As for the idea that women don't really want power, research findings show the opposite. Women in the business world are as attached to their jobs, as motivated, and as interested in success as men. A meta-analysis of studies of managers conducted by Gary Powell, a professor of management at the University of Connecticut, found female managers as motivated as male managers. In one of the studies he examined—of nearly two thousand managers—female managers actually reported "higher needs for self-actualization than male managers." The women exhibited a "more mature and higher-achieving motivational profile" than their male counterparts.

UNFORTUNATELY, some of the arguments for biological determinism come from women themselves—especially from what is described as proponents of "essentialist" feminism. Harvard's Carol Gilligan (now at New York University) first proposed the idea

that women make moral judgments based on "caring" and on their relationships to others. Men, she said, make such decisions on a more abstract idea of what's right—a "justice" mode. Women, in this construction, are in fact more moral than men. That can sound wonderful at first to women, because behavioral scientists have too often depicted the caring sides of women's natures as childlike, submissive, and decidedly inferior to male assertiveness.

Critics of Gilligan point out that she based her theory on two very small studies that have never been replicated and argue there is no evidence that men's and women's moral decision-making differs in the ways she claims. If such different moral perspectives really existed, they should show up in other studies of groups similar to the ones Gilligan looked at. They don't. A University of California study, using a similar sample, failed to replicate her findings. Both men and women use the "caring" mode at times and the "justice" mode at others.

Although essentialism aims at valuing women, too often it's used to keep women stuck in low-level, "caring" jobs. Sears Roebuck used Gilligan's ideas to argue successfully in court that women lack the assertiveness needed for high-level sales positions. The State of Virginia used Gilligan to argue that women should not be admitted to Virginia Military Academy.

In the best-selling *Women's Ways of Knowing,* Mary Belenky and her co-authors argue that men evaluate arguments in terms of logic and evidence, while women are "spiritual, relational, inclusive and credulous" They say, "Striving for leadership violates a woman's essential feminine nature." But there's no real evidence that all or most women think in such mystical ways.

Some essentialists argue that females are valuable to business because of their supposedly open, caring nature. More often than not, however, such arguments are used to keep women in low-level jobs of the sort Simon Baron-Cohen described above, rather than to welcome them into the managerial class.

Still, some feminists argue that women are actually better leaders than men, pointing to their supposedly "democratic" leadership style and their ability to communicate and make employees feel good about themselves. (A recent example is a March 18, 2005, op-ed in the *Boston Globe* titled "Is Business Too Blue?" It extolled women's "pink" management styles, "favoring relationships, win-win, and putting decisions in a larger context."

Are women in fact more democratic and people-oriented than men? The most effective manager, it's now believed, is the "transformational" leader, an innovative role model who gains the trust and confidence of followers, empowering them to reach their full potential. Psychologist Alice Eagly of Northwestern University and her colleagues, in a meta-analysis, found that more women managers were "transformational" than men. However, the difference was small: 52.5 percent of females and 47.5 percent of males. Both sexes, it seems, are capable of leadership that enables employees to reach their full potential. Putting people into cookie-cutter stereotypes is unscientific and unsophisticated, no matter who is doing it. The fact is that there is so much overlap between the sexes on leadership, nurturance, aggression, communication, and so on, that gender is a very poor predictor of such behaviors.

A COROLLARY TO THE argument that women aren't natural leaders or risk-takers or are insufficiently motivated for success is the notion that the best and the brightest women are simply giving up and going home. That was the theme of both *New York Times Magazine* and *Time* cover articles in 2003. The *Times Magazine* piece, titled, "The Opt-out Revolution," bore this cover line. "Q: Why Don't More Women Get to the Top? A: They Choose Not To." Women, the *Times* announced, are "Abandoning the Climb and Heading Home." The sweeping nature of the title and the placement of the article on the cover implies that the author, Lisa Belkin, is examining a pervasive national trend. "Many high-powered women today don't ever hit the glass ceiling, choosing to leave the workplace for motherhood. Is this the failure of one movement or the beginning of another?" asks the magazine.

The story suggests that professional and management-level women are focusing more

on home and hearth, abandoning serious careers. This major article is based on no systematic research; rather it is a collection of anecdotes from very non-representative small groups of female Princeton graduates. These women were members of book groups in several cities who had husbands affluent enough to finance a comfortable lifestyle on one income. But do these anecdotes reflect a national trend? No. More than 78 percent of mothers with a graduate or professional degree are in the paid workforce, and they are three times as likely to work full time as part time, according to the U.S. Census. Do women regularly opt out of demanding jobs for a life of domesticity? No. One major study of high-level women failed to uncover any such trend. Linda Stroh and Anne Reilly of Loyola University and Jeanne Brett of Northeastern University compared 1,029 men and women managers who not only had the same level of jobs but the same levels of education and time in the workforce. Not only did these women *not* opt out of demanding jobs, they were as devoted to their jobs as the men were to theirs. When they left, it wasn't to go home; it was for the same reason men left: better jobs and more opportunity for advancement.

But the message from the media is clear: if even the smartest women just want to rush home to 1950s domesticity, why bother with policies that support women in the workforce? Why call for federally funded child care, universal early education, and paid parental leave when what women really want is to go home? How do you build a constituency for family-friendly workplace policies when you believe that women not only should be home, but want to be there?

The argument about women's "natural" desires is also at play in the recent battles over Title IX, the landmark federal legislation mandating that schools receiving federal funds spend equally on girls' and boys' sports.

Conservatives have long argued that girls simply don't have as much natural interest in sports as boys. Now that idea may be turning into fiat. New rules spelled out this spring by the Department of Education under the Bush administration open up a very large loophole in the law.

Under the new guidelines, colleges will be able to do an e-mail survey to determine female interest in sports. A low response rate will indicate a lack of interest, and the college can spend more on boys' sports. (There would be no requirement for males to demonstrate their interest, and such surveys have a notoriously low response rate.) As the Women's Sports Foundation points out, "Now, girls who want to play would have to prove they are interested, placing the onus on them instead of their institutions. Incredibly, if for any reason the student does not reply, the institution may interpret this non-response as lack of interest. Male athletes generally do not come from the existing student body. They are recruited as high school seniors. Courts have interpreted Title IX to require schools to make the same effort to recruit female athletes as male athletes. This survey loophole would remove that obligation." Incredibly, this new attack on Title IX was a non-story in most of the major media

But what if all these ideas are wrong? What if women do indeed have the ability and the drive for leadership and success? Guess what? There's a catch-22. If women do achieve outside the female ghetto, they will be miserable. No man will want them.

This idea proved irresistible to the media. Citing a pair of studies that drew headlines like the one in the *New York Times*: "Glass Ceilings at Altar as Well as Boardroom," *Times* columnist Maureen Dowd asked in March of 2005 whether the feminist movement was "some sort of cruel hoax." She wrote, "The more women achieve, the less desirable they are."

Once again, research doesn't bear this out. The findings of the study by psychologists Stephanie Brown of the University of Michigan and Brian Lewis of UCLA were wildly overblown. The study was done on a small sample (120 male and 208 female undergraduates, mainly first-year students). The males rated the desirability of a fictitious female (who was described as either their immediate supervisor, a peer, or an assistant) as a dating or marriage partner.

Surprise, surprise! The first-year males preferred the subordinate over the peer and over the supervisor when it came to dating and mat-

ing. But was the study a barometer of *adult* male preferences—or of teenage boys' ambivalence about strong women? Clearly the latter, given the facts about what adult men actually do. Men do not reject achieving women. Sociologist Valerie Oppenheimer of UC Berkeley reports that the more education a woman has, the more marriageable she is. And Heather Boushey of the Center for Economic Policy Research found that women between the ages of twenty-eight and thirty-five who work full time and earn more than $55,000 per year or have a graduate or professional degree are just as likely to be successfully married as other working women.

The second study that fueled the news stories about unhappy women was conducted by investigators at four British universities (Edinburgh, Glasgow, Bristol, and Aberdeen). It found that for every fifteen-point increase in IQ score above the average, women's likelihood of marrying fell by almost 60 percent. *Atlantic Monthly* headlined its April 2005 issue "Too Smart to Marry?"

Really bad news for bright women, right?

Actually, no. What most stories about this study—including the one in the *Atlantic*—failed to mention is that the data were gathered from men and women born in 1921; the women are all now in their eighties. They came of age in a time when the strictures of marriage would have been unattractive for bright women. Their lives tell us little about today's women and men.

Still, the Women-Haven't-Got-The-Right-Stuff narrative is rapidly becoming the conventional wisdom. It echoes from well-funded conservative think tanks, popular books, and media that need sexy and simplistic cover lines and sound bites. It affects girls who want to play sports and girls who are gifted in science. It raises doubts in the minds of managers about whether women can really perform in top-level jobs. It serves as a drag anchor against a whole range of policies that are desperately needed to help working families. It also fuels the conservative agenda by questioning the wisdom of affirmative action and undercuts the funding of existing programs.

For women themselves, the drumbeat of bad news and scare stories is hard to ignore. If women believe that they can't really achieve—or that they will suffer if they do—the bright potential of many lives will be forever dimmed. ●

Rosalind C. Barnett and **Caryl Rivers** are authors of *Same Difference: How Gender Myths Are Hurting Our Relationships, Our Children and Our Jobs* (Basic Books, 2004.) Barnett is senior scientist at the Women's Studies Research Center at Brandeis University. Rivers is a professor of journalism at Boston University.

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