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Body Image in Neurology and Psychoanalysis: History and New Developments

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While the self-representation of our bodies is a key element in our belief that we are autonomous individuals with a “first-person perspective,” the term *body image* covers and has covered a variety of meanings. In neurology, this term currently designates the verbal representation of the body parts. Psychoanalysis considers body image as intertwining the imaginary and symbolic aspects of identity, and insists on its dependence on the Other’s regard; this link to regard appears in the term *specular image*. This paper first presents a history of the modern psychiatric, psychological and neurological conceptions of own-body representation. Next, it considers applications of the Lacanian notion of *specular image* in neurological disorders of body image.

Keywords: body image, specular image, somatoparaphrenia

There is very little a human being is more certain of than the fact that he has a personal autonomous individuality and that this individuality is closely linked to his body.¹ However, this “fact” is perhaps too self-evident, as

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¹Following the example of Allan Sheridan (1977), we will employ the masculine pronouns each time the human subject is designated: this corresponds to the French tradition of using masculine pronouns to indicate either a male person or a person characterized independently of his/her gender.

expressed in a subtle manner by the neurophysiologist Sherrington. In his discussion of the specificity of the human individual vs. animal organisms, Sherrington wrote:

Each waking day is a stage dominated for good or ill, in comedy, farce or tragedy, by a dramatic persona, the "self." And so will it be until the curtain drops. The self is a unity. The continuity of its presence in time, sometimes hardly broken by sleep, its inalienable "interiority" in (sensual) space, its consistency of view-point, the privacy of its experience, combine to give it status as a unique existence. It regards itself as one, others treat it as one. It is addressed as one, by a name to which it answers. The Law and the State schedule it as one. It and they identify it with a body, which is considered by it and them to belong to it integrally. In short, unchallenged and unargued conviction assumes it to be one. The logic of grammar endorses this by a pronoun in the singular. All its diversity is merged into oneness. (1948, p. xiv)

With these words, Sherrington intended to contrast the unifying tendency of the self (which perceives a unique whole visual field) with the heterogeneous and distributed nature of brain functions (which he illustrated by the bilateral visual projections in binocular vision). A psychoanalyst could read this text as "preLacanian" in its point of view: it alludes to something fictitious in the fact of having a self (in the theatre vocabulary and in the expression: "it regards itself as"); even that an individual owns his body sounds like a mere opinion of himself and others. It also underlines the extra-individual and heterogeneous correlates (the Law, the State, grammar) of some characteristics of this autonomous self. On the other hand, the same psychoanalyst would observe that Sherrington, as is true of most neurophysiologists and neurologists after him, does not say a word about narcissism, i.e., about the fact that the "self" and particularly the body is loved by its owner (see for example Paillard, 1999). If one now turns to Freud's (1914) seminal article on narcissism, it is noticeable that Freud only allusively mentions the unifying concept that every person has of both his body and his identity: "a unity comparable to the ego cannot exist in the individual from the start" (Freud, 1914, pp. 76-77). Nor did he allude to the neurological alterations of body awareness that were already known at this time. After and unlike Schilder (1935/1999), neurologists have used the term body image (for references see Hécaen and de Ajurriaguerra, 1952) without referring to narcissism. Nowadays, Lacanian psychoanalysis considers that body image has a prominent role in building the necessary narcissistic illusion of the unity of the self (Lacan, 1966/1977a). On the other hand, current psychoanalytical studies (Kaplan-Solms and Solms, 2000) of neurological disorders of space and body representation do not give a prominent place to body image disorders in their interpretation. In this complex history, except for the attempt by Schilder (1935/1999), there has never been an explicit dialogue between neurology and psychoanalysis regarding the self-representation of the human body. Presently, the exploration of

various aspects of body representation by neuroscientists (see, for example, Decety and Sommerville, 2003) does not mean that a true dialogue takes place: instead, neuroscientists plea for unifying or integrating psychological and neurological sciences (see Decety, 2002).

Brief History of the Self-Representation of the Human Body: Cenesthesia, Body Schema, Body Image, Specular Image, and Neuropsychology of the Self

Since the work of Schilder, neurologists, psychologists, and psychoanalysts have repeatedly used the term *body image*.² While neurologists, until very recently, often used the terms *body image* and *body schema* interchangeably, psychoanalysts attributed different meanings to each term. All researchers currently agree calling body schema the non-conscious device that allows us to automatically adjust our gestures to the position of our body in space (for references see Schwoebel, Coslett, and Buxbaum, 2001). The existence of such a device is inferred from neurological pathology; a striking example is furnished by left hemineglect after right hemisphere lesions, when patients fall or bump into obstacles because they behave as if their left hemibody does not exist.

Unlike body schema, body image has taken on numerous meanings. Cognitive neuropsychologists interpret this term as referring to the multiple verbal representations of the body, its parts and its spatial relations with clothes or with other bodies — that are disturbed in left temporo-parieto-occipital lesions (for references see Schwoebel, Coslett, and Buxbaum, 2001). Interestingly, Gallagher (Gallagher, 1986; Gallagher and Cole, 1995) considers that body schema is “an anonymous performance” while body image is personal and subjective. Cognitive neuropsychologists might thus seem to be at one with psychoanalysts, since the same distinction is made by Dolto (1984, p. 7). But, for Gallagher, “subjective” refers to some kind of personal diachronic history, while psychoanalysts consider “subjectivity” the structural device according to which the individual’s desire is involved in all his perceptions or actions.

From cenesthesia to body schema. When examining the theories of the relations between body and subjectivity, one finds authors who attributed a specific function to body representation — using the terms of cenesthesia, body schema or body image. Jean Starobinski (1977) analyzed the creation and promotion first of cenesthesia by Hübner (1794, cited by Starobinski, 1977, pp.

²Here we do not consider trivial acceptations of the term body image, which are found in the literature on eating disorders (Stein, Orbach, Shani-Sela, Har-Even, Yarulasky, Roth, Meged, and Apter, 2003) and handicaps (Keppel and Crowe, 2000), insofar as they merely refer to the physical body appearance.

2-3) and Schiff (1874/1894, cited by Starobinski, 1977, pp. 7-9), and later of body schema by Bonnier (1902).³ When the term first appeared in 1794, cenesthesia was defined by Hübner (cited by Starobinski, 1977, p. 3) as "a general sensitivity (*Gemeingefühl*) that represents to the soul the state of its body." Schiff (1874/1894) later explained how this general sensitivity functions:

If, for example, an irradiation (from excitation toward centers) goes to a sensory center, it will awake there the image of a color, a tone or an object; an auditory impression may thus produce a visual sensation or an auditory impression or both together; such a secondary sensation will in turn produce a tertiary one and so on. In this way, a unique sensation may awake an infinite chain of central sensations, of sensory images, and, since all our thought moves in such images or, to express it more exactly, is nothing but a series of central images, i.e., of excitation of central end of sensory nerves, it happens that a sensation may produce a series of thoughts which, when linked to the primary sensations, must complete or rather create cenesthesia.⁴ (quoted by Starobinski, 1977, pp. 7-8)

In line with this, Séglas (1895) considered that disorders of cenesthesia had a prominent responsibility in melancholia: according to him, it is "a painful bodily feeling," "a new painful cenesthetic state" that "creates a new psychic habit" and is thus the first and perhaps the main cause of moral pain. In the same line, Dupré and Camus (1907) described *cénestopathies*:

We propose to designate under the term of cenestopathy the disturbance of those sensations that continuously reach the brain, coming from all body areas, and which, in a normal state do not attract our attention through any particular characteristic in either their intensity or their mode. We know how important the field of cenesthesia is; beneath the field of conscious perceptions, it constitutes the primary foundations of our personality. (p. 616)

For these authors, psychic life thus consists of interactions between the body and the external world, both of them being at the origin of multiple stimulations, the combination of which constitutes the psyche. At the same time, Freud (1914) insisted that in narcissism both the Ego and the body were invested by libido. He indicated in one and the same sentence that some acquired process should permit the building of the Ego and henceforth the change from autoeroticism to love of the body (narcissism). However, he did not hypothesize on the type of body-Ego relationship that might exist in narcissism.

The otologist Pierre Bonnier (1902) should be recognized for putting forward the idea that body representation is the representation of a form. Bonnier was interested in defining the specific normal function disturbed in vertigo, and proposed to name this hypothetical function *sense of attitudes*.

³Hübner's thesis being written in Latin, the term Hübner created was coenesthesia.

⁴All quotations from French sources are translated by the present authors.

"Sense of attitudes," he claimed, "gives us the notion of the place of every part of ourselves" (p. 146). This led him to claim that the brain contains a *schema* of our body, as well as to attack the concept of cenesthesia as a general sensitivity: according to Bonnier (1902, 1905), the only general property that is common to all sensations is something he called *schematia*, i.e., "the topographical definition, the notion of space, of localization" (1905, p. 605). Head (see Head and Holmes, 1911) also considered postural data as the basis of body representation: for him the brain has a "postural standard" available, and this postural standard is constantly readjusted and all new perceptions are referred to it. The spirit of this conception is very near to Bonnier's *schematia*. However, unlike Head, Bonnier (1902) explicitly associated body schema, Ego, and world representation:

A given thing obtains a real existence for us only through the identity of the localization of its various sensory aspects; the topographic distribution of things in relation to ourselves and to each other in our milieu allows us to localize sensations outside, creates the notion of objectivity; in the same way, the notion of subjectivity depends on the localization of things inside ourselves, and these two terms Ego and non-Ego arise from the most direct operations of the attitude sense. (p. 147)

In any case, from the time the notion of schema was put forward by Head and Bonnier, it was acknowledged that a non-conscious but organized spatial representation is interposed between the human subject and his body.⁵ This victory of form is a crucial turning point because it implies that the knowledge we have of our own body does not directly result from a perceptive operation. In the 1930s, psychology (see Wallon, 1931/1981), psychoanalysis (see Schilder, 1935/1999 and Lacan, 1966/1977a), and neurology (see Lhermitte, 1939/1998) continued to work out the question of body representation, but one can say that they crossed each other's paths without meeting.

The notions of own-body and body image in psychology, neurology, and psychoanalysis. In his article entitled "How Children Develop the Notion of Their Own-Body," Wallon (1931/1981) described the process whereby the child, who previously treated his own body as if made up of distinct parts, each with a personal life of its own, discovers and recognizes his whole image in the mirror.⁶ Wallon mentioned that the child displays a jubilant activity in front of his mirror image and turns toward the accompanying adult (pp. 34–35). Wallon also wrote that, unlike animals, for example young chimpanzees, the human child continues to be interested in his image even after recognizing its illusory nature (p. 41). It is noticeable that the child recognizes the form of his body

⁵Today, the term cenesthesia is still used when speaking of non-conventional treatments (Manfredi and Chiodo, 1999) or ill-defined pain (Biasi, Badii, Magaldi, Moltoni, and Marcolongo, 1999).

⁶A child may thus offer pieces of cake to his toes (Wallon, 1931/1981, p. 28).

somewhere between six and 24 months, when his body schema in the neurological sense is not yet built (Lurçat, 1979).⁷ Wallon underscored that, at that time, the child “unifies his body in space” although what he can only perceive as a whole is an image, and notes that this is “the prelude to symbolic activity, through which the mind can now transmute the sensory data into a world” (1931/1981, p. 39), but Wallon did not fully develop this point.

While Wallon was interested in the normal development of the notion of own-body in children, neurologists and psychoanalysts analysed the pathological disturbances of body representation in adults. Ludo van Bogaert (1934a, 1934b) used the term “disorders of self-image” to characterise both the amputees’ phantom limb phenomenon and a variety of cerebral disorders (unawareness of hemiplegia, distortions of space perception, etc.); he occasionally used the term “body image.” In 1935, Schilder — both a neurologist and a psychoanalyst — gave the term body image a specific significance. Schilder’s work underscored the role of *regard* in the constitution of body image and the unifying character of body image: “The image of the human body means the picture of our own body that we form in our mind, that is to say the way in which the body appears to ourselves. There are sensations Beyond that there is the immediate experience that there is a unity of the body. This unity is perceived, yet it is more than a perception” (Schilder, 1935/1999, p. 11). Schilder defined body image with paradoxical formulae: “The term indicates that we are not dealing with a mere sensation or imagination. There is a self-appearance of the body. It indicates also that, although it has come through senses, it is not a mere perception. There are mental pictures and representations involved in it, but it is not mere representation” (p. 11). The use of the terms “appears” and “picture” indicates that, for Schilder, our own-body representation involves a visual and not only a postural representation. Schilder divided his book into three parts: physiologic basis, libidinal structure, and sociology of body image. The physiological basis of body image described the neurology of our normal and pathological body perception and representation. The libidinal structure of body image was organized around body orifices, i.e., what Freud (1905) named the erogenous areas. Schilder described the rich variety of symbolic and imaginary neurotic or psychotic symptoms that involve those areas. The modern reader might therefore wonder if, in the eyes of Schilder, the rest of the body might be

⁷The fact that very young babies are able to imitate adults (Zazzo, 1957) leads Gallagher and Meltzoff (1996) to conclude that body schema is at least partly innate. However, inferring from face to body representation is perhaps risky, insofar as reacting to a visual stimulation from a face or a body may involve different processes. The mother’s face is a specific stimulus in the very first days of child–mother relations (Pascalis, de Schonen, Morton, Deruelle, and Febre–Grenet, 1995). In addition, recognizing the form of human bodies involves a cerebral area which is distinct from that activated in human face recognition (Downing, Jiang, Shuman, and Kanwisher, 2001).

“non-erogenous,” i.e., not invested by libido. Schilder seems reluctant to think that “non-erogenous” body parts might be invested by libido. This reluctance might explain the embarrassment of Schilder when commenting on the unawareness of their paralysis by patients with left hemiplegia (anosognosia). According to Schilder, anosognosia consists of “a focused organic repression,” “an organic repress,” which allows the patient to “forget” that he is crippled: “When I use the term organic repress, I wish to emphasize that we are concerned with phenomena which on a structural level repeat what is going on in other repressions in the so-called purely psychic level” (p. 32). This definition implies that a loss affecting body mastery or representation has not any specificity. However, in Schilder’s view, things are not so simple, since he considers that organic functions have specific psychic companion functions: “Every change in the organic function is liable to bring forth with it psychic mechanisms which are akin to this organic function” (p. 32). Schilder contends that the specificity of left vs. right hemiplegia for unawareness of paralysis is linked to a normal organic disposition — the higher motor competence of the right vs. left side. But, as a psychoanalyst, Schilder is not entirely satisfied by this hypothesis, since he also mentions that the “psychosexual” aspects of left paralysis unawareness should deserve further exploration. In other words, Schilder seems to oscillate, at times merely superimposing the problematic of psychic reactions to loss upon neurological symptoms, and at other times speculating upon the organic — and not symbolic — aspects of right vs. left side differences.⁸ This oscillation indicates the difficulty of establishing a dialogue between neurology and psychoanalysis, even for a researcher practising both disciplines. In particular, Schilder seems to have found it impossible to make a connection between the body’s erogenicity and body representation or perception.

Unlike Schilder, Jean Lhermitte developed a purely neurological analysis of pathological body representations. Nevertheless, the title of the book he published in 1939, *L'image de Notre Corps* [The Image of Our Body], by itself implies that body image is attached to subjectivity. Lhermitte (1939/1998) acknowledged Schilder as the creator of the term body image, and he retained from Wallon’s (1931/1981) observations that body knowledge is not innate but is acquired. While Lhermitte did affirm that body image is recorded in brain structures, and while most of his book is devoted to the alteration of body image by brain lesions, he claimed: “It would be vain to seek in the nervous system a fixed and rigid organic device to support an image as variable, as full of sense and history as our body image actually is” (1939/1998, p. 144). From these assertions, one may argue that body image is a form, but a form

⁸It is noticeable that Schilder, unlike his contemporary Ferenczi (1919/1952) in his study of hysterical stigmata, did not mention the symbolic associations that commonly make the left the “bad” side.

that cannot be reduced to a postural or visual schema. Lhermitte not only insists that body image is “full of sense and history,” but his detailed observations of what he called “generalized asomatognosia” may be now read as cases of psychotic depersonalization and not neurological disorders. Thus, Lhermitte seems to have had some insight into the fact that body image is not reducible to either a mere sensorimotor device or a neutral object of perception. Lhermitte’s book describes a variety of alterations of body knowledge or representation — phantom limbs, anosognosia (unawareness of left hemiplegia), asomatognosia (delusional disownership of the paralyzed left hand), autotopagnosia (misnaming of left or right body parts). From the time of Lhermitte, these symptoms became interchangeably characterized in the neurological literature as disorders of body schema, disorders of body image (see for example Critchley, 1953), and disintegration of somatognosia (Hécaen and de Ajurriaguerra, 1952).

Lacan, specular image, narcissism and object. In two sessions (1936 and 1949) of the International Congress of Psychoanalysis, Lacan made presentations devoted to narcissism and specular image (see Guillerault, 2003, pp. 267–272). It was not until 1966 that the 1949 text was published under the title “The Mirror Stage as Formative of the Function of the I as Revealed in the Psychoanalytical Experience” (Lacan, 1966/1977a), but Lacan unceasingly worked on his concept of body image and narcissism, in particular in his seminar on anxiety (Lacan, 1962/2004). Lacan made a crucial step, insofar as he proposed a well-founded theory to explain how body image may become “full of history and sense” — as emphasized by Lhermitte (1939/1998), how autoeroticism may be replaced by narcissism — a point that Freud (1914) left unexplained. This step relies on a reinterpretation of Wallon’s (1931/1981) observations, which Lacan reread in terms of identification: for him, during the mirror phase, the body passes from a *real* state (fragmented body) to an *imaginary* register (virtual image). Lacan stressed that this identification, which takes place during the mirror phase, is crucial for subjectivity: he employed the term identification in its literal sense, i.e., the acquisition of the psychic structure that supports any individual identity. The human subject thus identifies himself with an *image* (*imaginary* identification). This image is the image of a complete body, erected, seen as a whole. In addition to this imaginary identification, Lacan specified that the mirror phase also involves a *symbolic* identification: the adult indicates and recognizes the body as being that of a singular child with a personal name.⁹ Words, which are symbolic elements, are thus attached to that image (Lacan, 1966). Winnicott (1967/1982) also insisted upon the crucial role of the regard of the mother in the structur-

⁹Lacan (1966) revisited the terms ideal ego and Ego ideal coined by Freud (1923); he referred the former to the virtual form of body image and the latter to the symbolic traits that represent the subject in the register of language.

ing of what he called the self. This process makes the infant a human subject, who recognizes his body as a whole, similar in its form to others' bodies, while it is his own body recorded in filiation and sexual belonging, insofar as it has been given a name.¹⁰ Lacan (1962/2004) calls this complex structure *specular image* (see also Thibierge, 1999b). Specular image thus gathers three heterogeneous aspects that are intertwined, entangled together: the real body, its imaginary form, and its designation in the register of language.

Lacan was not at all unaware of the neurological correlates of body representation: he insisted on the discordance between the human motor organic immaturity and the ability of the infant to identify with a whole form, and he qualified the cerebral cortex as "the intra-organic mirror" (1966/1977a). He also referred to the phantom limb phenomenon (for references see Melzack, 1990; Ramachandran and Hirstein, 1998) to illustrate the normal unawareness that characterizes our intuitive own-body representation. However, according to Lacan, normal unawareness extends far beyond not acknowledging organic deficiencies, and perhaps the term ignorance would be more convenient. The human subject is primordially unaware of his own symbolic and *real* determinations. First, we are not aware of the role of the symbolic traits, which were attributed to us from and before our birth in making our body image a unique whole form regarded as one and the same. This is a first important difference from the current neurological conception of body image. The second uppermost specificity of the psychoanalytic conception of body image is that the body is libidinalized, pregnant with narcissistic investment. This narcissistic investment is closely linked to the relations between body image and what Lacan called the *object*.

Lacan and the object. While Freud (1914) only took note of the fact that we love our body, Lacan specified the two aspects of this libido attached to the body. He insisted that on the one hand, the human subject is captivated by the form of the human body (Lacan, 1966/1977a), and on the other hand, the body is represented for an Other, i.e., it is necessarily experienced — in a positive or negative light — as an object of desire for others (Lacan, 1966/1977c).¹¹ Lacan qualified these fundamental aspects of the psychic cor-

¹⁰The full title of Lacan's communication on the mirror stage is "The Mirror Stage as Formative of the Function of the I as Revealed in Psychoanalytic Experience" (our emphasis). This clearly indicates that having a name attached to a particular body is the condition for a human subject to talk in his own behalf and to conceive others as different individuals, each with a singular image and a singular name.

¹¹Lacan distinguishes between two kinds of otherness: the other, that is, the fellow creature, whose form is fixed by identification to mirror image; and the Other, that is, the language determinations which constitute the subject, while being alien to him or her. Even before a person's birth, the Other in language registers the subject at a certain place and assigns symbolic marks to the subject. Being radically alien to the child (because of the incest prohibition), and the first to symbolically represent the child in her words and her relation to it, the mother is the first incarnation of the Other.

relates of body representation as *real* insofar as they are not reducible to the symbolic or imaginary aspects of body representation: what I represent for the Other and his desire is precisely that which I can neither master nor have a clear knowledge of. Only that impalpable value may explain why a given body — sometimes one's own body — may have a particular shine or appeal for a subject, although it could be considered as nothing but a variant of a standard form. In other words, a narcissistically invested body represents the subject's question regarding his ability to please, to suit the Other's regard, the Other's demand or desire. This enigmatic value, this impalpable *x* is what Lacan called *object* (Lacan, 1962/2004, 1966/1977c). This notion of object, which Lacan considered his major contribution to psychoanalysis, does not contradict the one proposed by Freud (1905), since the suitable object for the Other's desire or demand may be represented, according to Lacan, through four fundamental aspects: the breast, the faeces, the regard, and the voice, i.e., bodily extensions involved in mother-child relationship, two of which are among the Freudian libidinal objects. However, Lacan's crucial contribution is first to show that it is the symbolic value of these body extensions, and not only their involvement in sexual life or in the stages of bodily education, that make the corresponding body areas erogenous (Lacan, 1966/1977c): the mouth is the area where not only food but also love are demanded of the Other; the eye and the ear are the areas where the Other's demand or desire is expressed through regard or voice; the anus is the area where the Other exerts his demand. Secondly, and above all, the fundamental property of the object is a negative property, that of lacking, of not being present in body image. This lack, which may appear as a primordial irreducible loss, is designated by psychoanalysis as castration (Lacan, 1966/1977c). In addition, it is precisely insofar as body image lacks this object that this image may gain consistency, and our own or others' visible bodies may arouse our desire. This lack, the precise coordinates of which we are normally unaware of, has a kind of positive symbolic representation, under the guise of the phallus — but as a purely symbolic element, a *signifiant* (Lacan, 1966/1977b). For example, the "normal" representation of the human body image as standing, symmetric and erect implies interference between this phallic signifiant and the imaginary body representation. It is necessary to underline that any other positive appearance of the lost object has disorganizing effects. These effects extend from Freudian "uncanniness" (Freud, 1919) to depersonalization, through the varieties of feelings of strangeness that have been described in classical psychiatry (for reference, see Thibierge, 1999b).

Lacan's conception of subjectivity and body image has proved an economic and coherent pattern for analyzing psychotic identity disorders. Thibierge (1999a) recently proposed reducing the various "delusional misidentification syndromes" to the avatars of one and the same disturbance, readable in all psy-

chotic patients: following Czermak (1986), and based on the clinical aspects of the Fregoli and Capgras syndromes, Thibierge proposed that this common disturbance consists of a non-entangling of body image and naming. He considers that, due to this non-entangling, the proper name (in the sense of a person's own name) does not refer to the variants of one and the same singular image, as in normal cases (see footnote 9). As a result, names and images proliferate into an infinite series of duplications. This non-entangling also results in an undue persistence in the foreground of the non repressed object.¹² It is the *identification* of this intrusive object that makes every human image colored with a persecutory value, and impedes the *recognition* of either its variability from one individual to another (as in the Fregoli syndrome) or the stability of a given image through time and space (as in the Capgras syndrome).

Lacanian psychoanalysis thus emphasizes, contrary to our intuitive apprehension of having a unified and autonomous self, that human subjectivity is heterogeneous and "Other-dependent." It involves three levels, three registers: (i) the object — the modalities of the subject's value and of his position in the Other's eyes, (ii) the body image, and (iii) the *signifiants* which represent the subject in the symbolic order. In his "Comments on Daniel Lagache's Report," Lacan (1966) claimed that the route of a psychoanalytic cure may allow the subject to catch a glimpse of that compound structure, insofar as it leads the subject to apprehend himself from the Other's place.¹³

The neuropsychology of the self. We should not fail to mention the variety of studies that are currently devoted to studying the "first-person perspective" (for references see Decety and Sommerville, 2003), even though they are nei-

¹²This conception does not imply any a priori postulate regarding the cause of psychosis and should not therefore contribute to feeding controversies in this field.

¹³Pathological conditions may also make this heterogeneity apparent. An example is to be found in "The Little Locksmith" (Hathaway, 2001). In this autobiography, the reactions of a crippled girl who has been bedridden by spinal tuberculosis for many years, are described:

When I got up at last, fifteen years old, and had learned to walk again, one day I took a hand glass and went to a long mirror to look at myself, and I went alone. I didn't want anyone, my mother least of all, to know how I felt when I saw myself for the first time. But there was no noise, no outcry; I did not scream with rage when I saw myself. I just felt numb. That person in the mirror couldn't be me. I felt inside like a healthy, ordinary, lucky person — oh, not like the one in the mirror! Yet when I turned my face to the mirror there were my own eyes looking back, hot with shame. (p. 31)

I looked into the mirror and I was horror-struck because I did not recognize myself. In the place where I was standing, with that persisting romantic elation in me, as if I were a favored fortunate person to whom everything was possible, I saw a stranger, a little, pitiable, hideous figure, and a face that became, as I stared at it, painful and blushing with shame. (p. 36)

This text clearly shows how the discrepancy between the symbolic traits, the words attached to the body image of the patient (a lucky, ordinary person) and the strange appearance of the real "little hideous figure," momentarily prevents the patient from identifying with her body image.

ther neurological nor psychoanalytical in nature. Most of these studies consist of using neuroimaging to assess the variations of brain metabolism in mental states posited to be involved in the first-person perspective. The interest of these descriptive studies is to localize a variety of brain structures involved in self-representation. Vogeley and Fink (2003, p. 42) thus conclude their review: "Evidence from functional imaging, neuropsychology and lesional data imply medial cortical structures (comprising anterior mediofrontal, medial parietal and posterior cingulate cortex) and inferior lateral parietal cortex as the basic neural mechanisms involved in IPP [first-person perspective]." Despite the apparent modesty of such conclusions, the authors do in fact develop a theory of mind-brain relations. Vogeley and Fink (2003) thus write: "With respect to cognitive neuroscience, the question of the self can be reformulated as: which neural ensembles underlie (and may thus be responsible for) the "subjective" nature of those mental and bodily states that are candidates for self-consciousness?" (p. 42). Along the same line, Decety claims that "neuroimaging makes it possible to put neurobiological and psychological approach in the same epistemic bipolar space" (2000, p. 57) and that: "Mental processes, and particularly those — numerous in Homo species — which are universal, must be described in terms that make evident that they are achievable by one brain ["un cerveau" in French]." Such a unifying program, which was previously developed by Henri Ey (1947/1998), has advocates not only among neuroscientists but also among psychiatrists and psychoanalysts, who explicitly direct their efforts at integrating psychoanalysis and neuroscience (Kandel, 1999; Kaplan-Solms and Solms, 2000; Schore, 1997).¹⁴

Some authors consider first person perspective accessible to direct introspection. Johnston, Baxter, Wilder, Pipe, Heiserman, and Prigatano (2002), for example, ask their participants to respond to a variety of statements requiring knowledge of and reflection on their own abilities, traits and attitudes (e.g., "I forget important things," "I'm a good friend," "I have a quick temper"). Vogeley and Fink (2003) give a list of the psychological or physiological functions involved in first person perspective: they successively consider spatial cognition, distinguishing between one's own and others' intentions to act, "mindreading," and body representation, to finish with a hypothetical self-reference, resting state. They also claim that "the specific subjective perspectivalness in the first person account is realized by the integration of both

¹⁴However, not only psychoanalysis but also anthropology and ethnology demonstrate that, in Homo species, the development of one brain is necessary but not sufficient to create an individual psychic subject. Such a creation rather necessitates that this brain is in relation to a particular language system (Levi-Strauss, 1962), which is outside and antecedent to each individual brain (Saussure, 1916/1987, pp. 23–35). There is currently no scientific knowledge that allows us to assume that the laws governing this creationist power of language are either identical to or parallel to those of neural functioning.

the subject and the world model as the two main constituents of the internal representation framework" (pp. 41–42), thus maintaining the dual organization of first person perspective.

The Contribution of Lacanian Psychoanalysis to Understanding Recognition and Pathological Identification

As emphasized by Thibierge (1999b), our body image provides the ground pattern of our entire world representation. As a result, what we ordinarily call perception consists of recognizing structures which are familiar, i.e., congruent with our body representation, while our purposeful observations are guided by the search for the lacking, lost object. Of course, the relationship between perception and body representation had already been discussed by Merleau-Ponty (1945/1975); but it was Lacan who gave a role to a *lacking* object in organizing our perception. This conception thoroughly differs from the implicit postulates of cognitivism, which is only concerned with the positive characteristics of perceptible objects (be they things, other people, or mental representations). It also allows a true dialogue to be opened between neurology and psychoanalysis. Indeed, under the hypothesis that normal knowledge is linked to the neutralization of the object, it is legitimate to consider the possibility that neurological agnosias may involve a default of this neutralization. Such a hypothesis has been put forward by Thibierge (1999a) based upon classical neurological observations. For example, when analyzing the observations reported by Hécaen and Angelergues (1963), Thibierge noticed that when a neurologist explores visual agnosia, "the patient stares at, envelopes with his regard" the objects he cannot give a name to (p. 145). The "surprise and anxiety" caused by this inability are, according to Thibierge, attributable to the appearance in the field of reality of "the regard as an object, instead of a thing to be looked at" (p. 147). Thibierge thus suggested that the neurological agnosias could be associated with or result in specular image alteration, thus bringing the normally repressed object to the fore (Thibierge, 1999a). We have confirmed this hypothesis, already briefly evoked by Delahousse (1972), in modern observations of right brain injured patients with asomatognosia and somatoparaphrenia.

*A Possible Dialogue between Neurology and Psychoanalysis:
The Case of Asomatognosia and Somatoparaphrenia*

While persisting left hemineglect (lack of attention to or interest in stimuli in the left hemisphere and/or hemibody) is very commonly observed after right hemisphere lesions (Heilman, Valenstein, and Watson, 2000), asomatognosia is a rare and transitory symptom observed after extensive right hemispheric

lesions (see Lhermitte, 1939/1998). It consists of the patient not recognizing his left paralyzed arm as his own. Asomatognosia may be accompanied by productive symptoms called somatoparaphrenia (as defined by Gertsman, 1942): assimilation of paralyzed limbs to an inanimate, cumbersome or supernumerary object, or personification of the paralyzed limbs. This assimilation to a person or to an object is often colored with hatred or despises, an attitude that Critchley (1962) called misoplegia. Many different psychological interpretations of somatoparaphrenia have been proposed. Halligan, Marshall, and Wade (1995) and Feinberg (2001) consider it to be a rationalization that allows the patient to cope with the traumatic failure of his body schema, or to express feelings regarding his own situation. Other authors consider somatoparaphrenia as meaningless productions (Laplaine, 1998). Nevertheless, the productions can display recurrent themes, which are stable in a given patient and may be similar from one patient to another. Feinberg (2001) thus noticed that female patients very often personified their hands as their husbands.

The present authors have published several observations (Morin, Durand, Marchal, Timsit, Manai, Pradat-Diehl, and Rancurel, 2002; Morin, Taillefer, Vallat, Helsly, Thibierge, and Pradat-Diehl, 2001; Morin, Thibierge, and Perrigot, 2001) in which various reflections of the object appeared in the discourse or behavior of patients with somatoparaphrenia and/or asomatognosia. Patient PR (Morin, Taillefer, Vallat, Helsly, Thibierge, and Pradat-Diehl, 2001) described his problems in terms not of a space-processing disorder, but of a variety of disorders that he mentioned in one and the same series: on the one hand, body image disorders (having "holes in his body"), and on the other hand, problems with the oral object (eating and speaking too fast, addressing unceasing and urgent demands to his wife). Two patients attributed oral characteristics to their left hand (Morin, Durand, Marchal, Timsit, Manai, Pradat-Diehl, and Rancurel, 2002): patient QR (who also said that his hand was like him, it had worked too much) explained that he had seen "a left arm passing" and that he had "felt like biting" this arm; patient DN, a right-handed man, kissed his interlocutor's hand "because I can't shake hands" and put forward the same reason for having drawn enormous lips besides his self-portrait. In three women, we observed a "little daughter personification" (Morin, Thibierge, Bruguière, Pradat-Diehl, and Mazevet, 2005). MN, a childless woman aged 69, "invented a scenario" which, she said, "consoled" her. Her left hand was her daughter, who was born on the day when her stroke occurred, and who lay in the armrest of the wheelchair as in a cradle. She gave this daughter a name: she called her "leaf." Another patient [MM] said that her hand wore the "name of her husband" and described its childish behavior ("It behaves reverse to us, it plays during night and rests daytime, it is a lazy bones"; "In the night, it comes stealing under me and scratches me"; "It is probably angry with me for not taking care of it"). Another patient [DS],

when questioned about her children, vigorously shook her paralyzed arm and said: "Mimi, say good morning." This patient had previously been temporarily convinced that her left hand was that of her daughter Mimi, which "had remained stuck after a cuddle." At the same time, she did not recognize the true Mimi ("that is not my daughter"). All these cases show the association between, first, a splitting of body image (lips besides the face) and, second, traits which call to mind an animate/inanimate object (leaf-child), independent body parts (a passing arm, a stuck arm), sometimes incorporating a personal life (it worked too much, it is angry for not being taken care of). All these traits are among those, which, for Freud (1919), give rise to the feeling of "uncanniness" and which, according to Lacan (1962/2004), give evidence of the appearance of the normally repressed object in the foreground. Moreover, in these cases, an open manifestation of the object may be observed under the guise of oral activities or concerns; this is also true for "daughter-somatoparaphrenia," since the possible object status of children is well-known in women (Freud, 1933; Lacan, 1974-1975). Furthermore, case DS clearly illustrates the mutual incompatibility, emphasized by Thibierge (1999b) between identifying the object, and perceiving, i.e., recognizing reality. All these cases are characterized by an alteration of specular image, insofar as (i) the patient's body has lost its unity and its individuality, (ii) that object which should, due to repression, be lacking and give rise to desire, intrudes in the psychic reality of the patient. This appearance of the object in the left paralyzed hand might be considered one of the "psychosexual" aspects of the unawareness of left hemiplegia hypothesized by Schilder (1935/1999). More generally, in neurological disorders of body image, we find the same association as in psychosis, i.e., the identification of an overly present object (somatoparaphrenia) combined with recognition disorders (anosognosia for hemiplegia, asomatognosia).¹⁵ The constancy of this association in both neurological acquired and psychiatric idiopathic pathologies suggests that the stability of body image and the neutralization of the object involve tightly intertwined processes.

Disorders of body image are thus the occasion of an explicit dialogue between neurology and psychoanalysis, each discipline working in its specific field: neurologists put in evidence symptomatic associations between specific lesions and discourses; psychoanalysts identify these associations as those that are normally only indirectly perceived in neurotic pathologies. In addition to providing a sense to the discursive productions of brain-injured patients, psychoanalysts thus acquire further knowledge regarding their own concept of specular image.

¹⁵It is interesting to note that, based on a different point of view, Gallagher and Vaeber (2004) also gather symptoms of psychosis and of right hemisphere lesions under a common label, i.e., disorders of embodiment.

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