

# SCIENCE AND PSYCHOANALYSIS

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I will begin with a little story that I heard in a lecture by Richard Feynman, the physicist known for having received the Nobel Prize (for quantum electrodynamics in 1965), and also, among science students of my generation, for his scientific manuals, which were without equal in France at that time.<sup>1</sup> In this lecture, to an audience of teachers, he offers diverse answers to the question "What is Science?" For example, he suggests that science is that which is transmitted from one generation to the next, on the condition that it is verified by experiment. This evokes science as transmittable knowledge and at the same time as being linked to experimentation. Feynman also gives another humorous and very Cartesian response: "Science is the belief in the ignorance of the experts."<sup>2</sup> He tells us that science came to him by way of the desire of his father, who passed on to him a certain method of questioning the real without prejudice. This is a response that would have pleased Lacan, who said that the most certain real was the number. Feynman's father had taught him that there was a constant relationship between the circumference of a circle and its diameter, which was the number  $\pi$ . Then, every time Feynman saw  $\pi$  somewhere he looked for the circle! One day, he came across a formula for electricity where there was  $\pi$ . He looked for the circle, which he found in the form of an electrical coil, and then finally he found the same formula with square electrical coils. He then understood that this  $\pi$  that always returns to the same place had nothing to do with shape. This is very close to what Lacan gives as one of his definitions of the real: "that which always returns to the same place, where the  $\$$  can miss it." And Feynman always missed  $\pi$  because he believed it to be linked to a shape or to the approximate value 3.14. He continued to miss it until the day when he admitted that  $\pi$  is that which always returns to the same place in certain formulas. That is a good example of the real. Feynman tells this story as his access to science, and I found

that very nice, but there is an even better illustration for our subject for today, science and psychoanalysis.

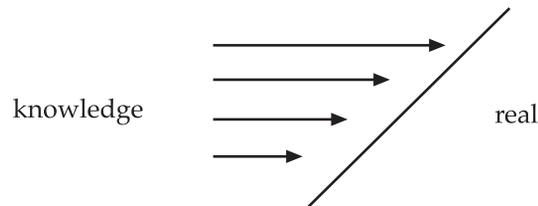
In order to prove that “mathematics isn’t only a matter of shape,” Feynman tells us another anecdote: as a student at Cornell, he scorned the other students for their stupidity. One day, at the cafeteria, he overheard one girl say another, “To make a straight line, you increase each row by the same quantity. See, when you make the same increase in each row, that makes a straight line.” He then said to himself, “What a wonderful principle of analytical geometry!” I quote him: “The more their conversation continued, the more astonished I was. Because it had never seemed to me that the female brain was capable of understanding analytical geometry”(!). As the two girls continued, he was more and more flabbergasted. Then he realized that, in fact, they were talking about knitting. This anecdote shows that one finds mathematics everywhere in reality, as structure, even in knitting and in the female brain. We find the following in his “The Nature of Physics”: “That day, I learned one thing; that the female brain is capable of understanding analytical geometry. Those who claim — even though it is manifestly contradicted every day — that women are as capable of rational thought as men may very well not be entirely mistaken.” (How tactless!) *“Maybe our difficulties come simply from our not yet having found the means to communicate with female brains. But when we succeed, there is always something to be learned from it.”*

There we have it: Feynman explains that the real of mathematics is structure, and along the way he talks about another real, the very one that characterizes psychoanalysis: “We have not yet found the means to communicate with female brains.” This is more or less what Lacan considers the real of the speaking being, insofar as (s)he is subject of language: “There is no sexual relationship,” that is to say, there is no formula like a mathematical formula, no relation or rapport that permits a man and a woman to know for certain who they are as sexed beings. And the sexual act? Well, psychoanalysis shows that nothing permits either partner to recognize him or herself definitively in the sexual act as a sexed subject. One cannot write  $R(M, W)$  and this inability is linked to language. In animals, because of to the instinct which is like a sort of preformed knowledge in the real, there is a possibility of relationship. In human beings, this instinct is subverted by language; it no longer works. They find their way back a bit, regain their bearings thanks to something else, which is the phallus, but I won’t talk about that today. And when Feynman adds, “But when one succeeds (in communicating with a female brain), there is always something to be learned from it,” he says something very true. It is only by encounter, by contingency, that something can be established between the sexes, which isn’t written as a relationship (that would

assume a necessity), but is something haphazard and fleeting. This is the sort of real that psychoanalysis deals with, and without knowing it: when Feynman talks about the real, he cannot help talking about it as though by chance.

I am going to try to show you the similarities and fundamental differences between science and psychoanalysis. First we will take an epistemic point of view. Let us look at a proposition by Lacan. In a text from 1966 entitled “Science and Truth,” he affirms that “the subject upon which we operate can only be the subject of science.”<sup>3</sup> And he recognizes that this might seem paradoxical. What subject is he talking about here? Is it about the man of science? About the man who is subjected to science, or just about man? No, it is not a matter of man: Lacan refutes that psychoanalysis is a humanism, or even a “human science”; it is at odds with the ideals of humanity. It is a matter of a concept, which has nothing intuitive about it. Let us try to deduce this.

Science is concerned with the real, and even more precisely, with *finding* some knowledge in the real, and then with operating with knowledge on the real. There is a dialectic between this finding and this operation. I will talk about this second aspect later. That one finds some knowledge in the real must appear evident to you. Think about Newton who discovers the laws of gravitation and the formula of attraction  $F = g \frac{mm'}{d^2}$ . (Here is a written “relationship” between masses, in opposition to “no sexual relationship.”) There is knowledge in the real because, up to a certain point, the real “obeys” this mathematical formula, and it did so even before the formula was discovered. This gave some the idea that knowledge was divine, emanating from God. This problematic would lead to the connection of science and religion. The real only obeyed the formula up to a certain point. Then one day it was noticed that the trajectory of Mercury didn’t obey Newtonian laws. Therefore, there was some real where the law became false or inexact. This indicates that there is a boundary between knowledge and the real, and that this boundary is mobile;



furthermore, it is not the same now as it was in the seventeenth century.

Science seeks to suppress this boundary and to cover over the real with knowledge. A “complete” physics would be just that: a science in which all real phenomena would find a determinate model within the internal coherence of a system. This shows that the real can be negatively defined in relation to knowledge: the real is that which it is impossible to know, impossible to subsume by any determinist mathematical laws. Lacan takes this “negative” definition of the real from Freud.<sup>4</sup> He writes, “The primary process does not encounter anything real but the impossible.” This is because, as Freud explains it, the primary process, the most original in the unconscious, seeks to produce the hallucinatory image of the breast, in which the subject has already taken pleasure and which he desires to satisfy his need. The primary process succeeds in making this hallucination appear, but the tension of the need (the hunger) obviously doesn’t cease. In his “Formulations on the Two Principles of Mental Functioning,” Freud writes, “Whatever was thought of (wished for) was simply presented in a hallucinatory manner,” since “it was only the persistent non-occurrence of the expected satisfaction, the disappointment” that led to the deployment of the “reality principal” and of experience.<sup>5</sup>

The real, therefore, as impossible, can be applied to science. Furthermore, in *mathematical logic*, the theorems of Gödel, which in the ‘30s contributed to the crisis in the foundations of mathematics, have this formulation. I borrow from Gödel himself who “gave... (a) method of construction permitting the association of any given formalized system of axioms in mathematics with a problem about the whole undecidable numbers in this system.” That is to say, that for any system of axioms containing whole numbers, there are mathematical propositions that can be neither demonstrated nor invalidated, and there are even true propositions that cannot be demonstrated, but only observed. This *undecidable* is one of the names of the (negative) mathematical real. Gödel’s other theorem of 1931, “proof that the consistency of a system cannot be proven within that same system,” prohibits us from being sure that one will not someday find a mathematical proposition that will cause the entire system to crumble. Here, the negative is the “unprovable in the system, the consistency.” This means that in logic, knowledge is definitively limited in relation to the real, even if the system can grow infinitely in the refinement of theories and even if, conversely, each undecidable taken positively or negatively as axioms can produce two new mathematics that are incompatible with one another. Now, this open boundary, mobile and real, between knowledge and the real, is what Lacan calls the subject of science.

knowledge

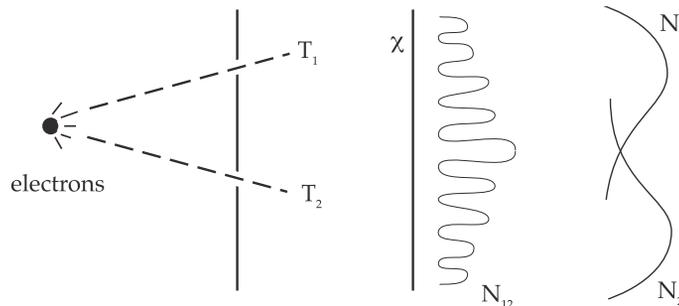
real

~~subject~~

And science is defined, he says, by the non-issue (the failure) of the effort *to suture* this subject.<sup>6</sup> Since Gödel, it has been known that in logic there will always be some undecidable, some incompleteness.

Let's now take *game theory*: you know the game of "even and odd" described by Edgar Allan Poe in "The Purloined Letter." One must guess whether his partner has an even or odd number of marbles in his closed hand. Poe imagines a boy who succeeds at guessing by putting himself in the place of his partner, by identifying with him. If the boy finds his partner stupid, he will change his guess on the second round (from odd to even, or vice versa), and if he finds him a bit more intelligent, he will not change his guess, thinking that his partner will reason that the boy was going to think that he would change. In fact, there is a pitfall, a limit to the imaginary, which is that if one pushes the partner's intelligence to the next notch, one comes right back to the first idiot and thus one no longer knows what to bet. Game theory shows that in order to win in the long-term, one must play "by chance," that is to say, one must choose at random, by a throw of the dice, for example. Thus, an incalculable element is introduced into the calculation, which is, according to our definition, a real, and which has a positive name, chance. With a real partner, even in applying the method, as one doesn't play infinitely, one nevertheless wants to lose "by chance." Chance is therefore a name of the real in science and the point where the subject of science lies is the limit between the calculable and chance.

Finally, let's take *quantum mechanics* and Heisenberg's principle: "It is impossible to imagine a device, no matter what it is, that will permit the determination of the hole that the electron will take without at the same time disturbing the electron enough to destroy the figure of interferences." This deals with an experiment in which one sends electrons through a plate pierced with two holes, H1 and H2, and one measures in X the probability of arrival, for electrons per hour at each point.



(This creates a complicated curve (N12) with interferences. Consider proposition (A), which seems intuitive (because the electrons are separate, therefore compatible): “the electrons pass through either H1 or H2.” This proposition is either true or false. Blocking H1, one gets a curve obtained by the electrons passing only through H2, which is N2. Blocking H2, one gets the curve N1. But the whole process does not correspond to  $N1 + N2 = N12$ ; therefore, (A) is false. It is false that the electrons pass through either H1 or H2.

Then one thinks: where they pass through, do they divide? One wants to have a quick look: the electrons are lit up, and the experiment is repeated. Then one sees them all pass through either H1 or H2; therefore, (A) becomes true. If one counts, with the light on, one gets  $N12 = N1 + N2$  as though the electrons were bullets. This proves that any experiment is modified by observation (this is Heisenberg’s principle): one can in no way predict through which hole the electron will pass or behind which hole one will observe it. Chance is therefore present in the fundamental laws of physics. As Feynman says, “Nature itself doesn’t know which hole the electron will pass through.” Even more can be said: it is observation that introduces the randomness. It is because we want to know where this electron passes that we introduce randomness. Thus, in quantum mechanics, to measure is to draw lots. Here again, if knowledge increases, then the real becomes that much more opaque, which proves that the boundary is indeed real and that our subject of science also exists. Certain physicists, such as Einstein, certainly thought that there were hidden variables, that is to say, that our knowledge was insufficient and, for this reason, one found randomness in nature. But this was proven false. It is the opposite: the more one wants to know, the more one finds chance, irreducible to an underlying determinism, and one can no longer say “the same causes produce the same effects” on the scale of particles. This generates a crisis of foundations for science and for scientists who see effects of the existence of the subject of science, between knowledge and the real, that they would have preferred to abolish.

There are several possible responses. We saw in physics the theory of hidden variables; one alternative is to consider, contra Einstein, that “God does play dice,” that is to say, that chance is divine. In mathematics as well, if there is some undecidable, the “Platonist realists,” those who believe that there is a real in itself of mathematics, cannot accept that it is equivalent to either taking or not taking P (P being undecidable) into the system, for example, in the axiom of choice. Gödel, for example, who is the author of the most important limitations, paradoxically did not believe in chance, and thought that a special intuition existed in the mathematician that permitted him or her to know “the right choice” to implement. He fell into a serious depression after his discovery of the limitations of mathematical knowledge. There are also the formalists, who believe that the coherence of the

written, of the letter, is the only criterion of the real and that they don't need to worry about an external real (the Bourbakistes). The constructivists, on the contrary, accept nothing that one cannot hold in one's hands — infinity, for example — and believe that the undecidable leads to the exclusion of the principle of the excluded third, and so on. This is interesting because we see the return of the question of *a truth* independent of all demonstration, which goes back to the scientists, and back to when one believed the truth had been in some way eliminated by science.

Lacan locates the origin of modern science in the seventeenth century, and finds his subject of science in the thinking of Descartes, whose *cogito* breaks with the scholastic philosophy that mixed truth and knowledge. The logic of this reasoning can be defined by four phases:

1. Descartes refuses all existing knowledge in a methodical doubt. Nothing is certain. Even mathematical truths, such as  $2 + 3 = 5$ , are not above suspicion. It would suffice, in fact, for a cunning genius, a deceptive God, to have falsified the truth without the subject's knowing it.
2. Having arrived at this zero point of knowledge, a statement is necessary. The thoughts that lead to this refusal of knowledge demonstrate the existence of "a thing that thinks," that is, one sole certainty: "I am" this thinking thing.
3. The "I" thus constituted is correlative of the belief in a perfect God because how could an imperfect being have an idea of the infinite? (This is what intuitionism rejects.)
4. This perfect God makes himself the guarantor of eternal truths simply because he creates them. Thus the slogan of burgeoning science would be: "To God, the truth; to us, knowledge." And this knowledge, void of metaphysical truth, makes do with a formal truth, truth as a formal cause, which has nothing to do with the truth of being, nor of God. Formal truth is truth reduced to the real of writing, the truth of a formula.

This truth, as formal cause, tells us how it works "mathematically": it is like a syntax of the real, it doesn't tell us why. To those who thought that the law of gravitation implied a miracle (otherwise, how could a mass know at what distance it was from another mass so as to be able to obey the law?) Newton responded: "And after all this, one will wonder why Mr. Newton should be blamed because he does not explain by hypothesis the causes of gravity and the other attractions; as though it were a crime to be satisfied with certainties and to leave aside the 'uncertainties.'" Newton also said that "for lack of a sufficient number of experiments, he abstained from describing the laws of the mind of the agent

by which this attraction is carried out. And for the same reason, he remained silent on the cause of gravity, since there weren't experiments or phenomena that would permit him to prove what caused it" — which therefore did not prevent Newton from believing in God as the agent of gravity. Likewise Newton's famous *Hypotheses non fingo* — which Lacan in his *Radiophonie* calls "the charter of structure" because it presides over the discovery of formulas, of knowledge inscribed in the real — doesn't mean the condemnation of all hypotheses, but only of those that one can neither verify nor invalidate in a mathematically treated experiment.<sup>8</sup> The title of his work, *Philosophiae naturalis principia mathematica*, will confirm Newton's position: to transmit the mathematical principles and to leave aside, for religion, the question of the hyperphysical power that would be the non-formal "true cause" of gravitation.

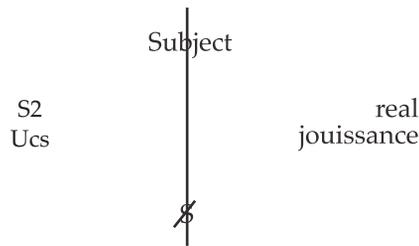
Presently in modern sciences, this initial separation of truth (as God's affair) and knowledge (our affair) is modified, or at least shaken, in the minds of certain scientists by the impossibilities encountered by science — of which burgeoning science had no idea. From this, there is a certain return in the real of this foreclosed truth, which one can observe in the subjective position of today's savants (cf., Gödel and Platonism, or those who call God chance). Religion makes a return to this point, among scientists, but not in science itself: for science this division between the formal truth and the eternal truth that we discussed earlier is a matter of structure.

Why, in psychoanalysis, do we operate upon this same subject of science? At the beginning of an analysis, something similar to Descartes' approach is produced. The subject who comes for analysis has also refused the previously existing knowledge about his or her symptom (medicine, and so on). Assuming that there is some knowledge about this symptom that makes up the unconscious, the subject further assumes that the Other possesses this knowledge — this is the subject supposed to know. The analysand assumes that this knowledge exists, a bit like the scientist assumes some knowledge in the real, and this is the very condition for him or her to be able to decipher this real, to make it really exist by enunciating it. But the difference from Descartes is that this knowledge concerning the symptom of the subject is not separate from the truth of his or her being. Because the subject suffers precisely on account of this truth embodied by his or her symptom, (s)he cannot simply say, "To the other, the truth; to me, knowledge." And the cure consists in maximally transforming this truth into knowledge. Henceforth, the truth does not have the same status; it is the *material cause*, according to the axiom, "The unconscious is structured like a language." In other words, the symptom is the effect of language on the subject. This material cause means that psychoanalysis only operates by means of speech, even if that doesn't mean that one goes there to talk! The truth of being will only be

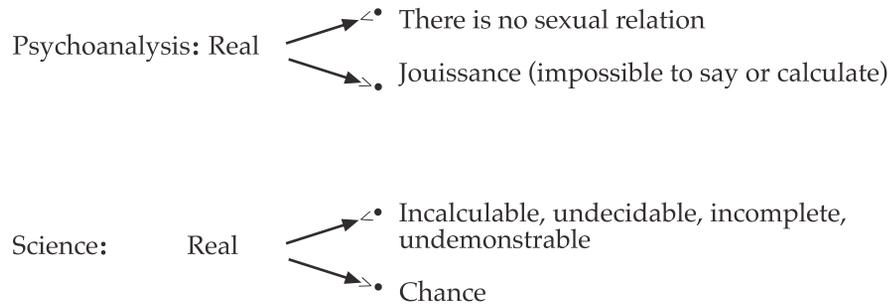
approached by what can be said about it in analysis, and it will be thus modified. There is therefore also a dialectic in psychoanalysis between the fact of finding knowledge and of operating on the real.

Another difference is that this knowledge, for the most part, is particular rather than universal. There is no collective unconscious. And this knowledge can only be deciphered in the Freudian system, not by reading or introspection. This renders the experiment very difficult to verify by others. The pass invented by the Freudian School is an attempt to respond to this difficulty. The particularity of this knowledge goes even further: one can say that the unconscious of a subject in analysis depends on the analyst, on the analyst's desire and on the subject's particular relationship with the experience. This obviously implies the non-scientific nature of psychoanalysis: in science, the desire of the experimenter plays no role, the experimenter is interchangeable — this is the difference between alchemy and chemistry. It is not so in psychoanalysis, where the transmission of the analysis is marked by the analyst who transmits it.

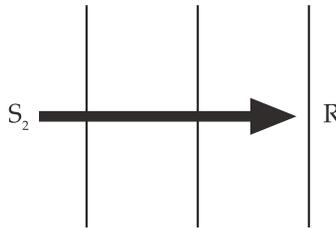
And the real? And this subject, why is it still the same as that of science? Because we have the same structure:



In psychoanalysis also, the deciphering of unconscious knowledge has a real limit. However much the unconscious is deciphered, it cannot make the sexual relationship exist, it cannot write it. The real is an integral constituent of the experiment, as in quantum mechanics. And as a matter of fact, one can also call it chance, *tuché*, encounter. An analyst's interpretation, as calculated as it is, has incalculable effects because it concerns jouissance. Jouissance is one of those names of the real at which psychoanalysis takes aim. We saw that the real was characterized by an impossibility:



The analytic operation always takes aim at this boundary between knowledge and jouissance, symbolic and real, where the subject is produced. One must fight against the knowledge of the unconscious that effaces the subject because (s)he doesn't want to know that (s)he knows it, and against the jouissance that causes "a fade-out" (jouissance is inter-dicted). The difference is that science seeks to suture the "fade out" where this subject appears, while psychoanalysis seeks to expose it. The goal of psychoanalysis is therefore to push back the boundary by advancing on jouissance, thanks to a deciphering. But, as in science — which shows that the subject is real — this boundary cannot be pushed back indefinitely:



One cannot cover the whole real up by the symbolic. What is the real limit? It is "the axiom" of the subject. Lacan uses this term for fantasy. For any given subject, the real is filtered, framed by fantasy, as though by a window. When, in analysis, the subject knows to which fundamental fantasy (s)he is bound, this paradoxically gives him or her a few degrees more freedom. The subject comes to the impossible that is particular to him or her, and, Lacan says, this opens new paths.

I would like to finish on a more ethical plane. Earlier, I said that science does not only discover knowledge in the real. Thanks to this knowledge, science produces new effects on the real; actually, so does psychoanalysis. In the last issue of *L'Annee*, a lesson from

Lacan's seminar, *L'envers de la psychanalyse*, was published. Here, Lacan forges a few word for this: *o-percevoir*, a contraction of "to operate" and "to perceive."<sup>9</sup>

Science creates something new for the subject. Lacan invents two words relating to this: *aléthosphère* and *lathouse*. *Aléthosphère* is the atmosphere of truth, the effects of formal truth on the atmosphere, to populate it with waves. These waves, when Lacan wrote this in 1970, were what upheld cosmonauts in space. In *Radiophonie*, Lacan calls them acosmonauts because science dismisses the cosmos. They were able "to communicate," thanks to waves, by exchanging banalities and trivialities such as "how are you?" and so on. This parable shows us that the modern subject of the scientific age is no longer sustained by ideals (like the beautiful) as (s)he was before, but by prosthetics, which are these radio voices. Incidentally, more recently, during the Gulf War, the public was sustained by gazes incarnated by television. These signs of the desire of the Other are actualized, as they are in psychosis, but for all subjects. In "The Function and Field of Speech and Language in Psychoanalysis," along with paradoxes about speech and language, Lacan talked about "the most profound alienation of the subject in our scientific civilization."<sup>10</sup> Lacan was already stressing that "communication" permitted the subject to forget his or her subjectivity: "He will make an effective contribution to the common task in his daily work and will be able to furnish his leisure time with all the pleasures of a profuse culture which, from detective novels to historical memoirs, from educational lectures to the orthopedics of group relations, will give him the wherewithal to forget his own existence and his death, at the same time to misconstrue (*méconnaître*) the particular meaning of his life in false communication."<sup>11</sup>

The second word that Lacan introduces is *lathouse* from *lanthano*, "to conceal," where *alètheia* comes from, the truth (of the aorist). It is the materialization of the formal truth in a concealed object that causes desire: "And for the petty objects *a* that you are going to encounter upon leaving, there on the pavement at every street corner, behind every store window, in this profusion of objects made to create your desire, insofar as it is now science that creates it, think of these objects as *lathouse*."

Thus, the subject is at once dismissed by science, universalized, prostheticized by the *aléthosphère*, captivated by the *lathouses*. And here psychoanalysis has a role to play, to succeed in sufficiently making the *lathouse* (even if it is impossible) cause the desire of a subject and restore his subjective singularity.

To illustrate, I will paraphrase a joke told by Feynman: A king who had asked Euclid to teach him geometry was complaining about its difficulty. Euclid then responded: "There is no royal road" (*Il n'y a pas de voie royale*). Now, for psychoanalysis, there is a royal road, as one knows since Freud: the dream is the royal road to the unconscious. And

that's how Freud began his work, *The Interpretation of Dreams*: with the analysis of his own dreams and by breaking with the science of his era, even if he otherwise respected it and pursued it as an ideal for psychoanalysis.

I will finish with three small clinical examples showing the effects of science on subjects and the transformation of the psychoanalytic clinic that results from these effects.

### **DREAMING OF FORECLOSURE THANKS TO SCIENCE**

A young homosexual woman, dressed as a man, a hysteric who wants to arouse "doubt" in the other with regard to her gender. She wants to be taken for a man, and wants to exhibit herself with heterosexual women in order to cause in the other this famous "doubt," the lack of the Other, which is her own question: "Am I a man or a woman?" — expressed in acting-out. She has never had heterosexual relations, except once with the son of a woman with whom she had a liaison; it was the day of her ovulation and she wanted a child. It did not work, and she no longer wants to try. I am only stressing a simple dream: "The baby of her sister's female friend (who is also homosexual), a boy, is born 'without a father,' by anonymous artificial insemination."

This is a very simple example that shows how scientific progress is used as a means to bypass the father by a person who would like to eliminate men; this is furthermore what the young woman comes to talk about. She pays the price for it in the form of a massive inhibition, having been reduced to imitating men exclusively, rejecting femininity on the Other's side. I would say that this woman is dreaming of the foreclosure of the Name-of-the-Father, and in order to do this, she takes from science that upon which her dream is grounded: artificial procreation. Indeed, science, Lacan said, wants to know nothing (in the sense of foreclosure) about the truth as cause, and "psychoanalysis is essentially what brings the Name-of-the-Father back into scientific consideration."<sup>12</sup> The hysteric in question dreams of foreclosure by borrowing it from science and comes to analysis suffering from this undelivered, even though it is ceaselessly addressed to all passers-by, whose uneasiness it is meant to cause. One of the questions raised by this example is clearly that of artificial forms of procreation.

### **EISLER'S CASE (1921): THE EFFECTS OF THE DISCOURSE OF SCIENCE WHEN THE GAZE IS REALIZED**

This deals with an observation of traumatic hysteria, credited to Joseph Eisler, from the years 1914-1918; Lacan comments briefly upon this case in his seminar on psychosis.<sup>13</sup> The man in question is a tram conductor during the Hungarian revolution after having been first a baker, and then a chemist. One day, he falls on the ground while getting off the

tram. He injures himself, is taken to the hospital, and his scalp is stitched up. Nothing is wrong with him. “He left after a thorough examination. They took a lot of X-rays, and they were quite certain that nothing was wrong with him.”<sup>14</sup> Later he falls victim to crises that cause pain in his abdomen so severe that he has to use a pillow to block it. He even loses consciousness at times. Since nothing organic is found to be wrong with him, traumatic hysteria is suspected and he is sent to Eisler. Eisler notices the man’s ambiguous positions on the couch...and interprets his homosexuality. The subject is not at all affected by this. In his childhood, multiple traumas are found... In spite of the fruitfulness of this diagnosis, Lacan remarks, “it is noticed when the material is being produced that what was decisive in the decompensation of the neurosis wasn’t the accident but the radiographic examinations.... It is at the time of the examinations which subject him to mysterious instruments that the subject’s crises are triggered. And these crises, their sense... appear linked to a fantasy of pregnancy.”<sup>15</sup> And therefore, linked to the question: “Am I or am I not capable of procreating?” This interpretation is confirmed by certain salient elements in the subject’s past; he had, as a child, witnessed a baby being cut into pieces.

Let us bring up, for our present goal, that X-rays date from the beginning of the century. This invention is therefore relatively recent at the time of this observation. Now X-ray technology has lost its novelty. For this subject, it is the penetration of this gaze into the interior of his body that impregnates him This observation shows the unexpected effect that a discovery normally intended for his well-being has on the subject. We should not deduce from this that X-rays should not be used, but this example shows that each scientific discovery operates in a particular way on subjects. Here the verb *o-percevoir* is appropriate for science: a subject’s response that science does not take into account — because it is unable to do so.

### **AN UNCONSCIOUS STRUCTURED LIKE A MACINTOSH**

Lacan’s axiom, “The unconscious is structured like a language,” implies that language is divided according to the two planes of metaphor and metonymy. The metaphor is the figure used by poetry, and Lacan showed how, as a result of the foreclosure of the Name-of-the-Father, poetry is lacking in psychosis. He notes this in particular about the *Mémoires* of President Schreber. It is also clear that computers do not have the capacity to make metaphors, in the creative sense of the word. Their system is reduced to a syntax in which there is no room for chance, so much so that it is even extremely difficult, speaking in terms of mathematics, to make a machine simulate chance. Indeed, a machine only does what it is told to do and therefore everything is planned. One is required to make it function with certain sequences that mime randomness and

to make intervene, at certain moments of the operation, an exterior element, such as the computer's clock.

Mr. X is a computer programmer. I will not describe his case in detail. He is a paranoiac with a "delirious core" organized around his recently dead father and his noble family. Except for this and a slightly peculiar life with his girlfriend, he is completely normal — an expression used by Lacan in the '70s in reference to psychosis. A few signifiers permit him to make the world go around: "the pressure" at work and at home (he mistreats his girlfriend), the opposition of "the moral" and "the physical" (him and his girlfriend). He aspires to be a "boss" like his father.

Mr. X seems completely dehumanized. Not the slightest lack. Not the slightest dialectic. From the beginning of analysis, which he is determined to do like the rest of his family and which is justified by his anguish, he explains to me his conception of the unconscious: like a Macintosh, with embedded interlocking drawers that one pulls open in turn. The only difference is that he senses that he lacks a "stopping principle." Hence, he has the idea that his unconscious is algorithmic, but cannot stop. For us, the stopping principle is castration. Obviously, for him this is cruelly lacking. He sees analysis as a gigantic programming of which he is the master. This was quickly felt in transference... In this conception, there was no room for chance, *tuché*, surprise. He requires that I be able to describe the trajectory of analysis like a curve upon which I would then pinpoint his precise coordinates.

This example illustrates well the affinity of the psychotic with one of the most famous productions of modern science, the computer — whose invention is tied to these discoveries of the '30s that limited its scope. Here, the subject is sustained as though by a prosthesis, by the machine incarnating mathematics, right up to his unconscious. It is what "supports the perineum" for him, as Lacan says in *L'envers de la psychanalyse*. In other words, it is his body's skeleton, unsupported by the paternal metaphor.

*Translated by Karen M. Fisher*

1. This lecture was given during the cycle of "Lectures in the Freudian Field" (*Conférences du Champ freudien*) in Louvain la-Neuve, Belgium, in February, 1991.
2. [This translation, as well as any subsequent translations from Feynman's lecture, is mine. In addition, all translations of future references are mine unless an English translation is noted. Trans.]
3. Jacques Lacan, "La Science et la vérité," in *Écrits* (Paris: Seuil, 1966), 858. [An English translation of this text by Bruce Fink appeared as "Science and Truth" in *Newsletter of the Freudian Field* 3, 1-2 (1989): 4-29. Trans.]
4. Lacan, "De nos antécédents," in *Écrits* (Paris: Seuil, 1966), 68.
5. Sigmund Freud, "Formulations on the Two Principles of Mental Functioning," in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, trans. James Strachey (London: Hogarth Press and The Institute of Psychoanalysis, 1961), vol. XII, 219.
6. Lacan, "Science and Truth," 10.
7. Alexandre Koyré, *Newtonian Studies* (Chicago: University of Chicago Press, 1965).
8. Koyré, *Newtonian Studies*, 16, note 3.
9. Lacan, "L'envers de la psychanalyse," *L'Ane* 45 (1991).
10. Lacan, *Écrits: A Selection*, trans. Alan Sheridan (New York: Norton, 1977), 70.
11. *Ibid.*, 70.
12. Lacan, "Science and Truth," 22.
13. Lacan, *Seminar III. The Psychoses*, trans. Russell Grigg (New York: Norton, 1993), 168-171.
14. *Ibid.*, 168.
15. *Ibid.*, 170.

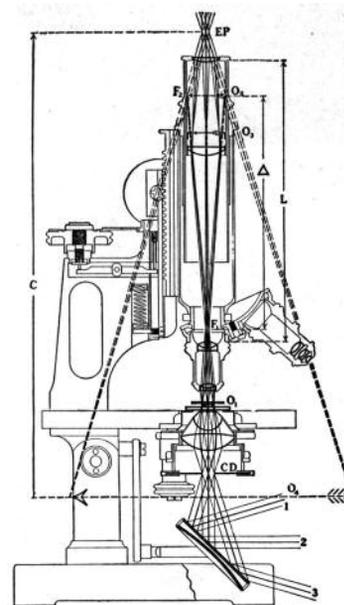


DIAGRAM SHOWING PATH OF LIGHT RAYS

- F<sub>1</sub> Upper focal plane of objective
- F<sub>2</sub> Lower focal plane of eyepiece
- Δ Optical tube length = distance between F<sub>1</sub> and F<sub>2</sub>
- O<sub>1</sub> Object
- O<sub>2</sub> Real image in F<sub>2</sub>, transposed by the collective lens, to
- O<sub>3</sub> Real image in eyepiece diaphragm
- O<sub>4</sub> Virtual image formed at the projection distance C, 250 mm. from
- EP Eyepiece
- CD Condenser diaphragm
- L Mechanical tube length (160 mm.)
- 1, 2, 3 Three pencils of parallel light coming from different points of a distant illuminant, for instance, a white cloud, which illuminate three different points of the object