



Scientific Contribution

Medicine, symbolization and the “real” body – Lacan’s understanding of medical science

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Abstract. Throughout the 20th century, philosophers have criticized the scientific understanding of the human body. Instead of presenting the body as a meaningful unity or Gestalt, it is regarded as a complex mechanism and described in quasi-mechanistic terms. In a phenomenological approach, a more intimate experience of the body is presented. This approach, however, is questioned by Jacques Lacan. According to Lacan, three basic possibilities of experiencing the body are to be distinguished: the symbolical (or scientific) body, the imaginary (or ideal) body and the real body. Whereas the symbolical body is increasingly objectified (and even digitalized) by medical science, the phenomenological perception amounts to an idealization of the body. The real body cannot be perceived immediately. Rather, it emerges in the folds and margins of our efforts to symbolize or idealize the body, which are bound to remain incomplete and fragile. In the first part of the article (§1–§3), Lacan’s conceptual distinction between the symbolical, the imaginary and the real body will be explained. In the second part (§4–§5), this distinction will be further clarified by relying on crucial chapters in the history of anatomy (notably Mundinus, Vesalius, Da Vinci and Descartes).

Key words: body images, digitalization, Jacques Lacan, medical science, phenomenology

Introduction

Throughout the 20th century, philosophers have been criticizing the scientific understanding of the human body. The basic import of their critique (often inspired by a phenomenological interpretation of bodily life) can be summarized as follows. Instead of presenting the human body as a meaningful unity or *Gestalt*, medicine tends to regard it as a complex collection of interacting parts and systems. The body as it is experienced in everyday life disappears from view and finds itself reduced to a machine-like entity which is explained in quasi-mechanistic terms. Bodily phenomena become measurable and controllable. By implication, to expose one’s body to the powerful gaze of modern science entails an experience of profound estrangement. In contrast with the systematic disclosure of bodily life offered by modern science, a phenomenological understanding will entail the effort to rescue and rehabilitate a more immediate and intimate experience of the body in the “life world”.

In some of his early seminars, the French philosopher Jacques Lacan questioned the phenomenological approach. According to Lacan, medicine either has to explain the phenomena of bodily life in scien-

tific terms, or it will not be able to explain them at all (S2, VI 3). Scientific research inevitably entails an ever-increasing objectification of the body. It allows the body to appear in a certain manner, namely as a complex mechanism – although more similar to recent, digital machines (like computers) than to old fashioned, mechanistic ones (like clockworks or steam engines). According to Lacan, we cannot say that the body as it is experienced in everyday life is more “real” than the representations of the body which are produced by contemporary medicine. For although the body finds itself completely transformed by the epistemological grids of modern science, a phenomenological gaze entails a profound transfiguration of the body as well. According to Lacan, phenomenology tends to *idealize* the body. Its picture of the body is the outcome of an aesthetical transfiguration closely resembling the representations of the body in visual art. The “real” body is never experienced immediately. In order for the body to be perceived, it has to appear in a certain manner. Whereas the phenomenological perception of the body amounts to an *idealization*, the transformation of the body at work in a scientific understanding is referred to by Lacan as *symbolization*.

The basic objective of my article is to present

Lacan's understanding of the scientific representation of the human body in a comprehensive and concise manner. Before applying Lacan's conceptual scheme to contemporary medicine, however, I will first introduce some elements of his technical vocabulary (§1). Notably, I will explain the meaning of the term "symbolization" in his work because, according to Lacan, medicine basically consists in producing a symbolical representation of the body. Next, I will introduce his interpretation of three basic possibilities for experiencing the body, namely the symbolical, the imaginary and the real body (§2 and 3). Finally, I will focus on the borderlines or transition lines between these basic possibilities by referring to some crucial episodes in the history of anatomy (§4 and 5).

Symbolization

According to Lacan, science basically consists in symbolizing the real – what does he mean by that? In ordinary language, the term "symbol" tends to be associated with visual entities or images such as the christian cross, the taoistic Yin-and-Yang, the American stars-and-stripes, the Statue of Liberty, the Dutch clog, the English bowler et cetera. In the writings of Lacan, however, the term "symbol" has a more restricted meaning. The paradigm of symbolization is the mathematic symbol rather than the visual image.

According to Lacan, our apprehension of the real is never immediate but always mediated, either by visual entities (pictures, images, etc.) or by linguistic entities (words, characters, numbers, etc.). Now what characterizes Lacan's understanding of the symbolical is, that it principally refers to linguistic or mathematical symbols, rather than to images. The symbolical world is the world of language, algebra and counting machines (S2, IV 2).

Lacan's understanding of the symbolical relies to a considerable extent on the linguistic theories of De Saussure and the structuralist anthropology of Levy-Strauss (S3). In every symbol (or sign) two aspects can be distinguished: the *signifier* (for example: a particular sequence of acoustic or visual elements) and the meaning or concept *signified* by it. In order to determine the meaning of a particular signifier (for example: a scientific term such as "force") we must refer to the system or network of signifiers in which it functions (for example: the scientific theory to which the term belongs). In the theory of Newton, for instance, the term "force" functioned in a manner which differed from its function in preceding philosophies of nature. It was not simply a label for a meaning already existent. Rather, Newton's use of the term "force" constituted an unprecedented way of structur-

ing the real. In short, a symbol is an entity functioning within a system or network of interconnected signifiers, rather than an image representing an established meaning.

A "system" can be defined as a series of elements which are either present or absent and which can be referred to by elementary symbols such as A and B, 1 and 0, + and –, x and y etc. (S2, XV 2; S3). The christian cross and the American stars-and-stripes, for example, can be regarded as symbols because their function as a signifier depends on a combination of basic elements, such as stripes and bars, which can be either present or absent. By changing one element (for instance, by replacing red stripes by blue ones) the resulting pseudo-flag would already be more similar to the Greek than to the American national banner. Likewise, by adding a second (and smaller) bar to the standard version of the christian cross, a different symbol is produced. One basic element (the smaller bar) signifies by its presence or absence a particular kind of denomination: orthodox (presence, +) versus roman catholic (absence, –). By adding the bar, a signifier is produced, emphasizing the independence of both denominations and preventing us from confusing them. A famous (and perhaps startling) Lacanian theorem in this respect is the one stressing the primacy of the signifier. According to Lacan, it is by using signifiers (such as the smaller bar or the term *orthodox*) that the difference between both denominations was initially introduced and still manages to maintain itself, although the meanings signified by the signs involved are bound to shift considerably over time. In other words, signifiers are structuring rather than reflecting the real.

Besides symbols, there is a second group of mediating entities whose mediating function does not rely on the presence or absence of basic elements, but rather on the form of the entity as a whole – its over-all shape or "Gestalt". Such entities are referred to by Lacan as "images" rather than "symbols". An image is something which can be immediately recognized, without reference to a conventional system or network of signifiers. For example, we may immediately recognize the visual image of a human being on the page of a book, but in order to decipher the legend "man" or "animal rationale" printed beneath it, we must be acquainted with the conventional network of signifiers on which its signifying function depends. In order to decipher the signifier "man", for example, we must be acquainted with the alphabet as a visual system combining basic elements such as lines, circles and bars which can be either present or absent (T, F, L, D, etc.). It constitutes the visual representation of an acoustic system of signifiers called language. Likewise, the signifier *animal rationale* refers to a partic-

ular conceptual system called "metaphysics" in which "animals" are defined as "irrational living beings". By adding the signifier *rationale* to this definition, the paradoxical nature of man is stressed (indeed the neologism *animal rationale* has always functioned as a question mark rather than as a definition). The term *rationale* is a signifier which can be either present (+) or absent (-). It introduces a fundamental difference, a basic dichotomy between two kinds of entities: humans and animals. It is a symbol which is structuring (rather than reflecting) the real: it structures the real by cleaving it. The singular ontological status of man depends on the introduction of a crucial signifier, rather than on some real and immediately visible differences between (for example) human beings on the one hand and bears or apes on the other. The signifier introduces something which is not immediately visible, a symbolical grid which allows humans to appear in a certain manner, namely as a singular ontological category. No doubt, in the course of history, humankind increasingly managed to model itself in accordance with the symbolical designation *animal rationale*, so that the symbolical difference between humans and animals gradually came to "realize" itself.

From a Lacan-like perspective, the Dutch clog may also be called a symbol, but its status is somewhat ambiguous. It is not a symbol insofar as it is merely an image or imitation of a real clog, or merely a representation of our mental scheme of what a real clog looks like. It has become a national symbol in The Netherlands, however, because it used to be an entity which belonged to a certain pattern of life, namely agriculture behind dikes, and as such it actually became an element (a signifier) which represented (or signified) a certain idea, a complex set of meanings connected with pre-urban farm life, much like the English bowler somehow came to represent middle-class existence. Due to the quasi-linguistic process called displacement or metonymy, the clog came to function as a stand-in for this particular life pattern as such. One might say that the clog is situated on the borderline between the imaginary and the symbolical. It may function as an idol triggering nostalgic sentiments connected with the pre-urban past, as a vehicle for idealization of the past and representing it as a perfectly harmonious "Gestalt". Here and in similar cases, the clog would function in an imaginary manner. But the clog might also function as a symbolization of non-urban life in opposition to urbanized life forms – for example when it is used as a marker indicating non-urban areas on a demographic map. To a farmer's child, clogs may have functioned as objects which allowed him or her to structure a complex environment in a primitive manner. By distinguishing between father's clogs, mother's clogs, the miller's clogs et cetera, these clogs

became markers on a childhood map, became elements in a symbolical network. Finally, the clog somehow became the symbolical marker of non-urbanized life per se. In short, the ambiguous status of the clog as a symbol resides in the fact that initially, the symbolical has to rely on images to establish itself. Subsequently, however, the signifiers involved will increasingly detach themselves from their imaginary origin, from their original meaning. Take for instance the image of a human being referred to above. The outline of a male or female figure fixed on a lavatory door can be regarded as an image, but it is an image that has already become a symbol, a marker dividing the public sphere into two dimensions (male/female), whereas in private lavatories this distinction has not (or not yet) been made. The symbols of symbolical logic can be regarded as signifiers that managed to emancipate themselves completely from their imaginary roots. In short, recognizing a visual image is something quite different than deciphering a symbolical entity. On the symbolical level, the question whether or not the character "T" in "Tower" reminds us of the visual shape of that which is indicated by it, has become irrelevant. In principle, the connection between the signifier and the signified is to be regarded as arbitrary.

By understanding symbols in this manner, Lacan distances himself from other theories of the symbolical, such as the one developed by Ricoeur (1965). Unlike Ricoeur, Lacan tends to emphasize the linguistic or even logical aspect of symbols, at the expense of their visual dimension. Both Ricoeur and Lacan understand the symbol as something which has to be deciphered, but in Lacan's approach there is a tendency to regard the formal languages of symbolical logic as the paradigm of symbolism. Unlike symbolical logic, however, Lacan always maintains that the scientific effort to achieve a symbolical representation of the real will never be completed. There will always be a remainder, a fundamental gap or lack, giving rise to the opportunity (or even necessity) to represent the real in an "imaginary" manner, allowing us to try and master the real by playing with images. According to Lacan, it is our innate weakness as rational animals that we will always be in need of images (S2, VII 4). Without the use of images, the symbolical will never establish itself. Eventually, however, we must try to free ourselves from our dependence on the imaginary as much as possible. Indeed, Lacan constantly stresses the importance of gradually replacing the imaginary by the symbolical – and this is what happens in the course of a psychoanalytical session. A similar demand to advance from idolatry to purified symbolism, and to prevent symbols from reverting into idols, is present in the theory of Ricoeur as well. Let this suffice as an introduction into the technical intricacies of Lacan's

vocabulary, in order to return to his understanding of the human body and the way it is being represented by modern medicine.

The symbolization of the body

In everyday life, we tend to perceive the human body as a “Gestalt”, a meaningful whole. Lacan agrees that the scientific understanding of the body basically entails a *destruction* of the body’s aesthetical unity. Scientific progress consists of an ongoing *reduction* of the complex and often perplexing phenomena of bodily life to a limited number of basic systems, composed of simple elements which can be either present or absent, and to a limited number of formula connecting and short-circuiting basic signifiers. According to Lacan, the history of medicine can be explained as a continuous process of symbolization. Allow me to elucidate this by briefly referring to one famous epoch within this history.

Descartes (1637, 1649), in his anatomical disclosure of the body, represented it as a kind of mechanism in which a limited number of basic systems – such as the nervous system, the respiratory system, the digestive system and the blood circulation – interacted with one another in order to produce all the physical and behavioral phenomena which are needed to sustain life and to allow the human mind to achieve its goals. According to Descartes, these systems were composed of pipes which allowed small elements or particles to move from one place to another. The famous *animal spirits*, for example, were regarded as tiny particles functioning within the nervous system in a way comparable to the functioning of blood cells within the circulation. In short, all the phenomena of bodily and emotional life were explained by reducing them to an interaction between these systems. A whole domain, astonishingly rich, complex and confusing at first sight (namely the emotional and physical life of man), could suddenly be explained with the help of a relatively simple scheme or structure – one which could be readily applied to any phenomenon under examination.

In the course of history, the mechanistic understanding of the body in terms of particles and pipes came to be replaced by a representation of the body reminiscent of more recent artifacts based on digitalization, such as computers. After having reduced blood to a collection of small particles (blood cells), scientific medicine managed to subdivide these particles into even smaller elements which can be either present or absent and are referred to by means of elementary symbols (algebraic numbers or characters from the alphabet). The discovery of blood types, for exam-

ple, revealed that four different types, corresponding to two different kinds of proteins [A and B], present or absent in blood cells, can be distinguished: A [A present/B absent], B [A absent/B present], AB [A present/B present] and O [A absent/B absent]. In other words, a whole range of physiological phenomena can be explained in terms of basic elements [A and B] which can be either present [+] or absent [–]. Subsequently, an additional element (the rhesus factor) was discovered, so that another digital symbol [+ or –] was added to the nomenclature for blood type [A+, A–, B+, etc.].

From the point of view of phenomenology, such an account is bound to produce a profound sense of discontent. Phenomenology’s starting point is the distinction between explanation and understanding. Science may well be able to explain the phenomena of bodily life, but it does not allow us to really understand them (Lacan S3, II 1). Rather, by reducing them to basic elements and systems, they are actually obscured. We will never understand what laughter is, for example, when it is explained to us solely in mechanistic terms, that is: in terms of an interaction between physiological systems. In order to understand what laughter is, we must have had an intimate experience of laughter – we must be acquainted with it “from the inside”. We cannot understand laughter if we have never really laughed ourselves.

The same goes for the scientific understanding of the bodily phenomena involving blood. In the “life world”, blood has always been a meaningful entity. It has always been a symbol or image of tremendous cultural significance. In the course of history, the physiological entity blood has assembled a whole series of meanings. On consulting our dictionaries, for example, we will come across phrases like: *the blood of Christ, blood and soil, people of flesh-and-blood, my own flesh and blood, blood ties, blue blood, in cold blood, to be of royal blood, fresh blood, boiling blood, freezing blood, bloodshed*, et cetera. The first sentence of the Dutch national anthem contains the phrase *I am of my people’s blood*. In fact, many of these standing expressions containing the term “blood” refer to the way we (or our ancestors) basically experienced ourselves. Throughout history, the term blood served as a crucial ingredient in the self-images of man.

In a scientific explanation, however, none of these ancient meanings and images will survive. Take for instance the signifier *blue blood*. It is part of an anachronistic technique of socio-political digitalization, structuring the real by introducing a dichotomy between those who are and those who are not of noble descent (a fact which is symbolized and reinforced by the way the individuals involved expected to be addressed by others). It was a form of digitalization

which implied that a series of duties and privileges was either granted or denied to someone. Not being immediately visible in terms of actual blood colour, the presence or absence of blue blood was visualized in a symbolical manner, and historians will explain the symbol *blue blood* by referring to the symbolical system (the network of signifiers) to which it belonged. In other words, from a Lacan-like perspective, the basic phenomenological distinction between explaining and understanding symbols cannot be accepted as valid. We either recognize an image, or explain by means of a symbol. In the former case, the visual aspect of a red-colored liquid may allow us to identify it as “blood”. In the latter case, we rely on the system of basic elements on which the symbolic function of the signifier depends (for instance, the *ancien régime* as a socio-political system of nomenclature). The signifier *blue blood* was rendered obsolete by the powerful gaze of modern science, and the symbolic system of which it was part has been replaced by other forms of digitalization, such as the current medical nomenclature for blood types.

A recent triumph of the life sciences (such as medicine and biology) was of course the discovery of DNA. Apparently, many phenomena of life can be reduced to the absence or presence of four basic elements, referred to by four simple characters from the alphabet (A, T, C and G). Another triumph was the invention of sophisticated technological tools like the CT-scan by means of which a quasi-complete symbolical representation – a digital representation – of the body was made possible, with 1 and 0 as its basic constituents.

From a phenomenological point of view, however, it will be objected that DNA and the CT-scan, rather than revealing what life really is, will obscure and eclipse our awareness of the phenomena involved. A painting, for instance, may tell us more about a particular person or animal than the most elaborate description in terms of A, T, C and G. Whereas the work of art allows the animal to emerge *as an animal*, and will reveal to us what an animal *really* and *truly* is, the scientific explanation actually destroys and abolishes its object by reducing the animal as a meaningful whole (or phenotype) to a number of countable and perhaps even controllable elements (cf. for example Heidegger 1957). The powerful gaze of science tends to reduce the animal to a particular *genotype* or to an individual belonging to a *population*, whereas the animal as a singular aesthetical image disappears from view. Whereas the paradigm of a scientific representation is a description in terms of (the presence or absence of) A, T, C and G and other symbols; the paradigm of phenomenological representation is a work of art.

Unlike phenomenology, Lacan basically affirms the legitimacy of an understanding of the human body in terms of *L’homme-machine*, although he immediately adds that our understanding of machines has greatly improved since the days of Descartes and La Mettrie (S2, III 1). For whereas it was Descartes’ basic objective to discover the 17th Century clockwork inside the human body, the true paradigm of a scientific explanation of bodily life is the counting machine described by Pascal in 1654, rather than the mechanism composed of pipes and particles described by Descartes in 1637 and 1649. Modern medicine is still searching the body for biological clocks, but whereas the anatomical studies of Leonardo da Vinci coincided with his research into hydrodynamic systems, contemporary medicine is focussed on clocks that are functioning in a digital and electronic manner. Be this as it may, the claim that the body is a machine is not a proposition the truth or adequacy of which can somehow be proven or challenged, for this would require that an objective body is already there, setting a kind of natural standard, whereas it is by representing the body as a machine that something like an objective body is allowed to appear. Indeed, the claim that the body is a machine entails the introduction of a particular epistemological grid, which can be historically situated and relies on signifiers like *machine*, *clock*, *fiber*, etc. It allows the body to appear in a certain way and allows us to describe the phenomena of bodily life in a certain manner (S2, III 1, VI 3, XXIII 2).

The symbolical and the imaginary body

In the previous sections I explained that, according to Lacan, the real cannot be apprehended immediately. In itself, the real is something like a void, a chaos, an infinite heap of amorphous matter which has to be structured in order to be perceived and explored by us. Even finite numbers are not induced from the real in an empirical manner, Lacan claims (S2, XXIV 2), but rather function as epistemological tools on which we rely when structuring it, symbols which we created *ex nihilo*.

Subsequently, a distinction between two types of mediating entities has to be made, namely “symbols” (functioning within a symbolical system) and “images” (functioning within mimetic forms of representation). A scientific representation of the body is basically a symbolical one, relying on symbols or signifiers structuring the real by cleaving it, such as *genotype* and *phenotype*, *in vivo* and *in vitro*, *A+* and *A-*, *male* and *female*, *XX* and *XY*, *embryo* and *pre-embryo*, et cetera. The use of a particular signifier always introduces a basic difference, an opposition, it

always refers to the presence or absence of a particular element. The symbolical is not a film or filter covering the real. On the contrary, the real is organized, transformed, appropriated by the symbolical, it is thoroughly affected by it.

Take for example the difference between male and female which, according to Lacan, is of a symbolical nature. We may try to link the basic dichotomy to “real” differences, stating for example that “a woman is someone who might be impregnated” or “a woman is an individual belonging to the weaker sex”. Now although it is clear that many individuals referred to as “women” are either infertile or stronger than a considerable number of men, this is not the point. The point is that, as soon as we start talking about “impregnation” or “the weaker sex”, the basic distinction between male and female has already been made. In order for so-called “real differences” (such as biological differences) to be discovered, the basic signifiers already have to be functioning. Even the absence or presence of a penis has to be transformed into a signifier, a symbolical element to make a difference (S4, II 2, IV 3, etc.). The symbolical distinction between male and female precedes the subsequent identification of the penis as something which exclusively belongs to males. Indeed, psychoanalysis tells us that, before the dawn of the oedipal complex, young children tend to believe that both parents are in possession of a phallus – a belief which continues to manifest itself in many of the sexual perversions of adult life (S4, VII 1).

According to Lacan, the real is adjusted to the inflexible standards of the symbolical. This implies that he, following Kant, Nietzsche and others, adheres to a nominalist understanding of science. The symbolization of the real as realized by modern science consists in what Nietzsche, for example, refers to as the permanent counterfeiting or adulteration of the real by the use of numbers (1980, §4). The real is mastered and subjected by a network of concepts, symbols, measures (Begriffs-Netz, §14), the symbolical is a “Zeichen-Welt” (§21). Our picture of the real is simplified and schematized, rather than refined by science (§24). The symbolical not only devastates and appropriates the real, but also crushes our pre-scientific (and often imaginary) efforts to organize it. The things as they appear to us in daily life are destroyed and dissolved by the symbolical grids of science (S2, IX 2). Our rich intuitive, pre-scientific experience of the world is reduced by translating it into a limited number of basic formula containing scientific terms and other signifiers.

Imaginary representation organizes the real in a quite different manner. It relies on the recognition of meaningful images or patterns. According to Lacan, the pre-modern platonic epistemology was of an imag-

inary nature (S2, VII 4, XXII 3, XXIV; S4, I 1, etc.). According to this line of thought, human knowledge basically consists of recognizing the schemes or templates emerging in the phenomena as they appear before us. A symbolical epistemology, on the other hand, always involves the existence of a “third term”, i.e. a network of signifiers structuring the world. In Platonic epistemology, language reflects reality instead of constituting it.

As far as the human body is concerned, however, the imaginary is of crucial importance to us. According to Lacan, we originally experience our own body as scattered and chaotic. Young children develop an image of their body as a meaningful whole through what he refers to as the “mirror experience” (1966). The imaginary body – the body as a visual unity, a “Gestalt” – is constituted through an identification with the image of our own body as it is reflected to us by a mirror. It is through the image of the body as a whole that we initially gain a sense of identity and self-mastery. In other words, Lacan adheres to the ancient dictum that the unity of the body resides in the soul, that the soul contains the form of the body (i.e. the internalized body image). Yet, we will never *completely* identify ourselves with this body image. We continue to experience a fear of disruption and dispersion, which forever threatens our bodily integrity. According to Lacan, the oedipal complex basically consists in an effort to secure the fragile unity of the body by sacrificing a part – quite in line with the famous scholastic dictum *pars pro toto*. From a psychoanalytical perspective, the ancient rite of male circumcision, as it is still prescribed in some religious cultures (notably in those cultures which tend to maximize the moral significance of bodily integrity, such as the Jewish and the Islamic faith), can be explained as a remnant of an ancient gesture which was intended to secure the integrity of the body as a whole in the face of a terrible threat: that of complete abolishment and dispersion. In *Exodus* 4:24 it is narrated, for instance, how a furious Jahweh turns at Moses with the intention of killing him, but is dissuaded from doing so when Moses wife intervenes by circumcising her husband just in time. The assumed inviolability of the imaginary body is a powerful image which easily explains why we experience resistance or even disgust whenever we are confronted with modern medicine’s permanent zeal to affect the body’s unity by anatomizing it, scanning it, dissecting it, et cetera. Whenever the apparent unity of the body is undermined, we find ourselves deprived of our sense of self-mastery and become the defenseless objects of a powerful dissecting gaze.

The term “imaginary body” not only indicates that the experience involved relies on an image, a visual

representation of the body, but it also stresses that the apparent unity of the body is *assumed*, that it entails something which is "imaginary": a mere appearance, a mere semblance, something which is bound to remain fragile and vulnerable. Nevertheless, by using certain techniques, such as diet, training, hygiene, attire, et cetera, our sense of self-mastery can be reinforced considerably. We are permanently modelling our body, boosting its coherence and manageability, strengthening our control over it, so that the ideal image is increasingly "realized" (though never completely). We are always concealing our "real", scattered body, transforming it into a body which reflects the aesthetical or cultural standards which we are trying to imitate or even exemplify. In short, the "imaginary" body is always the internalization of an *image* of our body, presented to us either by real mirrors (the mirror experience of early childhood) or by social and cultural models, that is: by established cultural ideals and aesthetical standards – external images with which we may identify ourselves and which we will try to realize or reproduce by cultivating our body in accordance with them. It goes without saying that aesthetical representations of the body, presented to us by pictures, films, works of art, etc., play a crucial role in this process. Yet, all our efforts to idealize and cultivate the body, adjusting it to cultural images of physical perfection, are bound to remain unfinished and incomplete. Time and again the idealization of the body is frustrated by the resurgence of the real. As Nietzsche has it, buttocks and abdomen are the reason why eventually we will not regard ourselves as gods (1980, §141).

Paradoxically, the symbolic representations of the body produced by modern medicine, may be used to further our efforts at "realizing" the imaginary body. In the case of transsexuality, for example, although there is a serious tension between the symbolic representation of the body (in terms of XX, XY, etc.) and the imaginary representation of the body (the ideal image of the body to which the subject involved actually subscribes), he or she can nonetheless appeal to the symbolical body (that is: to its medical representation) in order to realize the cherished ideal more closely. Although in view of the present state of the medical art our body's genotype remains beyond our control, the phenotype can be thoroughly transformed. The actual appearance of our body can be transfigured so as to resemble more closely certain ideal images of femininity or masculinity. Yet, we will never be able to copy or imitate these images completely. The transsexual subject will initially experience his or her body as mutilated and incomplete, but the transsexual operation will never completely succeed in abolishing the sense of lack he or she experiences – it never entails

a *restitutio ad integrum*. Our ability to symbolically explain and aesthetically remodel our body remains limited in the end: the real body continues to offer resistance. But is it at all possible to speak about the "real body"?

The real body

According to Lacan, the "real" body cannot be perceived immediately. Rather, it is a kind of limit or remainder, revealing itself unexpectedly in the folds, gaps and margins of the symbolical and the imaginary. As soon as we try to say anything about it, we will tend to do so in an imaginary or symbolical manner. We cannot describe it without transforming and obscuring it. Does this imply that we can only speak about it in negative terms, as something which continues to defy symbolization or idealization?

A more positive determination of the real body is problematic no doubt, but not utterly impossible. The least we can say is that it is the aspect of the body which we are always trying to conceal: the sweating, smelling, defecating body. Whenever it reveals itself to us, it produces an experience of uneasiness or even disgust. Or, to quote Nietzsche once again, it is that aspect of the body which deters us from regarding ourselves as gods. Allow me to elucidate this by briefly referring to another episode in the history of the body.

During the Middle Ages, the real body (in the sense of the sweating, smelling, defecating body) must have been more present and less effectively hidden than nowadays. This is affirmed by medieval representations of the body in literature and art, dismissed and abused by the more refined aesthetics of later centuries as "grobian" and "grotesque". The body of modern science and modern hygiene had not yet succeeded in establishing itself. Symbolization of the body largely relied on metaphysical signifiers. The dawn of medicine emerged when medieval physicians started to open up the bodies of convicted criminals. What they discovered, however, was not at all the mechanical body of Descartes and modern science. Nowhere did they find something like a structured mechanism composed of clockworks, pipes and particles. What they *did* find, was described by the Dutch phenomenologist J.H. van den Berg as follows: "Whoever works his way through the chest will find lobes of withered meat, whoever opens up the belly will discover bowels the smell of which will remind him of a slaughterhouse, and a stomach filled with pickled porridge – man is like a cow inside" (1965, p. 65).

Yet, although the medieval body was not yet structured or affected by the powerful symbolical systems of modern science, it cannot be regarded as completely

“real” either. For as soon as the body’s inside was opened up, it was immediately organized and affected by established images and symbols. To begin with, the medieval perception of the body’s anatomy was determined and guided to a considerable extent by an authoritative script, an elaborate system of nomenclature: the theories of ancient masters like Hippocrates and Galen. Indeed, the medieval medical gaze was pre-structured by the words, the signifiers borrowed from ancient masters. Medieval physicians like Mundinus, for example, claimed they detected a bone in the heart, a five-lobbed liver, a lower jaw consisting of two parts, and other elements present in the writings of Galen but absent in the human body as we now know it (Van den Berg, p. 90). It took another two-hundred and fifty years before a more refined epistemological grid managed to establish itself. In 1543 Vesalius published his book *De Humani Corporis Fabrica*. In the signifier *fabrica*, the mechanistic understanding of the body already announced itself, but the “fabric” of the human body was not something which could be recognized immediately. Rather, the mechanistic interpretation of the body was the outcome of centuries of “ontological labour”, a process in the course of which powerful epistemological grids managed to emerge, relying on crucial signifiers such as “fabric” (Vesalius), “pipe” (Descartes), “pump” (Harvey), et cetera.

But even the slaughter-house language used by Van den Berg to describe the pre-scientific exploration of the body, cannot be regarded as an immediate description of the real. An image of the body which emphasizes buttocks and abdomen, digestion and defecation, smelling bowels and daunting stomachs is already responding to a particular kind of aesthetics which flourished during the late middle ages, an aesthetics which Bakhtin (1968) referred to as the aesthetics of the grotesque. It allowed the body to appear as disproportionate and chaotic, fantastic and crude, enormous and inexhaustible, and emphasized those very aspects of bodily existence that were detested and abused by subsequent aesthetical standards. The grotesque body not only manifested itself in late medieval and early modern medicine, but also for example in penal practices of that same period. In the first chapter of *Discipline and Punish*, for instance, Michel Foucault (1975) describes how the bodies of criminals were boiled in pitch and oil, butchered and skinned, teared apart and chopped to pieces. Both the legal punishment and the medical dissection of human bodies were spectacular events performed on the market squares of late medieval and renaissance towns. One could perhaps say that the grotesque body, with its exaggerated emphasis on mutilation and dismemberment, digestion and defecation, intercourse and birth, buttocks and paunches, is situated on the borderline between the real

and the imaginary. In the final section, I will explain how the birth of modern medicine entailed another historical transition, a transition from the imaginary to the symbolical. This transition is exemplified by a famous set of drawings by Leonardo da Vinci, alternately devoted to the dissection of human corpses and the construction of hydraulic systems.

From proportion to system, from perfect measure to measuring: Leonardo Da Vinci’s anatomical work

One of Leonardo da Vinci’s most famous drawings, known as *The proportions of the human figure*, is situated on the borderline between the imaginary and the symbolical (Figure 1). On the one hand, the drawing presents us with an ideal aesthetical image of human perfection. On the other hand, it is a body which can be measured and described in a symbolical manner – notice the scale on the bottom of the picture! The quest for aesthetical perfection and the idealization of the human figure is about to give way to symbolization by means of mathematical equations.

In fact, the drawing is an illustration to a passage borrowed from a famous book on Roman architecture by Vitruvius (Book III, ch. 1). Leonardo’s writing, accompanying the drawing, is a free rendering of what Vitruvius said, although Leonardo did not copy the sentence which he in fact illustrated (Goldscheider 1959) – as if the drawing actually replaced the written word. The writing says, among other things, that the length of the face from the chin to the starting of the hair is a tenth part of the length of the human figure, and from the chin to the top of the head an eight part. The illustrated passages reads thus: “The navel is naturally placed in the center of the human body, and if a circle be described of a man lying with his face upward and his hands and feet extended, it will touch his fingers and toes. It is not alone by a circle that the human body is thus circumscribed, as may be seen by placing it within a square. For if we measure from the feet to the crown of the head, and then across the arms fully extended, we should find the latter measure equal to the former; so that the lines at right angles to each other enclosing the figure, would form a square” (Goldscheider 1959, p. 157; Vitruvius 1955–1956, III, c. 3, 3). To Leonardo as an artist, mathematics was the foundation of his art, but his use of mathematics was still rather pre-modern: it relied on the idea of proportion, on the quest for an ideal standard of human beauty. The Renaissance body is a work of art rather than an object of science. The Renaissance representation of the body is an idealization, an effort to present the body as a perfectly harmonious *Gestalt*.

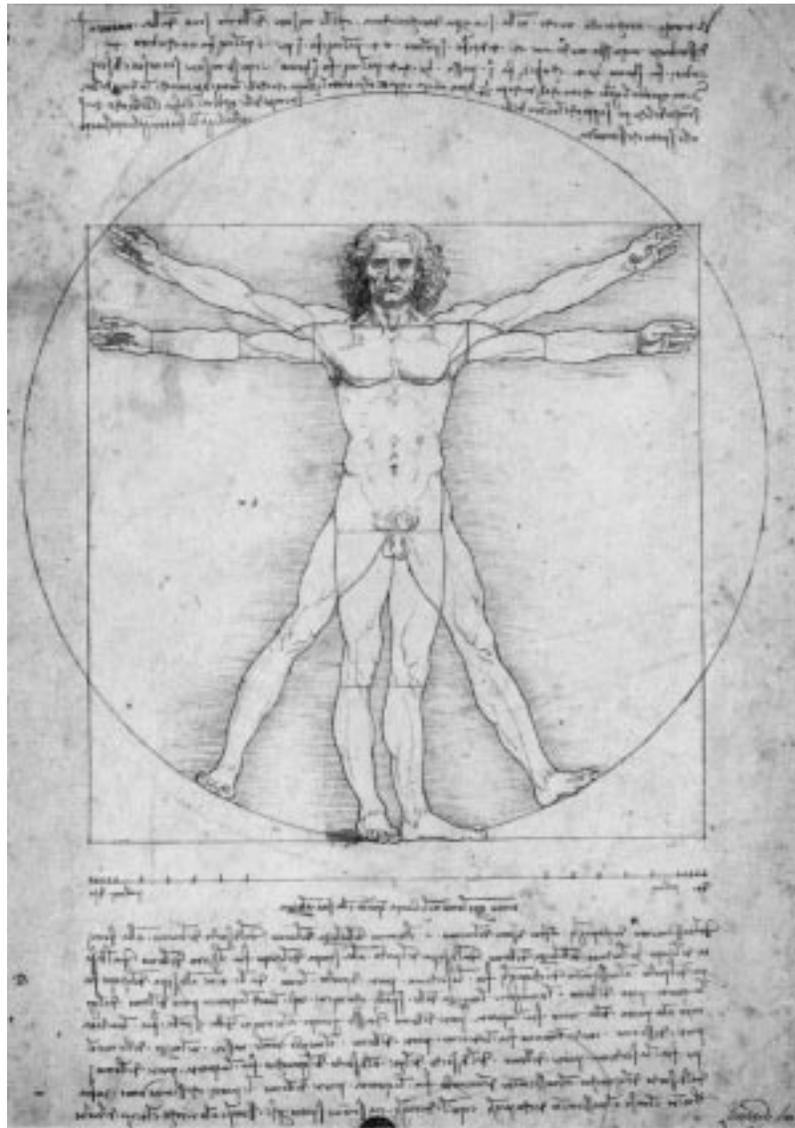


Figure 1. L. da Vinci: The Proportions of the human figure.

Leonardo produced a remarkable collection of anatomical drawings, with the objective of eventually assembling them into a book on human anatomy. He collaborated with Marcantonio della Torre in Pavia, an anatomist co-responsible for the revival of interest in the writings of Galen which culminated in Vesalius' ground-breaking work (Clayton 1996, p. 121). In Leonardo's drawings, the Renaissance emphasis on proportions is competing with the early modern emphasis on mechanisms, pumps and pipes. As a Renaissance artist, Leonardo claims that drawings describe natural things better than words (Da Vinci p. 173). Yet, towards the end of his anatomical career, the text begins to vie with the illustrations for primacy – several sheets contain solid blocks of text with only marginal sketches, drawing illustrating text and text explaining drawing (Clayton 1996, p. 126).

It is most interesting to read Leonardo's own commentary to his work. He explains, for example, that in order to discover what we call the symbolical body inside the real one, a whole series of dissections is necessary. Partly because the process of dissection harms and spoils the very tissues one is trying to investigate, partly because, once the body is opened up, the anatomist finds himself faced with “great confusion”, arising from the chaotic heap of membranes, muscles, bones and blood, the latter tinging and staining every part with the same colour, thereby preventing their proper identification. One cannot attain any knowledge of membranes and organs of the human body, Leonardo tells us, without confusing and destroying other ones (Da Vinci, p. 167). In other words, science destroys its object in order to discover it, but the real body (the smelling, messy, amorphous

one) seems to offer serious resistance to the penetrating gaze of science, although in the course of time, modern science succeeded in producing a great number of techniques for repressing and mastering the real more effectively (although the real will never be covered up completely). In short, the symbolical body is not simply *there*. Rather, it is a reconstruction based on the data of a countless number of dissections and supported by mathematics and other tools. The anatomist is constantly destroying, stemming, repressing and eliminating the real body in order to clear the way for the emergence of the symbolical one. Leonardo used to replace the soiled dissection notes by fair and well-proportioned copies. Nevertheless, all bodily parts are dissected in accordance with the same technical procedures, regardless of whether the author is busying himself with the muscles of the limbs, or with more “grotesque” items such as wombs and paunches, or the mechanisms of defecation (p. 131). But the effort to symbolize the real, relying on “methods of geometrical demonstration” (p. 173), was at times still inhibited by the grotesque aspect of corpses which are “quartered and flayed” and therefore “horrible to behold”. As to the question whether his epoch-making effort at symbolization and mathematization of the body was successful Leonardo writes: “The hundred and twenty books which I have composed will give their verdict ‘yes’ or ‘no’ . . . I have not been hindered by avarice or negligence but only by want of time. Farewell” (p. 173, *quaderni I 13 v*).

The birth of the “symbolical” body was prepared and made possible by the Renaissance obsession with proportion. The drawings by Leonardo indicate that the emphasis gradually shifted from proportions to systems, from perfect measure to exact measurement. Blood circulation, the respiratory system, the urological system and other systems were isolated from one another, were removed from the body as a unitary whole, and dissected separately. The body was described in mechanistic terms. In view of this, it should not come as a surprise that the anatomical studies to which Leonardo devoted himself during the later part of his life, partly coincided with his ingenious hydraulic and mechanical studies and inventions.

In view of all this, Leonardo has become the object of idealization, a scientific hero, someone regarded as a genius, the object of a cult (S4, Envoi 3). Lacan agrees that his outstanding achievements display a remarkable level of creativity and ingenuity, but stresses that his genius notably manifested itself in the realm of the intuitive, whereas his efforts to symbolize the real were eventually inhibited by his reliance on the imaginary. His anatomical notes are replete with the notion that every part has a function in the body as a whole, perfectly made by the Creator, as well

as with references to the teleological philosophy of Galen, and often they are more about representation than about anatomy (Goldscheider 1959). His reluctance to abandon his reliance on what can be actually *seen*, prevented him from really understanding the circulation of the blood. And although he continued to cultivate the study of mathematics all his life, for instance by contributing geometrical drawings to a book of his friend Fra Luca Pacioli, the title of this book – *Divina Proportione* – still indicates the Renaissance obsession with proportion and perfection. According to Lacan, the true break-through of symbolization, the first truly consistent effort to mathematize the real, remains the accomplishment of Galilei. His genius is of another, more modern kind and resides in his systematic reliance on a mathematical methodology, at the expense of appearance, the imaginary and the intuitive, at the expense of *Anschaung*. Galilei’s achievement results from his reliance on algebraic formula rather than visual experience, formula that can never completely realize themselves in the world of everyday existence because of the many interfering circumstances – the noises of the real. Galilei’s genius resided in the insight that the *Book of nature* was written in algebraic symbols rather than in primordial images or types.

Nevertheless, Leonardo’s astonishing drawings announced the early modern effort to discover hydrodynamic and mechanical “instruments” (Da Vinci 1938, p. 166) inside humans and animals. Initially, science was looking for what Vesalius referred to as the “fabric” of the human body. Descartes speaks consistently about *La machine de notre corps*. Later on, the hydraulic and mechanistic templates were replaced by a tendency towards digitalization, culminating in the discovery of DNA and the invention of the CT-scan. The body became a computer rather than a machine.

The real is idealized and sublimated by the imaginary, and structured by the symbolical. The imaginary body is harmonious, appropriate and beautiful (with the grotesque body serving as its absurd reversal or counterpart, cf. Zwart 1996). The symbolical body is constituted with the help of a technical nomenclature composed of neologisms, foreignisms and abbreviations – a process which aims at eliminating the non-factual, the non-measurable, but which inevitably produces a residu, a remainder of its own: the traces of the real. Yet, the true body as such – *homo natura* – is absent; the body as it is perceived by us, is interpretation rather than text. The body is an interpretation for which the ground text or original text (*homo natura*) is missing. A vitalistic interpretation of the real, for instance, is still an interpretation. But we must not take the term “interpretation” too lightly. *L’homme-machine*, the body-as-organism and

other interpretations are not mere images or figures or speech, but rather symbolical systems composed of signifiers (endo-, meso-, ecto- etc.) allowing the body to become an object of science.

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