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Genes

New Objects of Anxiety and Ignorance

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In "The Gene for Doubt," the Greek novelist Nikos Panayotopoulos imagines society in a near future when scientists have discovered the gene that governs artistic talent; and when, with the help of a simple test, one can immediately learn whether or not one is a born creator.¹ Accordingly, the art market changes rapidly and those creators with the right gene continue to thrive, while those without it slowly fall into oblivion. Many renowned writers initially resist testing, but over time they change their minds, since increasingly the publishing industry only publishes the works of genetically proven artists. The story is different for young artists: if they possess the right gene, whatever they write gets published by prestigious presses. In the visual arts, established galleries also promote only those with artistic DNA. New galleries emerge that are devoted exclusively to artists with genetic confirmation of their talent. The relatives of deceased artists dig up old graves and, if it is established that some long-dead artist possessed the gene for arts, the prices of his work increase. The main character of the novel, an old writer fearing rejection, decides to live with doubt. He refuses to undergo the test, without realizing that with this attitude he condemns himself to silence. He bravely suffers the painful

consequences of his decision and begins to write in praise of doubt. On his deathbed, the writer gives in to curiosity and takes the test, but then decides not to look at the results and dies with his doubt intact. The reader learns that the writer did actually carry the desirable gene, but in the meantime his adherence to a life of uncertainty leads to a reversal of social attitudes, and the gene test slowly loses its power.

This is a fictional account of the power of genetics. In everyday life, however, we often perceive genes as an element of truth in the body, as a secret that needs to be discovered and as something that can predict the future of individuals and their offspring. Genetics has thus opened doors to a radical rethinking of subjectivity and fostered new types of fantasies, anxieties, and paranoia.

Is it better for the general population to embrace ignorance when it comes to genetic testing about potential future illnesses? Many who take genetic tests have problems dealing with the results: some regret taking the test at all, others feel lost when they try to establish exactly what the results indicate about risks of future illness, and others go from one test to another, often getting different results from different commercial organizations.

Anxieties are also on the rise with respect to what happens to test results. Opportunities for misuse are plentiful—from surveillance to limitation of insurance. In the domain of criminology, there is an abundance of theories on a genetic predisposition to crime, which often remind us of the nineteenth-century take on the “born criminal” developed in the work of Cesare Lombroso. While some hope that greater knowledge in genetics might lead to less punitive sentencing, others caution about the danger of new forms of social control. Here, too, the question is what to do with such new knowledge. While an individual might opt to remain ignorant, like the writer in “The Gene for Doubt,”

on the level of society the genie has already escaped from the bottle. As a result, it is impossible to ignore the way genetics affects our self-perception, our relationships, and the way society perceives us.

I know very well, but nonetheless. . .

At a conference in Cambridge in honor of the sixtieth anniversary of the discovery of DNA, I was asked to reflect on the subjective perceptions of genetics and especially on the anxieties that are triggered by genetic research. This event attracted major geneticists along with a number of entrepreneurs who were hoping to launch new businesses related to genetic research. One of these visionaries had the idea of developing a genetic dating app. He has calculated that in the near future it will be very inexpensive to get one's genome decoded and thus predicts that computer scientists will be able to link an individual's genetic information to their online dating profile. In addition, he imagined that it will be possible to synchronize this information between applications in such a way that after the first date, people will be able to get information about the genetically determined illnesses they, their dating partners, and their potential children are likely to develop. When I asked this entrepreneur whether people would truly like to acquire all this information after a first meeting, his response was that it would be of great help not to waste time with a person with "bad" genes.

If in the past love was perceived as being essentially linked to "blindness," and we fell in love with our eyes half shut, in the future it seems that we will try to see too much. When genetic information becomes widely available and easily interpreted with the help of algorithms and applications on personal smart phones, one can imagine that all kinds of

new paranoia and anxiety might emerge in romantic encounters. Jacques Lacan in his early works pointed out that love is related to giving something we do not have. In Lacan's theory, subjectivity is essential marked by a lack and in love this constitutive lack plays a most important role. Desire, drive, and fantasy, which are all at work in love encounters, are differently put in motion by this lack. While desire very much relies on a prohibition and gets stronger when someone appears to be inaccessible or off limits, drive often presents itself as a push towards a libidinal object at all cost—even if that might bring destruction to the subject.

While we give what we do not have, we also see in the other what that person does not possess. For Lacan, we basically create a fantasy around an absence, a lack in the other; and when that fantasy collapses, it is quite possible that we will fall out of love or that love will be replaced by hate. When genes are imagined as the secret in the body that defines who someone really is, it is possible that an individual's genetic code will be taken as yet another object, which however is nothing but a stand-in for the lack. In relation to this object an elaborate fantasy might be based, which might very well in the near future alter the way we love and hate. In addition, new forms of anxiety related to our genes and those of our lovers are appearing over the horizon.

When people are in the grip of anxiety, ignorance is often, at least temporarily, a solution. However, can one truly be ignorant with regard to information one receives from genetic testing? How do we deal with the data presented to us in the results of commercially branded genetic tests? At the same Cambridge conference, I was able to observe the anxiety about commercial genetic testing felt by a geneticist who rejected such tests on rational and scientific grounds, but who was still curious about the genetics industry. He decided to send one company a sample of his saliva, intending to make fun

of the nonsensical predictions he expected them to offer. When the test results arrived, the scientist was amused to read the very elaborate estimations of the risk he bore of developing a number of particular illnesses at some point in the future. His mocking attitude changed when at the end of the message he came to the option to unlock further, potentially more serious, information about his genes. This choice made the scientist anxious. Although he did not believe in commercial genetic testing, when he was given the choice of obtaining “secret knowledge” about his genes he followed the mode of belief that French psychoanalyst Octave Mannoni described as “I know very well, but nonetheless . . .”² Mannoni linked this strategy to the fetishist’s strategy of disavowal. A fetishist knows that the fetish object is just a prop, but he nonetheless believes in its power. My interlocutor knew that commercial genetic tests are unreliable, but he was nonetheless anxious. The secret the locked message purported to contain disturbed his rational knowledge and scientific skepticism.

How is it that that message became the Pandora’s box—albeit, one as yet unopened—of this scientist’s anxiety? Lacan understood anxiety as occurring at moments when an object emerges in place of the lack.³ When, for example, you observe yourself in the mirror and suddenly have the feeling that an apparition or a double is staring back at you, it is very common to experience tremendous panic or anxiety. It is as if something has entered your visual field that should not have been there.

Advances in genetics can obviously do a great deal to change the way we understand our lives and ourselves. Publicly available perceptions about genetics easily create the impression that genes are a secret in the body, something that is in the normal course of things utterly unknown to us and largely outside any individual’s control. Our genes appear to hold the greatest secret any one person will never usually know—the

form their future, and indeed their death, will take. As such, when the message written in our genes becomes legible—not to mention marketable—the lack that marks subjectivity suddenly appears to be lacking. The gene becomes the object in the place of the lack. Unsurprisingly, in this scenario, for some, genes become a source of unequaled anxiety.

They can appear immortal, as an element in us that we pass on to other generations and also as an element that might, with the advances of science, be used to clone a person without their consent. At the same time, they appear to hold information that allows the prediction and forecasting of our future.

To regard genetic testing with such mystique is, however, to ignore what science is telling us about the way genes work. With the exception of a few illnesses, which rely on particular genes, most illnesses are not transmitted in a straightforward way. The interplay between genes and epigenetic (that is, environmental, social, or cultural) factors plays an important role. These factors often go unheeded in the perceptions people have of the power of genes. As a result, all kinds of fantasies are created around what is supposedly passed down from our parents and through us to our children, as well as new types of identifications.

Wrongful Birth—Rationalizing the Unknown

Anxieties related to genes and reproduction underlie a number of recent legal disputes. Since problems with genetics are often attempted to be solved with the help of financial compensation, genes are more and more becoming an element in the subject that shapes new economies of existence. A few years ago, a story emerged in the media about a quarrel between the actress Sofía Vergara and her former partner Nick Loeb, a

businessman and political campaigner. When they were still a couple, they went through the process of in vitro fertilization, which resulted in two fertilized eggs that were stored in a clinic ready to be implanted when the couple decided to have children. After they split up, Loeb claimed the right to use these pre-embryos, hoping that a surrogate mother could bear them for him instead of his former partner. Vergara opposed this claim, since she did not want to have children with someone after their relationship had ended. One can imagine that as a young, wealthy man, Loeb could have easily have had children with another woman, or hired a surrogate mother and an anonymous egg donor. Loeb, however, wanted a child with Vergara. He disregarded her wishes in the matter, as well as possible traumas their children might have suffered on learning of the legal battle over whether or not they should even have been born.

To garner emotional support in court, Loeb referred to the fertilized eggs as his daughters, gave them names, created a financial trust for them, voiced anti-choice ideas about the right to life, and stressed that he and Vergara had shared the belief that life starts at the moment of conception. This strategy backfired when it became known that two of his previous girlfriends had undergone abortions while going out with Loeb. In 2017, a court in the state of Louisiana dismissed the case. The court ruled that a judgment could not be made in Louisiana since the pre-embryos might be considered "citizens of California," since they are stored in that state.⁴

In 2016, three families in Canada filed a lawsuit against a sperm bank. They alleged cases of "wrongful birth" because the sperm bank had failed to investigate the background of a particular donor and had thus cheated those who bought his sperm. The families had chosen the donor because he seemed to be "the best of the best." The sperm bank advertised that the man had an IQ of 160, was an internationally acclaimed drummer,

was working on a PhD in neuroscientific engineering, spoke five languages, and usually read four to five books per month. One Canadian family, with a healthy boy conceived with the help of sperm from this donor, received an email from the agency that accidentally revealed the man's identity. After searching online, the family found out that the donor was a convicted felon diagnosed with multiple mental illness, among them schizophrenia, narcissistic personality disorder, and grandiose delusions. He was not a PhD student but actually someone who had needed twenty years to finish his undergraduate degree.⁵

This particular donor's sperm was used to conceive as many as thirty-six children in Canada, the United States, and Great Britain. When the news about the sperm bank's fraud became public, a number of families filed lawsuits.⁶ One mother said that her son had not shown any signs of mental illness to date, but she was afraid that his life "could just turn on a dime in puberty."⁷ This mother and other affected families planned to use any financial compensation they received from the sperm bank to pay for early intervention and treatment if their children showed signs of mental health problems later in life.

While the sperm bank obviously misrepresented the donor, the question remains as to how the children involved in the case will react. If and when they learn about the circumstances of their birth, they will be confronted by the fact that they are the results of a mistake, indeed of a deception. How will they take it when they discover that they carry the genes of someone with a criminal record who was also mentally ill? One wonders whether it might have been possible for the family who first received the email revealing the name of the donor to resist the temptation to internet search and instead embrace the fact that reproduction is essentially linked to the unknown. No matter how much trouble

one takes to predict how a child will turn out (biologically and socially), one can never know for sure beforehand. A woman who conceives a child with a sexual partner knows it is impossible to predict how their genes will make a new human being. Someone who conceives with the help of a sperm donor cannot be sure that the donor's qualities or past successes will guarantee similar outcomes for her child. Imagining, however, that the way genes work together is predetermined may well affect the happiness and wellbeing of the child.

The term "wrongful birth" can by itself create problems for the child who was conceived with the "wrong" sperm. When children go through the phase of questioning whether they were wanted and how they were desired, they often deal with whether their parents wanted to have a child of another sex, or with different qualities, looks, and so on.

The question "who am I?" which we often ask with a concern for what important others (notably parents) desired us to be, continues into adulthood. Psychoanalysis has dealt extensively with the impossibility of our ever getting a satisfying answer to this question. The subject can only interpret, read between the lines, and in the end creates her own fantasy-answer that will never entirely satisfy. One wonders what kind of fantasies and possible anxieties will develop later in life in children who were "wrongly born." It is quite possible that some will be angry with their parents for searching for the "truth" about the sperm donor, because that truth necessarily changed the way those parents regarded their children, and the desires and expectations they held for them. Wrongly born people might perceive any psychological hurdle in their lives as a sign of mental illness or a personality trait inherited from the donor's genes. Parents might take any unruliness as a sign of genetically influenced delinquent behavior.

Such questions about how children deal with the idea of the “wrong” sperm are also relevant to the case of a white lesbian couple who sued a sperm bank on the grounds of wrongful birth. The couple was mistakenly sent sperm from a black donor instead of a white one. The couple learned about this mix-up in the middle of pregnancy. After their daughter was born they blamed the sperm bank for an unplanned transracial parent-child relationship that caused them to move to a place that is more racially and culturally diverse. The couple insists that they love their daughter; however, as they pointed out in court, they were not prepared for the challenges of raising a child of mixed race. They claimed, too, that their families were often unconsciously insensitive about race issues and that their parents had already had a hard time accepting that their daughters are gay.

The couple said that they wanted a donor with genetic traits similar to both of them and had picked one after carefully reviewing his history. When one of them became pregnant, their joy turned into a nightmare: “All of the thought planning and care that she [Jennifer] and Amanda had undertaken to control their baby’s parentage had been rendered meaningless. In an instant, Jennifer’s excitement and anticipation of her pregnancy was replaced with anger, disappointment and fear.”⁸

In further explaining the family trauma after the birth of the mixed-race child, one of the women stressed that she has limited cultural competency with African Americans and doesn’t want her daughter to feel stigmatized due to the circumstances of her birth. The parents also complained that in their local community they couldn’t find a hairdresser who was accustomed to cutting very curly hair. They had incurred extra expenses driving their daughter to a hair salon in a town with a greater number of African Americans.

When the parents were asked how they thought their daughter might feel about the lawsuit when she was old enough to understand it, the response was that “She’ll know the

lawsuit was about a company that had to make changes and give us compensation so that we can go through counseling and learn how to love each other even more.”⁹

Both lawsuits for “wrongful birth” claim that any money paid out by the sperm bank will be used for therapy. It is as if the parents in these cases already expect something will go wrong with their children. By choosing a perfect donor with a high IQ or one guaranteed to be white, the parents assumed that one can pre-set “desirable” biological features in a future child simply by reading descriptions in sperm bank catalogues. However, when they had to deal with anxiety over “wrong” genes, suddenly they seem to abandon their faith in biology and hope that expensive therapy will compensate for the harm done by “wrongful birth.”

In contrast to these cases that allege “wrongful birth” as a result of the wrong sperm, Nick Loeb insists on “rightful birth.” Loeb created a whole symbolic machinery around the two fertilized eggs by giving them names and establishing a financial trust for them. In the fight for their right to be born, one of the trustees filed an additional lawsuit demanding that the embryos be allowed to live so that they will be able to enjoy the benefits of the trust. The striking similarity between these legal cases that deal with the issues of birth stems from the perception of a child as a commodity, with a total disregard for the way he or she will respond to the legal battles related to his or her very existence. If Loeb succeeds and the fertilized eggs are brought to term, one can imagine that his daughters might one day invoke the idea of wrongful birth, since they might have a hard time coming to terms with how their lives began.

Genetics relies heavily on a new set of symbols, a symbolism underpinned by the terms DNA has brought to the lexicon. Genes themselves have become an aspect of the body we regularly try to visualize—in the same way we might picture the condition of our internal organs or muscular tissue. Because science has taught us their importance, it is vital for us to “see” our genes. This means, however, that the picture we develop of our genes belongs more to the realm of imagination than to biological science, and reflects the state of our individual psyches more than the latest results from the laboratory.

Concern about what the unseen insides of our bodies might look like, and what they might be doing, is a longstanding preoccupation of the modern age. The body as such becomes an object of personal anxiety and fantasy rather than the subject of scientific research. Each of us carries an image of the body as the entity with which we identify, but which still seems separate from “us,” even as it seems to hold power over us. Despite all that experimental science has taught us, we follow a very old form of thinking in our speculations about the body. Lacan observes that psychoanalysts have to recognize a mode of thought in their patients that modern science rejected long ago.¹⁰ For people still tend to understand their bodies in terms of what Aristotle called a “substantial form” (*morphē*), a concept in some ways similar to the Platonic Idea.¹¹ In thinking about the state of their bodies, that is, people believe that their physical condition is dictated and controlled by an underlying form, a defined state to which they correspond. The form, as Aristotle saw it, is thus an “explanatory cause” of the physical state in which people find themselves.

Our genes are now implicated in the idea each one of us carries of our body’s “substantial form”: in our minds, that is, genes are a significant part of the “explanatory cause” by which we understand who we are. Thinking about genes as a cause of this kind

also affects the way we see our parents and families—from whom we got those genes in the first place. At a time of illness, this genetic link can be reimagined and as a result some may seek new explanations of what was passed on to them from their parents. After suffering a stroke, Dr. Allan Hobson wrote in a memoir that his genes presented him with a particular kind of “Hobson’s choice” when he thought about the bad alternative fates he had been allotted genetically—Alzheimer’s on his mother’s side of the family or cardiovascular disease on his father’s side.¹² Sadly, he had the impression that both fates had reached out to claim him.

After his stroke, Hobson had the feeling that his brain owned him as much as he owned his brain and that a little bit of him had died as a result of the aneurism. So far as all external physical indicators could be discerned, he seemed to be recovering well; but on the inside he felt worse and worse. When he described his sensations to his doctors, who expected him to make a complete recovery, no one believed that his symptoms were real. Hobson felt that his subjective experience of the aftermath of the stroke was completely ignored and that his doctors only looked at the data that indicated he was in good health. The trauma he suffered at this time led Hobart to apologize to his own patients. In the past he had often disregarded the suffering they reported when their charts suggested they were fine or responding well to treatment.

When Hobson suffered his second stroke, he began to wonder whether his father’s genes were now speaking to him as they once, he guessed, had spoken to his father. Through the perception that the inherited genes were causing his illness, he felt connected to his father in a new way. The progress of Hobson’s clinical recovery after this second stroke very much resembled a psychological—or psychotherapeutic—process of working out his relationship with his father. The genes Hobson was concerned about during this

process became what psychoanalysts would call a “transitional object,” a means for Hobson to rethink his family ties.

Anxiety about death might in some cases take the form of a question about the genes that were passed from the parent to the child; while in other cases it involves fixating on the particular age at which a parent died. A Russian man started experiencing strange attacks of breathlessness and at one point even fainted on the street. When doctors could not find any physical cause for his illness, he was sent to a psychiatric hospital. A consulting psychologist there asked about the man’s family background and learned that his father had committed suicide at the age of thirty-nine. When the psychologist looked up the patient’s age, she noticed that he was thirty-eight. In discussions with the patient it became clear that the anxiety over dying at the same time as the father played an important role in this patient’s anxiety attacks.

Calvin Colarusso describes a similar case, that of Mr. B., who sought help through psychoanalysis because of acute anxiety about death. This anxiety became especially pronounced when Mr. B turned forty-nine, since his father had died ten days before his fiftieth birthday. With this loss, the family was suddenly pushed into poverty. As an adult, Mr. B. strove to build a successful and prosperous career in order to “bullet-proof his family,” so that if he died, they would not suffer in poverty as he did after his father’s sudden death.

When Mr. B. turned forty-nine, his physician noticed a significant lowering of his testosterone, which was taken as a possible cause of his depression. Mr. B. was prescribed antidepressants, but these did not seem to help. On the fearful day when Mr. B. turned fifty, his mother suddenly fell into a coma and died two days later. After this tragic event, Mr. B. started remembering how as a child he wished his father would die

and how horrified he was when his wishes apparently came true with his father's premature death. But at one point in analysis he said, "I'm beginning to think of him as a man, not just my Dad."¹³ From that point on, Mr. B. slowly gave up on antidepressants and started feeling better. To his doctor's surprise, his testosterone levels also went back to normal.

The year before his fiftieth birthday, Mr. B. in a manner of speaking began to "close everything down" and the falling levels of his testosterone were a physical consequence of his "preparation" for death. The psychoanalyst took the change in testosterone as a form of an unusual, self-imposed "hormonal castration" related to the infantile wish to kill his father and take his place. One, however, has to question the role his mother's death played in the lifting of Mr. B.'s anxiety. Did she in some way die instead of Mr. B.? Did her death alter something with regard to the incestuous wishes he had fostered as a child?

If Dr. Hobson heard his father's genes as a voice that announced his own mortality, with Mr. B. it was the number fifty that was the anchoring point for his anxiety about death. In both cases, the fear of death covers up the way each man had identified with his father: in one case that fear fixated on the idea of genes taking control of his life and in the other on the prospect of reaching a certain age. The point to be taken here is that Dr. Hobson's anxieties about his genetic inheritance are no more or less "scientific" than Mr. B.'s profound concerns about his fiftieth birthday. Both men looked to the object of their anxiety as an "explanatory cause" of the state in which they found themselves.

People usually consult a geneticist not because they are ill, but because of the possible risk that they might become ill in the future. They take the geneticist's answers as objective information. Psychoanalyst Andrée Lehman observed that women who consult geneticists out of their fear of breast cancer often already had questions about their future or about the origin and transmissibility of genes.¹⁴ They were often full of doubt and uncertainty, hence already in the grips of anxiety. When women were informed that they were not in danger of developing genetically linked breast cancer, some seemed satisfied, evinced feelings of relief, proffered their thanks, and resolved to follow preventative recommendations; others seemed just as anxious as before, if not more so. The latter would then demand more tests or focus on other organs, which they fear might become cancerous in the near future.

Many people find it hard to deal with genetic information: even if people grasp it, they might not really understand it. Where the knowledge brings intellectual comprehension it may still fail to override preexisting anxieties or beliefs. Lehman observed three important aspects at work in the way a person deals with genetic information: first the way person deals with doubt, second her fear of illness, and third the state of her family equilibrium.

Psychoanalysts dealing with people with cancer anxieties observe that cancer often evokes fantasies of both physical and mental decline, of abandonment, loss, and mourning. These fantasies are linked to how cancer is perceived within the larger family constellation. For some, family relationships are thoroughly revisited and thrown into turmoil when they go through genetic testing. They might suddenly remember past family events or particular sets of family beliefs and some might engage with previously

abandoned family traditions. While some experience anger over genes they have inherited, others feel guilt at having passed on something bad to their offspring.

In the film *Still Alice*, a middle-aged woman Alice (played by Julianne Moore) is an ambitious professor of linguistics who suddenly begins experiencing memory loss.¹⁵ Her neurologist diagnoses her with early onset of Alzheimer's disease, with potentially genetic roots. The proposed genetic test unleashes a lot of anxiety: if Alice has the gene for this particular illness, there is a fair chance that one or more of her three children might also have inherited the gene. When she tells her grown-up children about her illness, she informs them of this danger. The children are encouraged to get themselves tested; however, they are also warned that they might not want to know whether they have inherited a predisposition for their mother's illness. The oldest daughter, who is in the process of starting a family, decides to get tested since she wants to know whether she will pass something to her future children. She also has great hope that if this is the case, medication will allow her an early intervention to halt the progress of the illness. The results of her test come out positive; however, everything seems to be all right with the twins she later delivers. Her brother fortunately tested negative for the gene. The youngest daughter, Lydia, an aspiring actress who in the end takes care of her ailing mother, decides against the test.

Similarly, in real life, the way information about genetic predisposition is absorbed and worked through differs from person to person. Often people need to undergo an important subjective change in order to assimilate new ideas and be able to live their lives after receiving traumatic information. While some people might find ways to ignore important information that comes from the domain of genetics, others struggle to make cognitive adjustment and absorb this knowledge as something that is not fixed, certain, or

determinant. The problem develops when knowledge about genes becomes perceived as certainty and when people strongly identify with the language of statistical likelihood in which genetic information is often presented to them. When unconscious beliefs, fantasies, and desire also come into play, people's symptoms and anxieties are reformulated.

In the relationship between doctor and patient transference plays an important role. The way doctors present information influences a patient's anxieties, and may determine how the patient hears this information, or whether he listens at all.¹⁶ The question, however, remains whether patients have the right to ignorance, i.e., whether they can inform doctors in advance that they do not want to know when the news about their health may be traumatic. Discussions on the right not to know are also part of scientific studies in the field of genetics. They also involve the issue of so-called incidental finding.¹⁷ When, for example, people agree to participate in scientific research, they cannot easily opt out of learning about surprising findings that may come up in the research. The ethical question is whether a person can inform the researcher in advance that he does not want to know about incidental findings. Is the doctor obliged to keep this promise also in the case when there is a possible treatment of the disease that was discovered by accident? Geneticists deal with issues related to transmission of knowledge when they discover by chance that family members are not genetically related. A family, for example, agreed to be part of genetic research and the geneticist discovered that they were not genetically related to the child, the result of a mix-up in the hospital when the child was born that the family was not aware of. Geneticists might decide not to tell the family about their discovery if there was no genetically transmitted illness discovered among these volunteers. However, if they were to discover a genetically transmitted illness, they would

have been under pressure to inform the family about their findings and also about the fact that the family members are not genetically related.

Genes and Crime

While for some people the question of genes is anxiety provoking and linked to doubt and uncertainty, for others it presents a point of certainty—an answer, for example, to why they have behaved in a particular way or why they have committed a particular act. In the legal domain, genetics has played an important role in the last decade in discussions about determinism, free will, as well as responsibility and punishment.

A number of recent judicial cases feature experts in genetics who are willing to testify that someone might have had a genetic predisposition for crime. One such example is the 2009 trial of Abdelmalek Bayout, an Algerian national, in Trieste (Italy). Bayout was accused of killing a person who mocked his eye make-up. Bayout had been diagnosed with a mental disorder, which was taken into account when he was sentenced to nine years in prison. Bayout appealed, and at his retrial an expert in genetics testified that the defendant might have been genetically predetermined to committing the crime.¹⁸ The expert pointed to changes in the MAOA gene that regulates neurotransmitters, among them serotonin and dopamine. In reference to the studies that suggest the link between the malfunction of this gene and violence, the expert concluded that genes might have played a role in Bayout's behavior.¹⁹ The court accepted this claim and reduced the defendant's sentence.

Studies about a genetic predisposition for crime have been highly contested in recent decades. Old debates about the relationship between nature and nurture have

resurfaced in studies about epigenetics. The question has thus shifted from the analysis of genes to the analysis of the way the environment affects the expression of the genes.

In the United States, the idea of genetic determination for violence gained strength after the publication of Adrian Raine's book *The Anatomy of Violence*. As an example of genetic predisposition to violence, Raine takes the case of Jeffrey Landrigan, a man who was put on death row for double murder and whose biological father faced the same sentence.

Landrigan's story is an incredible saga of violence and criminality in a single family. Jeffrey's great-grandfather was a bootlegger who illegally sold alcohol. His son, Jeffrey's grandfather, died in a shootout with the police when he was robbing a bank, while his own son, Darrel Hill, observed this shootout. Later, Darrel also became a criminal: he committed two murders and was sentenced to death. Darrel had a son named Billy whom he only saw when he was a baby. When Billy was two, his mother abandoned him in a day care center.²⁰ Billy was later adopted into a stable family, where he was well taken care of and loved. This family renamed him Jeffrey. From his youth on, Jeffrey had problems with drugs and alcohol and then ended up being placed in various institutions for delinquent youth. As an adult, Jeffrey killed two people, as his father had, and was also sentenced to death.

Darrel Hill, on death row, said about his biological son: "I don't think there can be any doubt in anyone's mind that he [Jeffrey Landrigan] was fulfilling his destiny. . . . I believe that when he was conceived, what I was, he became. . . . The last time I saw him he was a baby in a bed, and underneath his mattress I had two .38 pistols and Demerol; that's what he was sleeping on."²¹

Raine concludes: "Placing that gun and drugs under his baby boy's pillow foreshadowed what was to come. Like father, like son—whether it is violence, drugs, or alcohol. Landrigan was seemingly doing little more in life than acting out the sins of his biological father."²² For Raine the very fact that Jeffrey was adopted and loved later in his life could not change the biological determinism of his genetic makeup.

Jeffrey's story can, however, be interpreted in other ways. First, there is the possibility of brain damage resulting from substance abuse by Jeffrey's mother, who admitted that she took drugs and consumed alcohol throughout her pregnancy. Thus the judge who later condemned Jeffrey to death row said that she would have sentenced him to life imprisonment if she had known that harmful neurological change had been inflicted as a result of his mother's drinking and drug taking during pregnancy.

Psychoanalysis offers another interpretation of Jeffrey's behavior. From various accounts it is known that Jeffrey spent years trying to track down his biological father, Darrel. He found him in surprising circumstances, not long after he committed his first murder. This happened when Jeffrey was twenty years old and had just come out of prison. He got married and soon learned that he was going to become a father. One day, Jeffrey went drinking with an old childhood friend Greg Brown, whom he had earlier asked to stand as godfather to his child. A verbal fight ensued between the two when Greg called Jeffrey "a punk" and the latter stabbed his friend to death.

Jeffrey was sentenced to twenty years in prison. When he was serving his sentence, a fellow prisoner told him that in his previous prison he had met Jeffrey's biological father, Darrel Hill. Paradoxically, Jeffrey had found his father by committing a crime, and the two men started exchanging letters when they were serving sentences in different prisons.

Symbolically, Jeffrey was already following in his father's footsteps, since in his adopted family and in his school it was well known that he was a son of a criminal. One should also not neglect the fact that Jeffrey as a little baby was already caught in the web of anxiety related to breaking the law. The very fact that his father was hiding a gun and drugs under the baby's mattress could have important consequences for the baby's development. We know very well that little children are influenced by their caregivers in a myriad of different ways and that in an unconscious way children also take in the anxieties present in their caregivers. What can be more anxiety provoking than sleeping on a gun? We should pay equal attention, moreover, to the fundamental lack of care that the gun in this story represents. Psychopathic character traits have been traced both to brain injuries suffered in childhood *and* to chronic neglect on the part of caregivers who fail to interact with or demonstrate empathy for the infant at the symbiotic stage of development.

The term "father" plays an essential role in Jeffrey's story. The facts that he committed his first killing when he was about to become a father and that he actually killed a man who was to become his child's godfather have important ramifications for the psychoanalytic understanding of this crime. While Jeffrey was searching for his biological father throughout his whole childhood, the moment when he himself was about to take on the symbolic role of a father might have triggered something in him that contributed to his violent outburst towards the man who was supposed to take on another symbolic paternal role—that of a godfather.

Darrel too had long been haunted, quite literally, by his own father. Jeffrey's grandfather, whom Darrel had seen shot dead by police, would often appear to him in hallucinations. Already in his youth, he heard the voice of his father telling him that he could not escape being killed, which is why he should kill first. Another preoccupation for

both father and son was homosexual impulses. Like Jeffrey, Darrel became enraged when someone called him a “punk” in prison. After the insult, Darrel stabbed the man to death while later claiming that he acted in self-defense against a sexual advance.

Despite his murder charge, when Jeffrey was serving his sentence, he was put in a minimum-security work crew, which allowed him to escape from the prison facility. Once outside, his first desire was to find his biological mother who lived in Yuma, Arizona. On his way to Yuma, Jeffrey stopped off in Phoenix where he met a man by the name of Chester Dyer who worked in a health club and was known for picking up men and having sex with them at his home. A few days later, Dyer was found strangled by an electrical cord and stabbed to death in his apartment. A deck of pornographic cards was strewn over the bed and the ace of hearts was dramatically propped up on Dyer’s back. Police rearrested Jeffrey when he was caught robbing a petrol station. His shoe prints matched those found at the scene of Dyer’s murder. Jeffrey denied killing Dyer; he claimed that Dyer had made sexual advances towards him, but that another man had murdered him.

In their account of the Landrigan story, Dan Malone and Howard Swindle ask: “Do chromosomal cards dealt at birth determine whether a person becomes a sociopath or a productive member of society? Or does the world in which the child is reared cast the mold that forms the adult?”²³ Some theorists understand Jeffrey as a genetically predetermined criminal: others see his acts as being similarly predetermined by social background. Neither explanation accounts for the very particular form of enjoyment Jeffrey experienced while committing his murders. His murder of Dyer was highly idiosyncratic, artful even, rather than a raw response to present conditions in biology or culture. His neat and highly demonstrative arrangement of the playing cards at Dyer’s home suggests that Jeffrey was not simply a tool in the hands of some higher power—his

genes, for example—but that he was very much a subject who wanted to leave a symbolic mark at the scene of his crime.

One classic psychoanalytic reading of Jeffrey's case might emphasize the way in which a homosexual desire for a father-substitute that culminated in murder was in fact his way of rejecting the paternal legacy. The ace of hearts that Jeffrey placed on his victim's back looks very much like an attempt to resolve anguish he experienced about both his sexuality and paternity. Jeffrey's tortured family background—and homophobic social context—prohibited him from resolving this formative problem by seeking a loving and stable relationship with another man. His murder of Dyer, however, should not be seen as a simple perpetuation of a genetic pattern, or indeed an inevitable response to social circumstances. As an act, sexual and criminal, it differs profoundly from his father's instinctive and reactive killing of the man who might have triggered his dormant or suppressed sexual wishes by calling him a punk. Jeffrey murdered Dyer, it seems, after agreeing to go to his home and have sex. The card he left on his victim's body was a sign that this murder was very much about a matter of the heart, one that he had solved in the only manner the frame of his life permitted. Jeffrey sought homosexual union with a father-substitute, on his way to visit his mother, and then brutally murdered him: understood psychoanalytically, this murder was Jeffrey's way of *rejecting* his father's legacy. Rather than following the dictates of a line of genetic code, Jeffrey committed an act that tried to confront such determinants. He was working within the family tradition of psychotic violence, but modified the unthinking brutality of his father and grandfather with a viciously sophisticated strain of criminal behavior that was quite his own.

A geneticist's—or even a sociologist's—view of the Landrigan family's criminality fails to recognize such distinctions between the actions of one generation and another.

Criminal acts, from the genetic point of view, are simply “criminal,” to a lesser or greater extent. A police psychologist, or even a detective with a broader view of things, knows otherwise. Different criminal acts—different murders—often play out very different psychological dramas and preoccupations. Unlike his criminal forebears, Jeffrey at some level understood that his life was largely about a search for something or someone with which or with whom he could identify. Executed in 2010, his final words were “Boomer Sooner.” This is the rallying cry for the supporters of the University of Oklahoma football team, the Sooners. His farewell to the world indicated one field of activity in which Jeffrey might have thrived, had he been spared the psychological inheritance of the Landrigan family. Sociologically speaking, his foster home may have given him every advantage, but it could not compensate for deprivations he suffered in the earliest phases of infancy. His guardians also could not know that he might seek to compensate for those deprivations in his own way, and seek out the “tribe” in which they made a dysfunctional sort of sense.

Genes—Information about What?

Molecular biology borrowed the term “program” from computer science to describe the genetic information an organism may contain. The term “information” in itself tells us that we are dealing with semantic data that can be communicated. One can also easily get the impression that this information can be taken as an imperative or as a cause: if we possess information, we are obliged to interpret or suppress it, act on it or ignore it. In addition, advances in science give us hope that we will be soon be able to control and amend our genes. One of the founders of the Human Genome Project, for example, said that with the decoding of the genome for the first time a living creature understands its

origin and can attempt to design its future. Evelyn Fox Keller warned that when life is relocated in the genes and redefined in terms of their informational content, the project of refashioning life, or redirecting the future course of evolution, could be cast as a manageable, doable project.²⁴

If we look at these changes in perception of life from the point of view of psychoanalysis, we can observe a new relationship between the symbolic, the imaginary, and the real. In addition to genetics, neuroscience, too, has contributed to this change. In both genetics and neuroscience we have a search for the real—the object that will take the place of something more ephemeral that we feel we lack. In both cases, we have the creation of a new symbolism in the form of new language, even new disciplines—neurolaw, neuromarketing, neuroarchitecture etc. In addition, we see the emergence of very strong image-making in the form of PET scans, fMRI images—the computer-generated pictures that try to show what is within us that we do not know about ourselves. When these images are used in court they often have a so-called Christmas tree effect since they easily dazzle (and enchant) observers with their colors and shapes.²⁵ These images become a substitute for that elusive part in us that is our brain. They also hold out the promise that with their help we can discern who we are, why we did what we did, and decide whether we are consciously in control of what we do, or not—whether we lied deliberately for example, or not.

We live in times of the “neurogenetic real.” While we hope to find truth in the body we forget that human subjectivity with its imagination, fantasies, self-damaging behavior, and jouissance related to transgression cannot be reduced to a neuronal machine driven by the complex firing patterns of the cells in our brains or to a genetic code. New knowledge related to the body is, however, affecting the way people relate both to their

bodies and to their ancestors. On top of new fantasies that people form around genes, one can also observe a change in the nature of identification. In the cases of “wrongful birth,” similarly to the case of Jeffrey Landrigan, it might happen that both children and their parents take the genes related to the wrong donor as a determining factor of children’s behavior, and any mental problems or unruliness might become attributed to the genes. However, it is also possible that a particular child might identify with the unknown donor and his transgressions.

When genetic science stresses the importance of epigenetics and points out that the expression of the majority of genes depends on social and environmental factors, it also emphasizes the power of the family and other intersubjective relationships in the person’s life. Even studies that are trying to find the genetic basis of impulsive behavior that might contribute to a person’s transgression of the law point out that an unstable emotional environment at home, and especially domestic abuse, influences the expression of the genes linked to impulsivity. Such studies, however, need to take into account that the proliferation of media publications, which often digest genetic research related to behavior into claims that we have found the “gene for crime,” creates a symbolic setting that has effects on the subject, the subject’s body, unconscious fantasies, and identifications. With the spread of the belief that genes are responsible for crime, we are paradoxically creating an epigenetic setting—language and culture—which is something that any study of genes and behavior needs to take into account.

¹ First published in 1999 in Greek, *To gonidio tēs amphivolias*; published in French translation in 2004, *Le gène du doute*.

² Mannoni, “Je sais bien, mais quand même,” in *Clefs pour l’imaginaire ou l’autre scène*.

³ See, e.g., Lacan, *Anxiety*.

⁴ Christina Cauterucci, "Sofía Vergara's Ex Might Finally Be Out of Luck in His Battle for Custody of Their Frozen Embryos," *Slate*, August 31, 2017, <https://slate.com/human-interest/2017/08/sofia-vergaras-ex-might-finally-be-out-of-luck-in-his-battle-for-custody-of-their-frozen-embryos.html>.

⁵ Ashifa Kassam, "Sperm Bank Sued as Case of Mentally Ill Donor's History Unfolds," *The Guardian*, April 14, 2016, <https://www.theguardian.com/world/2016/apr/14/sperm-donor-canada-families-file-lawsuit>.

⁶ Matthew Renda, "Judge Clears Sperm Bank Fraud Case for Trial," *Courthouse News Service*, March 30, 2017, <https://www.courthousenews.com/judge-clears-sperm-bank-fraud-case-trial/>.

⁷ Kassam, "Sperm Bank Sued as Case of Mentally Ill Donor's History Unfolds."

⁸ Lindsey Bever, "White Woman Sues Sperm Bank after She Mistakenly Gets Black Donor's Sperm," *Washington Post*, October 2, 2014, <https://www.washingtonpost.com/news/morning-mix/wp/2014/10/02/white-woman-sues-sperm-bank-after-she-mistakenly-gets-black-donors-sperm/>.

⁹ Kim Bellware, "White Woman Who Sued Sperm Bank over Black Baby Says It's Not about Race," *HuffPost*, October 2, 2014,

¹⁰ Lacan, "Some Reflections on the Ego," 13–14.

¹¹ Aristotle, *The Metaphysics*.

¹² Hobson, *Dream Life: An Experimental Memoir*, 43.

¹³ Colarusso, "Living to Die and Dying to Live," 120.

¹⁴ Lehman, "Psychoanalysis and Genetics."

¹⁵ *Still Alice*, directed by Richard Glatzer and Wash Westmoreland, 2014, based on the 2007 novel by Lisa Genova.

¹⁶ In cases of commercial tests whereby people get information about their potential genetically transmitted illnesses, they often do not get a chance to talk about their concerns and to get more explanation with regard to what the risks mean. See Carrie Arnold, "'We Are All Mutants Now': The Trouble with Genetic Testing," *The Guardian*, July 18, 2017, <https://www.theguardian.com/science/2017/jul/18/we-are-all-mutants-now-the-trouble-with-genetic-testing>.

¹⁷ Dirk Lanzerath et al., *Incidental Findings*.

¹⁸ Emiliano Feresin, "Lighter Sentence for Murderer with 'Bad Genes.'"

¹⁹ Avshalom Caspi et al., "Role of Genotype in the Cycle of Violence in Maltreated Children."

²⁰ Dan Malone and Howard Swindle, *America's Condemned*, chap. 7.

²¹ Raine, *The Anatomy of Violence*, 60.

²² Raine, 60.

²³ Malone and Swindle, *America's Condemned*, chap. 7.

²⁴ Keller, *The Century of the Gene*.

²⁵ Kristen M. Nugent, "Practical Legal Concerns," 267.

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