

The Science of Gaydar

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Some of this research may prove to be significant; some will ultimately get chalked up to coincidence. But the thrust of these developing findings puts activists in a bind and brings gay rights to a major crossroads, perhaps its most significant since the American Psychiatric Association voted to declassify homosexuality as a disease in 1973. If sexual orientation is biological, and we are learning to identify how it happens inside the uterus, doesn’t it suggest a future in which gay people can be *prevented*? This spring, R. Albert Mohler Jr., the president of a Southern Baptist theological seminary in Kentucky and one of the country’s leading Evangelical voices, advocated just that. “We want to understand why some persons will struggle with that particular sin,” he explained. “If there is a way we can help with the struggle, we should certainly be open to it, the same way we would help alcoholics deal with their temptation.”

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At the dawn of gay politics a half-century ago, the government treated gay people as a menace to national security, and much of the public, kept from any ordinary depictions of gay life, lived in terror of encountering one of us. It was routine, and reliably successful, for defendants in murder cases to prevail by alleging they were fending off a gay assault. (If confronted by the pathology of homosexuality, jurors believed, force was not only appropriate but utterly forgivable.) Back then, many psychiatrists treated homosexuality with shock therapy, detention, or a mind-twisting intervention called “aversion therapy”—a practice that was still in vogue in the late seventies, when a lumpy-faced psychiatrist put me through a regimen of staring at *Playboy* centerfolds.

The groundwork for change began when Evelyn Hooker, a UCLA psychologist, was approached by a gay former student in the fifties. He had noticed that all research on homosexuals looked at men and women who were imprisoned or institutionalized, thereby advancing the belief that homosexuals were abnormal. He proposed that she study men like him as a counterpoint. Over the next two decades, she did just that, proving that none of the known psychological screens could detect a healthy gay person—that there was no clinical pathology to sexual orientation. Of necessity, research at the time was focused on demonstrating how unremarkable gay men and lesbians are: indistinguishable on all personality inventories, equally good at all jobs, benign as parents, unthreatening as neighbors, and so on. On the strength of Hooker's findings, and a Gandhian effort by activists, the APA changed its view on homosexuals 34 years ago.

Thereafter, the field of sexual-orientation research fell dormant until 1991, when Simon LeVay conducted the very first study of homosexual biological uniqueness. He had been a researcher at the Salk Institute in La Jolla, California, when his lover fell ill with AIDS. He took a year off to care for him, but his partner ultimately died. Returning to work, LeVay decided he wanted to concentrate on gay themes. "Just like a lot of gay people who'd been directly affected by the epidemic, I felt a desire to do something more relevant to my identity as a gay man," says LeVay. "Some people have said I was out to try and prove that it wasn't my fault that I was gay. I reject that. In my case, since neuroscience was my work, that just seemed like the way to go."

As he recruited experiment subjects, Lippa scanned the passing scalps, some shaved clean, some piled in colorful tresses. "It's like a kind of art. You look at the back of people's heads, and it's literally like a vector field," he says. "We assume that whatever causes people to be right-handed or left-handed is also causing hair whorl. The theory we're testing is that there's a common gene responsible for both." And that gene might be a marker for sexual orientation. So, as part of his study, he has swabbed the inside cheek of his subjects. It will be months before that DNA testing is complete.

I was surprised at how many people quickly agreed to lend five minutes of their pride celebration to science. "If I could tell my mother it's a gene, she would be so happy," said one, Scott Quesada, 42, who sat in a chair for Lippa's inspection.

"Classic counterclockwise whorl," the researcher pronounced, snapping a photo.

Quesada, who is right-handed and seemed to have a typically masculinized finger-length ratio, was impressed. "I didn't know I had a whorl at all," he said.

By the end of the two-day festival, Lippa had gathered survey data from more than 50 short-haired men and photographed their pates (women were excluded because their hairstyles, even at the pride festival, were too long for simple determination; crewcuts are the ideal Rorschach, he explains). About 23 percent had counterclockwise hair whorls. In the general population, that figure is 8 percent.

A string of other studies, most of them conducted quietly and with small budgets, has offered up a number of other biological indicators. According to this research, for instance, gay men, like straight women, have an increased density of fingerprint ridges on the thumb and the pinkie of the left hand; and overall their arms, legs, and hands are smaller relative to stature (among whites but not blacks). There are technical differences in the way most men and most women hear, except among lesbians, whose ears function more like men's. And there are gender-based cognitive differences in which gay men appear more like women. One involves mentally rotating a 3-D object, something males tend to do better than females—except gay men score more like straight women and lesbians function more like straight men. In navigational tasks and verbal-fluency tests, gay men and lesbians tend to have sex-atypical scores.

From these findings, it might be tempting to conclude that lesbians are universally masculinized and gay men are somehow feminized—the classic “inversion model” of homosexuality advanced by Freud. But the picture is more complicated than that. There is also evidence—some more silly-sounding than serious—that homosexuals may be simultaneously *more* feminine and *more* masculine, respectively. The stereotypes—that lesbians tend to commit to relationships early and have little interest in casual sex; that gay men have more sexual partners than their counterparts—turn out to be true. One study that supports the hyper-masculinity theory of male homosexuality involves penis size. An Ontario-based psychological researcher named Anthony Bogaert re-sorted Kinsey Institute data—in which 5,000 men answered detailed questions about their sex lives, practices, fantasies, and, it turns out, measurements of their erect organs—along sexual-orientation lines. Gay men’s penises were thicker (4.95 inches versus 4.80) and longer (6.32 inches versus 5.99). The measurements, it should be noted, were self-reported and perhaps involve reporting bias, but no one has done a study investigating whether gay men are more prone to exaggerating their assets, so, well, draw your own conclusions.

But if true, these findings negate the inversion model, Bogaert says. Instead of picturing gender and orientation along a line, with straight men and women on either end and gay people in the middle, he suggests, a matrix might be a more accurate way to map the possibilities.

Some of this work has been derided as modern-day phrenology, and obviously possessing one trait or another—a counterclockwise hair whorl here, an elongated ring finger there—doesn’t necessarily make a person gay or straight. But researchers point out that these are statistical averages from the community as a whole. And the cumulative findings support the belief now widely held in the scientific community that sexual orientation—perhaps along with the characteristics we typically associate with gayness—is biological. “We’re reaching a consensus on a broad question,” says J. Michael Bailey, a psychologist at Northwestern University. Is sexual orientation “something we’re born with or something we largely acquire through social experience? The answer is clear. It’s something we’re born with.”

Because many of these newly identified “gay” traits and characteristics are known to be influenced in utero, researchers think they may be narrowing in on when gayness is set—and identifying its possible triggers. They believe that homosexuality may be the result of some interaction between a pregnant mother and her fetus. Several hypothetical mechanisms have been identified, most pointing to an alteration in the flow of male hormones in the formation of boys and female hormones in the gestation of girls. What causes this? Nobody has any direct evidence one way or another, but a list of suspects includes germs, genes, maternal stress, and even allergy—maybe the mother mounts some immunological response to the fetal hormones.

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Ironically, AIDS had also given LeVay opportunity. Before the epidemic, cadavers available for dissecting came with scant personal background besides age and cause of death. But because AIDS was still largely a gay disease, it was possible for the first time to do detailed neuroanatomical studies on the bodies of known gay men. (Being lucky enough to have no proprietary cause of death, lesbians were excluded from the study.)

LeVay decided to make the first detailed comparison of the brain's hypothalamus, a small region at the base of the brain responsible for regulating everything from blood pressure and body temperature to hunger and wake-sleep cycles. And because it's awash in more hormones than any other part of the brain, it also helps control emotions and sex drive and enjoys a reputation

among neurologists, as LeVay noted in his book *The Sexual Brain*, for being “haunted by animal spirits and the ghosts of primal urges.”

LeVay suspected the secret to sexual orientation might lurk there as well. It was already known that in (presumably straight) men, a cell cluster in the hypothalamus called INAH3 is more than twice the size of the cluster in (presumably straight) women, a distinction probably created during fetal development when male hormones begin acting on boy fetuses and the two genders embark on different biological courses. LeVay designed a study to see if there were any size differences inside gay brains. His results were startling and unexpected. In gay men, INAH3 is similar in size to straight women’s.

This finding challenged a lot of what scientists believed. “The brain was considered pretty hardwired,” says Roger Gorski, a neurobiologist at UCLA who researches sexual differentiation. “It was male or female, period. Then Simon’s study shows that there could be intermediates. That wasn’t just a watershed—it pushed the water over the waterfall.”

At the time, LeVay presented his findings with caution, acknowledging that HIV or AIDS medications might have been responsible for altering brain structure. But more recently, an important study of sheep brains has replicated his findings. Sheep are among 500 animal species where homosexuality has been documented. They are also among the few who practice exclusive homosexuality, like many humans. In any population of sheep, about 8 percent of males show exclusive homosexual behavior. Little is known about the romantic life of Sapphic sheep because ewes tend to express their sexual interests by standing entirely still, yielding no clues about their partner preferences.

Slicing open the brains of ten ewes, eight female-oriented rams, and nine males who preferred other rams, researchers in the Oregon Health and Science University School of Medicine found nearly the same variations in hypothalamus that LeVay first noticed. Male sheep who were attracted to females had a significantly larger hypothalamus dimension than females or male-oriented males.

A second study in humans also found size differences, though less dramatic, in the hypothalamus cluster identified by LeVay. “There’s now more reason to think my results are right, that the gay brain has this distinction,” he says.

If LeVay’s research suggested that biology—not environment, vice, or sinfulness—was likely responsible for male homosexuality, the geneticist Dean Hamer, an author and molecular biologist at the National Institutes of Health, hoped to pinpoint the exact biological mechanism responsible. He scanned gene groups in pairs of gay siblings looking for sites where the relatives had inherited the same DNA more frequently than would be expected on the basis of chance. In 1993, he located a region in the human genome, called Xq28, that appeared to be associated with gayness, a finding that has generated some controversy among researchers who have not fully confirmed the results.

A large-scale study within the next year is expected to determine more conclusively if a gene (or genes) is linked to sexual orientation. Alan R. Sanders, a psychiatrist from Northwestern University, is enrolling 1,000 pairs of gay brothers in one of the largest sexual-orientation studies ever undertaken. With the experiment, funded by an NIH grant of over \$1 million, Sanders will attempt to map genes that influence sexual orientation.

Why has it taken fourteen years to carry out such an investigation? Hamer says there is very little research money, and almost no glory, to be gained in the hunt for gayness. “At about the same time as Xq28 came out, we found another gene involved in anxiety—the target gene for Prozac, and since that time, there have been now almost 800 peer-reviewed publications on that gene.

Whereas for the gay gene, every experiment has been done by three or four students, most of them my students.”

One of the riddles still vexing geneticists is why only 50 percent of gay identical twins share a sexual orientation with their sibling, despite being genetically identical. “We know from all sorts of research that it’s not your upbringing, not relationship with parents or siblings, not early-childhood sexual experiences and whether you go to a Catholic school or not,” says Sven Bocklandt, a geneticist at UCLA. “What I believe is that it is the ‘epigenetics environment,’ meaning the environment on top of our DNA—meaning the way that the gene is regulated. If you have identical twins, the genes are identical, but they are used differently. Every man and every woman has all the genes to make a vagina and womb and penis and testicles. In the same way, arguably, every man and woman has the genetic code for the brain networks that make you attracted to men and to women. You activate one or the other—and if you activate the wrong one, you’re gay.”

I can’t ignore Bocklandt’s use of the word *wrong* in relation to gay genetic codes. I don’t believe Bocklandt has any agenda in his work beyond scientific exploration, nor do I have any reason to believe he is anti-gay. Rather, Bocklandt is driven, as he likes to say, by a voracious curiosity about all sorts of sexual orientations. “This is not about a gay gene,” he says. “This is about sexual attraction, and about love. And about why crocodiles mate and why pigeons mate. It’s amazing to me that we don’t understand how that works. It’s so fundamental. Life on Earth would be very different if heterosexuality didn’t exist. That’s what we’re trying to figure out.”

But every discovery in this field ignites a new discussion of morality. Politically, there is something very powerful about the notion that sexual orientation is a matter of biology, not choice. In poll after poll, of the one third of Americans who believe homosexuality is socially influenced, in other words “a choice,” about 70 percent think being gay is “not acceptable.” But for those who believe it is biologically mandated, the statistic reverses, and four out of five Americans find gayness “acceptable.”

As Bocklandt’s slip of the tongue illustrates, subtle judgments abound in the field. It is true that homosexuality does not make a whole lot of sense biologically. It lacks an obvious purpose. That’s the reason evolution-theory scholars call it “maladaptive” and radio shock jock Laura Schlessinger labeled it a “biological error.” But Stanford biology professor Joan Roughgarden points out in her book *Evolution’s Rainbow* that most homosexual activity in the animal kingdom serves a fundamentally social purpose. Japanese macaques, for instance, live in female-only societies, arranged in rigid hierarchies. Power and cohesion are established through lesbian couplings, which can last up to four days and seem to prevent violence and aggression. Among many species, in fact, gayness seems to facilitate complex societies. One species of bird has males, females, and “marriage brokers” of a third gender, there to keep the species perpetuating. As adolescents, male bottlenose dolphins perform a kind of oral sex on one another—or in threesomes or foursomes—in rituals that create lifelong friendships and defense partnerships against sharks and other predators.

But for most in the animal kingdom, same-sex pairing is either fleeting or situational. Even Silo and Roy, for six years the poster-penguins for same-sex love in the Central Park Zoo—they famously raised a daughter together—were not destined to last forever. Silo waddled off with a female named Scrappy in 2005, says zoo director Dan Wharton, adding that we shouldn’t worry about Roy’s hurt feelings. “Penguins are matter-of-fact about these things.”

That still leaves a million questions about those gay rams and humans like me, who fall on the far edge of Alfred Kinsey’s sexual-orientation scale, exclusively gay. In a universe in which we look for purpose in order to appoint value, what is the purpose of my gayness?

Dean Hamer sees one possible answer in the fraternal-birth-order studies. “In Polynesian cultures, where you’re talking about very big families, it was typical to have the last-born son be *mahu*, or gay,” he says. Explorers described young boys who looked after the family and sometimes dressed as girls. “They suspected that their families had made them that way. But you just can’t take a guy and make him clean up and have him become gay. He’s got to have some gayness inside. Maybe that’s the biological purpose to the *mahu*: taking care of Mom.”

He says this half in jest, I think, but some other evidence bolsters his argument, including the appearance of transgender younger sons among Native Americans (the so-called two-spirits) and in premodern corners of India, Samoa, and Indonesia. A survey published this year suggested that transgender *fa’afafines* in Samoa are more “avuncular” than heterosexuals—that is, more likely to care for kin. Another study says that female relatives of gay men may have more children; perhaps the very thing that makes their brothers and sons gay makes them more fertile, an ideal situation with extra babysitters on hand. You can slice this stuff any way you want.

Fewer studies have focused specifically on lesbians, perhaps because AIDS didn’t provide the same urgent impetus for studying female sexuality. But the research that has been conducted has yielded some interesting, though decidedly cloudy, results. According to some studies, lesbians are more likely to have homosexual relatives than nonlesbians. They also have notably longer bone growth in their arms, legs, and hands, hinting that they had greater androgen exposure during development, according to James Martin, a physiologist with Western University of Health Sciences in Pomona, California. Another indicator comes in a 2003 study in the journal *Behavioral Neuroscience* that measured something called “prepulse inhibition,” which is the part of our startle mechanism that’s believed to defy practice or training—something hardwired, in other words. Men tend to blink less than women in such experiments; gay and heterosexual men had similar responses, but lesbians, it turns out, were more like men than not.

In many other studies, though, lesbians have appeared less unique than gay men, leading some people to wonder if their sexual orientation is innate. Michael Bailey—who, as a heterosexual researcher, is a minority in this field—even doubts the existence of female sexual orientation, if by orientation we mean a fundamental drive that defies our conscious choices. He bases this provocative gambit on a sexual-arousal study he and his students conducted. When shown pornographic videos, men have an undeniable response either to gay or straight images but not both, according to sensitive gauges attached to their genitals—it’s that binary. Female sexual response is more democratic, opaque, and unpredictable: Arousal itself is harder to track, and there is evidence that it defies easy categorization. “I don’t yet understand female partner choices very well, and neither does anyone else,” Bailey wrote me in an e-mail. “What I do think it’s time to do is admit that female sexuality looks in some ways very different from male sexuality, and that there is no clear analog in women of men’s directed sexual-arousal pattern, which I think is their sexual orientation. I am not sure that women don’t have a sexual orientation, but it is certainly unclear that they do.”

He contends that what they have instead is sexual preference—they might prefer sex with women, but something in their brains can still sizzle at the thought of men. Many feminist scholars agree with this assessment, and consider sexuality more of a fluid than an either-or proposition, but some don’t. “I think women do have orientations, but they don’t circumscribe the range of desires that women can experience to the same degree as men,” says Lisa Diamond, a psychology professor at the University of Utah, who is writing a book on the subject. “For women, there’s more wiggle room. You can think of orientation as defining a range of possible responses, and for women, it’s much broader.”

Bailey stops short of saying that lesbianism is a myth (although he has notoriously declared that true male bisexuality doesn’t exist and dismissed many transgender people as peculiar sexual fetishists, drawing lasting enmity from gay and trans groups). But it may be less hard-wired. And it appears to have separate triggers and correlates that haven’t been identified yet. In studies of

twins, there is a lower correlation of sexual orientation between female siblings than male siblings, for instance. “We’re at a place,” agrees Diamond, “where everyone agrees that whatever is going on is quite distinct between the sexes.”

I suppose the main upside to this kind of work, besides any impact it might have on securing gay rights, is the comfort of self-knowledge. The secrets lurking in the hypothalamus (and the ring finger and the hair whorl) aren’t just about who we desire but about a more fundamental organization of our personalities, individually and collectively. Still, some have dismissed all this field-guide work as wrongheaded. Gaydar can no more be proved than a sixth sense, they say. What’s being classified as fundamentally gay is nothing more than cultural signals that vary so much from one part of the world to another that they’re worthless as clues to anything. It is surely true that gaydar has its blind spots. When I traveled through Nigeria a few years ago, I was unable after nearly a month to say with any conviction that I had encountered any gay people along my way. No knowing eye contact, no species recognition. (Then again, it’s not as if I was able to measure index-to-ring finger ratios.)

Where were they all? In Lagos, the morning newspaper offered an answer. According to a tiny news squib, a court had just convicted a young man of sodomy and sentenced him to death by stoning. Two other death sentences were handed down to gay people in the few days before I boarded my airplane. I paid a visit to one of the top human-rights agencies in the country and asked why they weren’t protesting these cases. The director looked at me dumbstruck. “Because sodomy,” he said as if speaking to a child, “is illegal.” To survive, they were hiding, even from me—they had edited down their gendermaps to the barest minimum and disappeared.

Still, Dr. Lippa, the hair-whorl researcher, is publishing a paper in the *Archives of Sexual Behavior* later this year that seems to prove the existence of gay-typical behavior across the globe. Lippa is looking at a 2005 BBC Internet survey, part of a BBC documentary project called *Secrets of the Sexes*, which included more than 200,000 respondents in 53 countries answering questions about everything from their occupational interests to their sexual histories and personalities. Lippa, a tall and slender man who came out to his parents in his thirties, analyzed the data first along gender lines, then compared straight people to gay people. What he found, he says, is a cross-cultural confirmation of what amount to stereotypes.

“It probably comes as no shock to you that on average men say they’re interested in being mechanics, or electrical engineers, or construction workers, whereas on average women are more interested in, say, being an interior decorator or a social worker or an artist,” he tells me. “Similarly, the differences between gay men and straight men are pretty large. On average, gay men are interested more in what you would consider female-typical occupations and hobbies than straight men. Same with women. It’s not universal. Some gay men like football games and like working on cars and are electrical engineers. But a large majority answer this way.”

It could be that his study says more about the limited number of vocations where gay men feel comfortable expressing themselves, and we might be equally drawn to construction sites if we thought we might be accepted there. It could be that the study says as much about the globalization of culture as the biological nature of gayness.

Even Lippa hesitates to say that gay people are *essentially* different from straight. “Essentialism,” he explains, “is the enemy of a lot of academics,” because it shuts down inquiry into all the possible influences. Perhaps there are a dozen possible routes to homosexuality, any combination of which might produce a number of the traits being catalogued now. It might be that there is no single thing called homosexuality—that there are instead dozens of homosexualities, scores of potential outcomes in terms of personality, and endless potentials for describing them. “For example, do gay men who have older brothers show more or less feminine? Do gay men with counterclockwise hair have more masculine traits? One cause might create a more feminine homosexuality than another.”

Of course, biology doesn't determine everything. And some critics of sexual-orientation researchers blame them for minimizing the role of experience in determining our affectional course in life. The feminist biologist Anne Fausto-Sterling has waged a constant battle against their research, which she calls "a big house of cards" that ignores the power of environment in creating personality. Nurture, she argues, can and should be studied as a link to sexual orientation. The baby penguin raised by her two dads is a potential case study—though genetically unrelated to either parent, in the last few mating seasons she has mated with another female.

The rush to declare a biological mandate is motivated by a political agenda, says Fausto-Sterling, the author of *Sexing the Body*, who is married to a woman after a marriage to a man. "For me and for any feminist, I think it's a pretty fragile way to argue for human rights. I want to see the claims for gay rights made on moral, ethical, legal, and constitutional bases that don't rely on a particular scientific view of sexual development."

Especially if that view invites the opponents of gay people to consider dramatic interventions meant to stop the development of homosexual orientation in a fetus. What if prenatal tests were able to show a predisposition to gayness? How long would it be before some pharmaceutical company develops a patch to regulate hormone flow and direct the baby's orientation? Michael Bailey, for one, isn't troubled by the moral implications any more than he would oppose fetal screens for potential birth defects, though he quickly adds his personal belief that homosexuality is "a good" on par with heterosexuality. "There's no reason to ban, or become hysterical about, selecting for heterosexuality," he says. "That's precisely what parenting is about: shaping the children to have traits the parents value."

It's bizarre to think some value systems might lump gayness in with—say—sickle-cell anemia or Down syndrome. **As Matt Foreman from the Task Force put it, "It's not playing with the number of toes you have; it's really manipulating your very essence. So many people see gay people only in terms of sexual behavior, as opposed to what sexual orientation is really about, which is how you fit into the world. I don't want to get mushy, but it's about your soul."**