



DR. MONEY WAS indeed listening. In a sense, Janet's cry for help was one that he might have been waiting for his entire professional life.

At the time the Reimer family's plight became known to him, John Money was already one of the most respected, if controversial, sex researchers in the world. Born in 1921 in New Zealand, he had come to America at the age of twenty-five, received his Ph.D. in psychology from Harvard, then joined Johns Hopkins, where his rise as a researcher and clinician specializing in sexuality was meteoric. Fifteen years after joining Johns Hopkins, he was already widely credited as the man who coined the term *gender identity* to describe a person's inner sense of himself or herself as male or female. He was also known as the world's undisputed authority on the psychological ramifications of ambiguous genitalia and was making headlines around the world for his establishment of the pioneering Johns Hopkins clinic for transexual surgeries.

As his unflappable appearance on *This Hour Has Seven Days* would suggest, Money was also a formidable promoter of his ideas. "He's a terribly good speaker, very organized, and very persuasive in his recital of the facts regarding a case," says Dr. John Hampson, a child psychiatrist who, with his wife, Joan, coauthored a number of Money's groundbreaking papers on sexual development in the mid-1950s. "I think a lot of people were envious. He's kind of a charismatic person, and some people dislike him."

Money's often overweening confidence actually came to him at some cost. His childhood and youth in rural New Zealand had been beset by anxieties, personal tragedies, and early failure. The son of an Australian father and an English mother who belonged to the Brethren church, he was a thin, delicate child raised in an atmosphere of strict religious observance—or what he would later derisively call "tightly sealed, evangelical religious dogma." His sense of intellectual superiority developed early. On his first day of school at age five, he was set upon by bullies and took refuge with a female cousin in the girls' play-shed, where boys would not be caught dead. "Having not measured up as a fighter," Money would later write, "I was set on the pathway of outwitting other kids by being an intellectual achiever. That was easier for me than for most of them."

Money's childhood difficulties were compounded by his vexed relationship with his father. Six decades later he would write with barely controlled venom of this father, portraying him as a brutal man who heartlessly shot and killed the birds that infested his fruit garden, and administered to his four-year-old son an "abusive interrogation and whipping" over a broken window. This incident, Money wrote, helped establish his lifelong rejection of "the brutality of manhood."

Money was eight years old when his father died of a chronic

kidney ailment. "My father died without my being able to forget or forgive his unfair cruelty," Money wrote. Not told of his father's death until three days after seeing him carried off to the hospital, Money's shock was compounded by the experience of being informed by an uncle that now *he* would have to be the man of the household. "That's rather heavy duty for an eight-year-old," Money wrote. "It had a great impact on me." As an adult, Money would forever avoid the role of "man of the household." After one brief marriage ended in divorce in the early 1950s, he never remarried, and has never had children.

After his father's death, Money was raised in an exclusively feminine atmosphere by his mother and spinster aunts, whose anti-male diatribes also had a lasting effect on him. "I suffered from the guilt of being male," he wrote. "I wore the mark of man's vile sexuality"—that is, the penis and testicles. In light of Money's future fame in both adult and infant sex change, his next comment has an unsettling tenor: "I wondered if the world might really be a better place for women if not only farm animals but human males also were gelded at birth."

A solitary adolescent with a passion for astronomy and archaeology, Money also harbored youthful ambitions as a musician, a goal doomed to disappointment once Money realized that he would never be more than a skilled amateur. As an undergraduate at Victoria University, in the New Zealand capital city of Wellington, Money discovered a new passion into which he rechanneled his thwarted creativity: the science of psychology. Like so many students drawn to the study of the mind and emotions, Money's interest in the discipline was in large part as a means for solving certain troubling questions about himself. His first serious work in psychology, his master's thesis, concerned "creativity in musicians," in which, Money writes, "I began to investigate my relative lack of success in comparison with that of other music students."

His decision soon after that to narrow his studies to the psychology of sex had a similarly personal basis. Having departed sharply from his parents' faith, Money grew increasingly to react against what he saw as the repressive religious strictures of his upbringing. The academic study of sexuality, which removed even the most outlandish sexual practices from moral considerations into the "pure" realm of scientific inquiry, was for Money an emancipation. From his twenties on, he would be a fierce proselytizer for sexual curiosity and exploration. By the mid-1970s, with the sexual revolution in full rampage, Money would step out publicly as a champion of open marriage, nudism, and other more rarefied manifestations of the culture's sexual unbuttoning. "There is plenty of evidence that bisexual group sex can be as personally satisfying as a paired partnership, provided each partner is 'tuned in' on the same wavelength," he wrote in his book *Sexual Signatures*. Elsewhere, he has described his own private life as casual and eclectic—"a give-and-take of sexual visitations and friendly companionships with compatible partners, some women, some men."

Reveling in his role as "agent provocateur of the sexual revolution" (as the *New York Times* dubbed him in 1975), Money rarely missed an opportunity to spread his gospel of sexual emancipation: extolling the heightened pleasures of sex under a black light to a student after a speaking engagement at the University of Nebraska; appearing in court as an expert witness to defend the 1973 pornographic film *Deep Throat*, which he praised as a "cleansing" movie that would help keep marriages together; penning op-ed pieces for the *New York Times* in which he called for a "new ethic of recreational sex." A patient treated by Money in the 1970s for a rare endocrine disorder recalls the psychologist once casually asking him if he'd ever experienced a "golden shower." A sexually inexperienced youth at the time, the patient did not know what Money was

talking about. "Getting pissed on," Money airily announced with the twinkling, slightly insinuating smile with which he liked to deliver such deliberately provocative comments.

Convinced that embargoes on certain words promoted prudery, Money inserted the words *fuck*, *cock*, and *cunt* into his regular conversation with colleagues and patients. Dr. Fred Berlin, a professor of psychiatry at the Johns Hopkins School of Medicine and a colleague who considers Money one of his most important mentors, defends Money's penchant for sexual outspokenness. "Because he thinks it's important to desensitize people in discussing sexual issues," Berlin says, "he will sometimes use four-letter words that others might find offensive. Perhaps he could be a little more willing to compromise on that, but John is an opinionated person who isn't looking necessarily to do things differently than the way he's concluded is best."

While Money's conclusions about the best approach to sexual matters merely raised eyebrows in the mid-1970s, they provoked outrage at the dawn of the more conservative 1980s, when Money ventured into areas of which even some of the most adventurous sexual explorers were leery. In 1986, Money published *Lovemaps*, an exhaustive study of such practices as sadomasochism, coprophilia, amputation fetishes, autostrangulation, and various other behaviors that he called, not perversions, but "paraphilias," in an effort to destigmatize and decriminalize them. The topic of pedophilia became a particular interest, and one that Money took obvious delight in publicly espousing.

"A childhood sexual experience," he explained to *Time* magazine in April 1980, "such as being the partner of a relative or of an older person, need not necessarily affect the child adversely." He granted an interview to *Paidika*, a Dutch journal of pedophilia, which carries ads for the North American Man-Boy Love Association and other pro-pedophile groups.

“If I were to see the case of a boy aged ten or twelve who’s intensely attracted toward a man in his twenties or thirties, and the relationship is totally mutual, and the bonding is genuinely totally mutual, then I would not call it pathological in any way,” he told the journal, and added, “It’s very important once a relationship has been established on such positive and affectionate grounds that it should not be broken up precipitously.” In 1987, Money wrote an admiring foreword to an unusual volume published in Denmark entitled *Boys and Their Contacts with Men*. By Dutch professor Theo Sandfort, the book presented what purported to be verbatim testimonials of boys as young as eleven years old rhapsodically describing the delights of sex with men as old as sixty. “For those born and educated after the year 2000,” Money wrote, “we will be their history, and they will be mystified by our self-important, moralistic ignorance of the principles of sexual and erotic development in childhood.” Money concluded his foreword with the proclamation “It is a very important book, and a very positive one.”

Money’s response to criticism for the public airing of such views was always to launch counterattacks of his own, ridiculing his critics for their adherence to an outmoded sexual Puritanism. In an autobiographical essay included in his 1985 book of collected writings, *Venuses Penuses*, Money dubbed himself a “missionary” of sex, proudly proclaiming, “It has not been as easy for society to change as it had been for me to find my own emancipation from the 20th-century legacy of fundamentalism and Victorianism in rural New Zealand.”

Money’s experimental, taboo-breaking attitude to sex found its echo in the way he pursued his professional research career. Eschewing the more trammled byways of sex

research, Money deliberately sought out exotic corners of the field. He found just such a relatively undiscovered realm of human sexuality in 1948, while in the first year of study for his Ph.D. in psychology at Harvard. In a tutorial called Fieldwork and Seminar in Clinical Psychology, Money was presented with the case of a fifteen-year-old genetic male born not with a penis, but with a tiny, nublike phallus resembling a clitoris. At puberty, the boy had developed breasts. It was Money’s first exposure to hermaphroditism—also known as intersexuality—a term of classification for a variety of birth anomalies of the internal and external sex organs. Often described in lay terms as a condition of being half-man, half-woman, the syndrome derives its name from a combination of the names of the Greek gods of love, Hermes and Aphrodite, and occurs as often as one in two thousand births (by some estimates). The symptoms vary from the extreme manifestation of a genetic female born with a penis-sized clitoris and fused labia resembling a scrotum, to a male whose genital resemblance to a girl at birth is so total that his true biological sex is not suspected until puberty when “she” fails to menstruate—to anything in between.

Money was fascinated by hermaphroditism and wrote his doctoral dissertation on the subject. Until then the syndrome had been studied almost solely from a biological perspective. Money approached it from a psychological angle, investigating the mental and emotional repercussions of growing up as anatomically neither boy nor girl. His thesis, entitled “Hermaphroditism: An Inquiry into the Nature of a Human Paradox,” was completed in 1952 and led to his invitation to join Johns Hopkins, where the world’s first and largest clinic for studying and treating intersexual conditions had been established. The clinic’s director, pioneering pediatric endocrinologist Lawson Wilkins, teamed Money with two married psy-

chiatrists, Drs. Joan and John Hampson, to study the mental and emotional makeup of the intersexual patients treated in the clinic. The three researchers made up the newly created Psychohormonal Research Unit.

Over the next six years, Money and the Hampsons studied some 131 intersexuals ranging in age from toddlers to adults. Money (who was lead investigator and author of the team's published reports) claimed to observe a striking fact about intersexes who had been diagnosed with identical genital ambiguities and chromosomal makeups but raised in the opposite sex from one another: more than 95 percent of them reportedly fared equally well psychologically whether they had been raised as boys or girls. Money called these groupings of patients "matched pairs" and said they were proof that the primary factor determining an intersexual child's gender identity was not biology, but rather the way the child was raised. He concluded that these children were born wholly undifferentiated in terms of their psychological sex and that they formed a conception of themselves as masculine or feminine solely through rearing.

This theory was the foundation on which Money based his recommendation to Johns Hopkins surgeons and endocrinologists that they could surgically and hormonally steer intersexual newborns into whichever sex, boy or girl, they wished. Such surgeries would range from cutting down enlarged clitorises on mildly intersexual girls to full sex reversal on intersexual boys born with undeveloped penises. These conversions to girlhood were foreordained by the state of surgical technology: it was easier for surgeons to construct a synthetic vagina than to create an artificial penis. Money's only provisos were that such "sex assignments" and reassignments be done within the first two and a half years of life (after which time, Money theorized, a child's psychosexual orientation ceased to be as malleable) and that once the sex had been decided upon, doctors and par-

ents never waver in their decision lest they risk introducing fatal ambiguities into the child's mind.

By providing a seemingly solid psychological foundation for such treatments, Money had offered physicians a relatively simple surgical solution to one of the most vexing and emotionally fraught conundrums in medicine: how to deal with the birth of an intersexual child. "One can hardly begin to imagine what it's like for a parent when the first question—'Is it a boy or a girl?'—results in a response from the physician that they're just not sure," says Dr. Fred Berlin. "John Money was one of those folks who, years ago, before this was even talked about, was out there doing his best trying to help families, trying to sort through what's obviously a difficult circumstance."

Money, however, was not interested chiefly in intersexes. As he stated as early as his Harvard thesis, he recognized the scientific worth of intersexes primarily as what he called "experiments of nature"—as a cohort of research subjects who could shed light on the question of sexual development in *normal* humans—who could, in fact, resolve one of the longest-running debates in science; namely, whether it is primarily nature or nurture that shapes our sexual sense of self. It was in his first published papers at Johns Hopkins that Money generalized the theory of psychosexual neutrality at birth from hermaphrodites to include *all* children, even those born without genital irregularity.

"From the sum total of hermaphroditic evidence," he wrote in 1955, "the conclusion that emerges is that sexual behavior and orientation as male or female does not have an innate, instinctive basis. In place of a theory of instinctive masculinity or femininity which is innate, the evidence of hermaphroditism lends support to a conception that, psychologically, sexuality is undifferentiated at birth and that it becomes differentiated as masculine or feminine in the course of the various experiences

of growing up.” In short, Money was advancing a view that human beings form a sense of themselves as boy or girl according to whether they are dressed in blue or pink, given a masculine or feminine name, clothed in pants or dresses, given guns or Barbies to play with. Many years later, Money would describe how he arrived at some of his more radical theories about human sexual behavior. “I frequently find myself toying with concepts and working out potential hypotheses,” he mused. “It is like playing a game of science fiction.”

While Money’s theory of human newborns as total psychosexual blank slates may strike a contemporary reader as science fiction, such was not the case in the mid-1950s, when it was met with almost universal acceptance by clinicians and scientists—an acceptance not difficult to understand in the context of the time. Explanations for sex differences had been moving toward a nurturist view for decades. Prior to that, the pendulum had been pointing in the naturist direction—thanks to the discovery at the end of the nineteenth century of the so-called male and female hormones, testosterone and estrogen. The discovery of these chemical-based internal secretions had led biologists to proclaim the riddle of sex differences solved: testosterone was the masculinizing agent; estrogen, the feminizing. They confidently predicted that male homosexuals would be discovered to possess an excess of the “female” hormone in their bloodstream and a deficiency of the “male” hormone. Minute analysis of the urine and blood of adult homosexual men, however, revealed no such hormonal imbalances. Under the microscope, a straight and a gay man’s internal secretions are identical. Other experiments meant to show the hormonal basis of sexual identity also failed, and as the failures mounted, enthusiasm for a biological explanation of sexual differences gradually waned. Simultaneously, the first half of the twentieth century and the advent of Freud and modern psychology saw a

rapid increase in social learning models for human behavior. Against this background, the Johns Hopkins team’s conclusions that sexual identity and orientation were solely shaped by parents and society fit perfectly into an intellectual zeitgeist in thrall to behaviorist theories. Nor did it detract from the papers’ reception that they carried the imprimatur of Johns Hopkins Hospital, one of the premier medical research institutions in the world.

The Johns Hopkins team’s 1955 intersex papers were proclaimed instant classics and won that year’s Hofheimer Prize from the American Psychiatric Association. The Hampsons soon left Johns Hopkins for Washington State University and by 1961 had drifted out of gender identity research. As a result, Money alone became heir to the award-winning papers’ reputation. And as sole director of the Psychohormonal Research Unit (after Lawson Wilkins’s death in 1962), he was also the lone beneficiary of the unit’s success. In 1963 Money was awarded a grant of \$205,920 from the National Institutes of Health—a considerable sum in early-1960s dollars, but merely the first of several NIH grants that would sustain Money and his unit for the next thirty-five years. In 1965 he served as Mead Johnson visiting professor of pediatrics at the University of Buffalo Children’s Hospital, and was awarded the Children’s Hospital of Philadelphia Medal “for contributions to the study of the psychological development of children.” A year later he would begin to garner fame outside the academic realm when he finally succeeded in persuading Johns Hopkins to establish the clinic for the treatment and study of adult transsexuals.

Money had been galvanized by transexualism since 1952, when the revelations about Christine Jorgensen first hit the press. In Jorgensen’s case, Money saw tantalizing proof of his theory that environment, not biology, determines psychological sex, for here was a person born with apparently normal

male biological makeup and genitals whose inner sense of self had differentiated as female—in direct contradiction to his chromosomal, gonadal, hormonal, reproductive, and anatomic sex. What greater evidence could there be that gender identity is determined not by biology but by environment? Determined to study such individuals in the greatest number possible, Money set out to get Johns Hopkins into transexual research and treatment, which was still a repellent idea for the majority in the American medical establishment.

In his campaign to establish Johns Hopkins as the first hospital in America to embrace transexual surgeries, Money knew that he would first have to bring on board a respected medical man. (Money himself was a psychologist and did not possess a medical degree of any kind.) He turned first to Dr. Howard Jones, the Johns Hopkins gynecologist who had perfected the surgical techniques for sex assignment on Money's infant intersexual subjects. "I can recall," Jones says, "that for a number of months, maybe even *years*, John kept raising the question of whether we shouldn't get into the transexual situation." While Jones was interested in experimental medicine (he would eventually leave Johns Hopkins for the University of Virginia where he would found the nation's first in vitro fertilization clinic), he was resistant to the idea of performing elective castrations and genital reconstruction on adults.

But Money was persistent. He turned for help to Dr. Harry Benjamin. The acknowledged grandfather of transexual study in America, Benjamin had for the previous ten years been quietly referring transexual patients to doctors in Casablanca and Morocco for sex change surgery. Money enlisted three of Benjamin's postoperative transexuals to come to Johns Hopkins and meet with Jones and pediatric endocrinologist Milton Edgerton. Eventually Jones and Edgerton were convinced. "John finally marshaled enough evidence," as Jones puts it, "to

indicate that this was something that maybe should be done." Fittingly enough, Money was given the job of naming the new clinic for adult transexual surgeries. He dubbed it the Gender Identity Clinic.

The first complete transexual surgery at Johns Hopkins was performed by Dr. Jones on 1 June 1965, when a New Yorker named Phillip Wilson became Phyllis Avon Wilson. But it still remained for Johns Hopkins to sell the idea to the American public. While some members of the sex change committee argued for keeping the existence of the clinic quiet, Money pushed for a preemptive strike and argued in favor of creating a press release that would circumvent leaked rumors about what the team had done. Money's argument prevailed, and he helped concoct a press release with the hospital's public relations department. The statement was issued on 21 November 1966. Money later revealed that a strategic decision had been made to issue the press release to the *New York Times* alone. The prestige of the *Times*, the Johns Hopkins team hoped, would set the tone for all other media coverage. "The plans," Money later wrote, "worked out exactly as hoped."

The *Times* treated the revelations with none of the scandalized outrage that had greeted the Jorgensen case in 1952. The front-page story used verbatim quotations from Gender Identity Clinic chairman John Hoopes, culled directly from the Johns Hopkins press release, and presented the procedure as a humane and effective solution to an intractable psychosexual problem. Similarly approving stories followed in all three news weeklies, *Time*, *Newsweek*, and *U.S. News & World Report*. In April 1967 *Esquire* magazine published an exhaustive feature on the Johns Hopkins clinic, in which Money was admirably quoted. Indeed, of all the coverage in late 1966 and early 1967 of Johns Hopkins' pioneering foray into transexual surgery, by far the hardest edged was CBC's *This Hour Has*

*Seven Days*, in which Alvin Davis sharply challenged Money on the ethics and efficacy of switching people's sex. Except for the single stinging rejoinder ("Would *you* like to argue on God's side?"), Money had refused to rise to the bait, and thus, for his fellow Gender Identity Clinic committee members, set the standard for how to handle direct attacks. Money's calm, judicious performance was a masterpiece of public relations, and all the more impressive to those who knew the ferocity with which, in ordinary life, he responded to even the mildest opposition to his opinions.

As Money himself would admit in an essay written in 1990, "In the practice of my psychohormonal research, I do not suffer fools gladly." This was an understatement. The psychologist's violent reactions to intellectual challenge were legendary. "John was unusually brilliant," says Dr. Donald Laub, a pioneer in adult transexual surgical techniques who has known Money for thirty years. "He may be the smartest person I've ever met. He was so smart that it was a *problem*—because he knew everybody *else* was dumb." By all accounts, Money had no compunction about letting others know his low opinion of their intellectual firepower. "Even when John asked for feedback, what he was looking for was agreement," says Dr. Howard Devore, a psychologist who earned his Ph.D. under Money in the Psychohormonal Research Unit in the mid-1980s. Should that agreement fail to be forthcoming, Money was never afraid to let his displeasure be known. As early as the mid-1950s, Money had a reputation for tantrums among his coworkers, underlings, and students that preceded him throughout the academic world.

"Every center that I trained at after [Johns Hopkins]," says Devore, "when people saw on my résumé that I had worked with John Money, they would ask me to comment, off the

record, what it was like working with him and was he 'as bad as people say?' I was just amazed at how consistent his worldwide reputation actually was. And frankly, John didn't do that much to hide it. I once saw him stand up at an academic meeting and shout a presenter down because he didn't agree with what she was saying."

By February 1967—when Ron and Janet Reimer first saw John Money on television—his reputation was for all intents and purposes unassailable. Dr. Benjamin Rosenberg, himself a leading psychologist who specialized in sexual identity, says that Money was "the leader—the front-runner on everything having to do with mixed sex and hermaphrodites and the implications for homosexuality and on and on and on."

Money's reach and influence throughout the academic and scientific world would help to define the scientific landscape for decades to come—indeed, to the present day: many of his students and protégés, trained in his theories of psychosexual differentiation, have gone on to occupy the top positions at some of the most respected universities, research institutions, and scientific journals in the country. His former students include Dr. Anke Ehrhardt, now a senior professor at Columbia University; Dr. Richard Green, director of the Gender Identity Clinic in London, England; Dr. June Reinisch, who for years was head of the famed Kinsey Institute; and Dr. Mark Schwartz, director of the influential Masters and Johnson Clinic.

On the clinical side, Money's influence was perhaps even more remarkable. His theories on the psychosexual flexibility at birth of humans form the cornerstone of an entire medical speciality—pediatric endocrinology. Professor Suzanne Kessler, in her 1998 book, *Lessons from the Intersexed*, suggests that Money's views and their implications for the treat-



ment of ambiguously sexed babies form among physicians “a consensus that is rarely encountered in science.”

There was, however, at least one researcher in the mid-1960s who was willing to question John Money. He was a young graduate student fresh from the University of Kansas.

The son of struggling Ukrainian Jewish immigrant parents, Milton Diamond, whom friends called Mickey, was raised in the Bronx, where he had sidestepped membership in the local street gangs for the life of a scholar. As an undergraduate majoring in biophysics at the City College of New York, Diamond had become fascinated by the role hormones played in human behavior. Seeking a place to do graduate work, he chose Kansas, where anatomist William C. Young (famous for his hallmark studies of the 1930s on the role of hormones in the estrus cycle) ran a laboratory. In a stroke of serendipity, Diamond's arrival in Kansas in the fall of 1958 coincided with the time when a trio of researchers on Young's staff—Charles Phoenix, Robert Goy, and Arnold Gerall—stood on the brink of a discovery about the sex-differentiating role of hormones that would change the science and study of sexual development forever.

Disillusionment with earlier hormone studies had led many sex researchers, including Young's team, to shift their focus from the role played by hormones in the mature organism to the role played by hormones in the womb. Working from guinea pig studies done two decades earlier by Soviet sex researcher Vera Dantchakoff, the Kansas team sought to learn the role played by the hormones that bathe a developing fetus's brain and nervous system. Earlier researchers had shown that, in humans, in the early stages of gestation, the male and female fetus's internal and external sex organs are identical to one another. Between six and eight weeks, how-

ever, changes start to take place. If the fetus's cells bear the male (XY) chromosome, the fetal gonads differentiate as testicles, which begin to pump out testosterone. This prenatal androgen is the agent that masculinizes the developing fetus's external genitals—turning the undifferentiated genital tubercle into a penis, causing the open genital sinus to fuse along the midline and form the scrotum, into which the testicles descend—and at the same time masculinizes the internal reproductive system by spurring the growth of the seminal ducts (another testicular secretion suppresses growth of the rudimentary female internal structures). If, on the other hand, the fetus bears the female (XX) chromosome, the gonads develop as ovaries, no testosterone is produced, in the absence of which the external genitals and internal anatomy differentiate as female, the genital tubercle develops as a clitoris, the genital sinus remains open and becomes the entrance to the vagina, and the internal structures develop as fallopian tubes and uterus.

The question for the Kansas team was whether these prenatal hormonal effects on the anatomy were mirrored in the brain. To find out, they set about creating a cohort of hermaphrodite guinea pigs by injecting large doses of testosterone into the wombs of pregnant mothers. When exposed to testosterone at a critical stage in fetal development, the female guinea pigs were born, as expected, with clitorises enlarged to the size of penises. The researchers then set out to learn if the masculinization of a treated female's anatomy was matched by a corresponding masculinization of her sexual behavior.

In observing the treated females as they grew from childhood to maturity, the team noticed something extraordinary. Not only did the treated females demonstrate an increased physical activity distinct from that of their untreated sisters, they also did not, in the presence of normal males, present

their hindquarters for sexual penetration in the normal female in-heat posture known as lordosis. Instead, the testosterone-treated females (even those that showed no clitoral enlargement) attempted to mount their untreated sisters.

I spoke with team member Robert Goy, shortly before his death in 1999, about the breakthrough moment of his research career. His voice was charged with an excitement that suggested he had just made the discovery the night before. “We couldn’t schedule tests fast enough,” he told me. “We were testing every night—night after night after night—and getting data, and analyzing it, and reanalyzing it.”

Milton Diamond was in the thick of the research, performing adjunct experiments on the pregnant mothers to learn what, if any, influence the testosterone had on their functioning. Having come to Kansas hoping to learn something new and interesting about the action of hormones on behavior, Diamond found himself present at one of the most significant biological breakthroughs in sex research of the twentieth century.

There was concern among members of the team about how their professor, William Young, would react to the results. They knew him to be an adherent of the theories of psychosexual neutrality advanced just four years earlier by John Money’s team at Johns Hopkins. “Young was a great follower of John Money and the Hampsons,” Goy told me. “He had been thinking all this time that the organizing principle for sexual behavior was experience. So his world was shaken by these results. But he was wonderfully adaptable, and the truth was more important to him than anything else. It’s very unusual in a scientist. Most scientists fall in love with their own ideas and theories, and you can’t shake them out of it. Will Young wasn’t like that.”

In fact it was Young who settled the debate that flared among the research team members when it came time to write

up the results. Unsure precisely how to label the behavior of the treated female guinea pigs—the team toyed with calling it “masculine mimicry” or “pseudodifferentiation”—they were overruled by Young, who told them they had discovered not the role played by prenatal testosterone in creating a *simulation* of masculine behavior, but masculine behavior itself. Accordingly, Young advised the team to state unequivocally that they had discovered, in the fetal guinea pig, the *organizing principle* for adult masculine sexual behavior.

“Young was an anatomist,” Goy explained, “and if you understand the way anatomists use the term *organization*, it makes that choice of word inevitable. Anatomists believe that the organs of the body are organized by a set of tissues that are differentiated in a special way and combined so that they carry out a definite function or malfunction of that organ. And that’s the way he used the word *organization*. He meant that all of the tissues underlying sexual behavior—whether peripheral structures, brain tissues, blood, or muscles—are organized into a whole; and that that organization is imposed by exposure to hormones before birth; and that that organization is either masculine or feminine. And he believed that we had discovered the principle that organizes the tissues in a masculine form.”

Still, when the team came to write up their results, which would appear in a 1959 issue of the journal *Endocrinology*, Young urged caution in how directly they should extrapolate their experimental animal work to sexual differentiation in humans—largely out of Young’s respect for Money’s work with the Hampsons. The team agreed to soften their statements on the applicability of their research to humans. “We said there may be some way that the guinea pig picture will ‘complement’ or ‘supplement’ the human picture by accounting for ‘discrepancies,’” Goy said.

Not everyone in the lab was satisfied with that decision. The

youngest member, Mickey Diamond, felt that Young and the others were being too cautious in failing to link their animal findings directly to the human situation. "I believe in evolution," Diamond says, chuckling. "I didn't see any reason that human beings would be different from other mammals in that regard." He felt so strongly that when he was applying for a research grant in his final year at Kansas and was required to submit an original paper, he decided to write an essay taking on Money and the Hampsons' theory of psychosexual neutrality at birth.

In that paper, entitled "A Critical Evaluation of the Ontogeny of Human Sexual Behavior," Diamond rejected outright the Johns Hopkins team's theory. Citing the guinea pig findings, Diamond described as "specious" a theory that said man is "completely divested of his evolutionary heritage," and stated that prebirth factors "set limits" on how far culture, learning, and environment can direct gender identity in humans. Marshaling evidence from biology, psychology, psychiatry, anthropology, and endocrinology to argue that gender identity is hardwired into the brain virtually from conception, the paper was an audacious challenge to Money's authority (especially coming from an unknown graduate student at the University of Kansas).

Addressing the theory about the psychosexual flexibility of intersexes, Diamond pointed out that such individuals had experienced "a genetic or hormonal imbalance" in the womb, and he argued that even if human hermaphrodites *could* be steered into one sex or the other as newborns (as Money claimed), this was not necessarily evidence of their gender neutrality at birth. It might simply suggest that the organization of their nervous systems and brains had undergone in utero a similar ambiguous organization as their genitals. In short, they had an inborn neurological capability to go both ways—a

capability, Diamond hastened to point out, that genetically normal children certainly would not share. As for transexuels, who showed no observable anatomic ambiguity of sex, Diamond postulated that they, too, might possess an as yet undiscovered biological condition that hardwired their brains to a program opposite to the evidence of their bodies—a possibility that Diamond was able to back up with evidence from no less an authority than Dr. Harry Benjamin himself, who had recently reported that in forty-seven out of eighty-seven of his patients, he "could find no evidence that childhood conditioning" was involved in their conviction that they were living in the wrong sex.

Had he known of it at the time, Diamond might also have drawn upon an obscure paper in the foreign literature for his critique—a paper that had questioned the Johns Hopkins team's protocols for intersex treatment some six years earlier. In a 1959 edition of *The Canadian Psychiatric Association Journal*, three Toronto physicians, Dr. Daniel Cappon, Dr. Calvin Ezrin, and Dr. Patrick Lynes, had pointed out serious flaws in the Hopkins team's statistical and research methods. "[T]hese workers," the Canadians wrote, "failed to relate the physical and psychological wholes of the person and only compared component parts without submitting these comparisons to mathematical validation." In conducting their own research on a cohort of seventeen intersexual patients, the Canadian doctors took precautions that the Johns Hopkins team had not. To prevent subjective tainting of their results, the Canadians split their research team in two: one to study the patients from an endocrinologic perspective, the other to study the patients from a psychological perspective. For comparative purposes, the Canadian team also carried out research on a control group of nonhermaphrodites, as well as on a series of homosexuals and transvestites.

The team's results showed that it was dangerous indeed to suppose that no link existed between an intersexual child's biological makeup and its gender identity; that in fact the status of the chromosomes, gonads, or hormones might predispose a hermaphrodite child to identify more with one sex than the other in adulthood. Stating that the Johns Hopkins team had based its recommendations to surgeons on "shaky theory," the Canadians had expressed particular unease about the recommendation that males born with tiny or nonexistent penises should, without exception, be castrated and converted into girls. Such sex-changed children, the Canadians had warned, "were liable to be brought up tragically incongruously with the main somatic sex."

The Canadian team's findings would have made a strong addition to Diamond's exhaustive theoretical critique, but he did not learn of the paper's existence until after his own was published (at which point he began to cite it in his own papers). "The Canadian paper got lost somewhere," Diamond says. "It just died. I think it was maybe Hopkins compared to Podunk." But in 1965, Diamond's paper was published in a high-profile, well-respected American journal, the *Quarterly Review of Biology*, where it could not be missed—least of all by John Money, considering that the *Quarterly Review* was at that time published out of Johns Hopkins.

I was sitting with Diamond in his cluttered, windowless office on the campus of the University of Hawaii Medical School as he reminisced about these origins of his thirty-year-long scientific debate with John Money. It was June of 1997, just two months after Diamond and Sigmundson's "John/Joan" paper had delivered a blow to his old rival. A mild-mannered sixty-four-year-old with frizzy graying hair and beard, Diamond was clearly exhausted from fielding the unending stream

of phone calls, faxes, and letters from both reporters and fellow scientists requesting more information about, or an interview with, John/Joan. Dressed in a pale blue overlaundersed T-shirt riddled with holes, a pair of jeans, and battered running shoes, Diamond told me that professors at the University of Hawaii are "paid in sunshine." His putty-colored pallor suggested that he had not been drawing his full wages. Diamond had, in fact, spent the majority of his thirty years in Honolulu doing experiments or hunched over his computer in the tiny office he calls his "cave," pumping out more than one hundred journal articles and eight books on sexuality. On the wall beside him was tacked a snapshot of his four daughters; on the messy desk in front of him were heaped papers, books, open journals, and boxed sets of both Robert Johnson and Bach tapes.

Diamond insists that he bore John Money no personal animus at the time of writing his 1965 article and that his intent was not to embarrass him. He says that his paper had merely been an effort to advance the field of knowledge in the time-honored scientific tradition of assertion and challenge. Diamond points out that after the article's publication, he actually made an overture to Money, suggesting that they collaborate on an article. Though he recognized that they stood on opposite sides of the nature-nurture debate, Diamond believed this was precisely why their collaboration would be of particular value. He shakes his head and smiles at the naïveté that compelled him, a mere graduate student, to suggest a collaboration with one of the leading scientists in the field—a scientist whom, furthermore, he had just publicly challenged in a leading journal. "I really believed that it was an intellectually good thing to do," Diamond says. Money evidently felt otherwise. "His attitude was, Why should I do anything with *you*?" Diamond says. "Who knows *you*?" Diamond admits that he was not completely surprised by the reaction. "I had

challenged his theory, which he took as an argument against *him*. Which it wasn't."

Yet even a scientist less thin-skinned than John Money might have been stung by the calm, relentless logic of Diamond's critique—which, near the end, raised the most rudimentary Science 101 objection to the unquestioning acceptance of Money's theory of psychosexual neutrality in normal children. "To support [such a] theory," Diamond wrote, "we have been presented with no instance of a normal individual appearing as an unequivocal male and being reared successfully as a female." And Diamond had added: "If such an individual is available he has not been referred to by proponents of a 'neutrality-at-birth' theory. It may be assumed that such an individual will be hard to find."

Hard—but not, as events transpired, impossible. For it was just one year and eight months after Diamond threw down this gauntlet in the *Quarterly Review of Biology* that Dr. John Money received a letter from a young mother in Winnipeg, Canada, describing the terrible circumcision accident that had befallen one of her identical twin baby boys.

## 3



RON AND JANET REIMER made their first trip to Johns Hopkins in early 1967, shortly after seeing Dr. Money on TV. The young couple—aged twenty and twenty-one respectively—were awestruck by the vast domed medical center dominating the top of a rise on Baltimore's Monument Street. Dr. Money's Psychohormonal Research Unit was located in the Henry Phipps Psychiatric Clinic, a gloomy Victorian building tucked away off a back courtyard. The unit's offices, located on the fourth floor, were reached by way of a rickety turn-of-the-century elevator. Money's own inner sanctum (where most of his meetings with the Reimers would take place over the next eleven years) reflected the psychologist's eccentric tastes in interior decoration. Furnished with a couch, Oriental rugs, and a profusion of potted plants, the room also featured brightly colored afghans thrown over the backs of armchairs, a collection of carved aboriginal sculptures of erect phalluses, vaginas, and breasts on a mantel, and