

PHENOMENOLOGY AND NEUROSCIENCE

Living Experience, Empathy and Embodied simulation

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I. PSYCHE, MIND, SOUL, BODY, SPIRIT: A PHENOMENOLOGICAL ANALYSIS

The object of an authentic phenomenological anthropology is the investigation of the human being understood in its essence. In polemic with the empiricism of his time, Husserl considers philosophy as a science that deals with the knowledge of the *true being of things*. That is why in *Einführung in die Philosophie* Edith Stein recalls the platonic expression *ontos on*: as long as phenomenological philosophy is the research of the essence, one can define it as *ontology*. The theoretical rewards of a phenomenology of the human being, related to the mind-body problem and the associated theme of intersubjectivity as the true meaning of subjectivity, are quite notable. But let us move step by step to reach the heart of the matter.

The notion of “soul” is now under discussion in that Occident which has philosophically produced, elaborated and articulated it: actually, this term has been removed from the culture, knowledge and even ordinary and mediatical language, preferring instead more neutral and secular terms such as “psyche” and “mind”. Yet in the pre-modern period, the mind-body relationship had been more efficiently indicated with the expression of *soul-body*. If for mediaeval Scholastics the Latin term *mens* was the common root of the intellect and free-will, and that is, of the two faculties of the human rational soul, the period extending from modern to post-modern times has intended and declined its

meaning differently. Therefore, it is best to approach the question from the beginning of western civilization.

The Greek word *psyché*, usually translated in English as *soul*, is already present in the poems of Homer with the meaning of “vital breath”. The Italian term *anima* recalls its Latin derivation, *anima*, which has the same Greek etymology of *ánemos* (“breath”) and the same meaning of *spiritus* – in Greek *pneûma* (“air”, “breath”, “sigh”), metaphorically indicating the immaterial principle that vivifies the body while at the same time founding and directing each attitude and dimension of authentically human life. Hellenic culture has declined this “vital breath” meaning according to different modalities and nuances of thought. Three of them have generally prevailed: 1) the soul as part of the body, consisting in a thin material that gives vitality and dynamism to its limbs (Democritus, Epicurus); 2) the soul (eternal, immortal) imprisoned in the body (finite, transient, perishing) till death, and absolutely distinct from it (Plato); 3) the soul as *entelécheia*, the determinant principle of corporeality. As form of the body, the soul gives it life, movement, sensation and, in the case of the human being, thought, *lógos*: in fact, Aristotle spoke about the “nutritive” or “vegetative” soul of plants, the “sensitive” soul of animals and the “rational” soul of human beings. And he identifies the *psyché* (“breath”) with *bíos* (“life”), maintaining and expanding the Homeric meaning of “vital breath”, now philosophically reinforced.

From a philosophical point of view, the mind-body question figures as a double problem: a *psychological* one of the relation between the higher functions of the psyche and the neurophysiological functions of the *soma* (body); and a *metaphysical* one of the relation between the subject of these higher spiritual faculties (freedom, intelligence, will, motivation, responsibility) and the subject of the neurophysiological functions of the body. The terms *body*, *psyche*, *soul*, *spirit* and *mind* thus return to the scene in a cross-reference that is just as interesting as complex. One by one they are utilized, rejected or taken into consideration according to the positions and orientations of thought.

In modern philosophy, the mind-body problem is evidenced by Descartes, who defends the mechanistic conception of life and of living organisms: he denies the existence of the nutritive soul, which Aristotle indicated as peculiar to plants; he asserts that animals are machines unaware of themselves and that the human body is a mechanism guided by an intellect and a free will, which the French philosopher, distancing himself from Aristotelism, calls *mens*, and that is, thought, consciousness, mind. This gives origin to the famous *cogito, ergo sum (res cogitans)* and to the importance, more than just semantic, of the term

“mind”, destined to impose itself on the cultural scene and to replace the *lógos* and the *psyché* of the classical Greek philosophy: such consciousness is in fact not reducible to something physical but is equivalent to a sort of modification of that immaterial substance which “I” am, that is of my *mens* or *esprit*, as the French translation accepted by Descartes reads. In modernity, all the notions used by western languages to refer to the interior subjective space accessible only through introspection will be derived from *mens* and *esprit*: “mind” and “spirit” in English, “mente” and “espíritu” in Spanish, “mente” and “spirito” in Italian.

The soul-body dualism is taken by Descartes to an extreme, as insanable contrast between *res cogitans* (the “thinking thing” of the sense of the world and of the human being who lives in the world: the *mind*) and *res extensa* (the “extended thing”, what can be measured and quantified according to the “exact” laws of physics: the *body*), giving rise to that psycho-physical dualism which for a long time heavily influenced both human sciences and philosophy. In the Anglosaxon culture, it was David Hume who refused the Cartesian substantialization of consciousness and thought, indicating with the term “mind” all the conscious states which are, according to a logic of measure and quantity, reductively empirical, physiological and material. At the end of the 1800’s the psychologist Franz Brentano proposed a different and innovative concept of the “mental”, distinguishing it from what is only physical, somatical or material with the fundamental characteristic: *intentionality*, the capacity to orientate oneself, to direct oneself towards, to refer to something other than oneself or rather to possess a content. This concept was destined to impress a deep mark in two well-known disciples of Brentano: Sigmund Freud – with his theory of the unconsciousness, a “mental” activity which is not only physiological, but rather has meaning even if non-conscious – and Edmund Husserl – the father of the phenomenological school, who emphasized the centrality of the intentional “I” (or consciousness) in the double movement of investigator and investigated and on the flow of its bodily, psychical and spiritual life. Such definitive overcoming of the Cartesian psycho-physical dualism has given origin to a more complex and at the same time specific vision of what is “body” and what is “mind”, as much in the phenomenological elaboration – with the Husserlian decisive distinctions between physical or material body (*Körper*) and living body (*Leib*), between the originary presence (*Urpräsenz*) and appearance (*Appräsenz*), reconsidered by his disciple Edith Stein, who later investigated in detail what is “Psyche” (*Psyche*), “Spirit” (*Geist*)

and “Soul” (*Seele*) – as in the Freudian theory of impulses, centred on a vision of the body as the origin of psychical representations.

As it is known, the phenomenological *Erleben* recalls the “inner living” of St. Augustine and his typical dynamism; according to Edith Stein, spiritual life begins with those phenomena characterized by the movement towards something, called acts (*Akte*) or intentional living-experiences (*intentionale Erlebnisse*). Intentionality results to be specific of living consciousness, while in the proper psychic processes it is encountered only in a first and rather vague form. The act of reflection, in particular, is that central intentional living-experience which consents the description of other acts; among these, motivation has a decisive role, which in the sphere of spirit acquires a primary importance for its close connection with freedom. Edith Stein moves in a Husserlian background: the common need is to understand the unity of the structure of the human being despite its complexity. Husserl described its three essential dimensions as traces of this unique and profound reality: *Leib* or living corporeality, *Seele* or psychical activity and *Geist* or spiritual sphere. Through subtle phenomenological analysis, Husserl effectively recuperated the traditional partition of the body and the soul: the definition of corporeality as “living”, in particular, referred to a profound connection with the psychic activity, *Seele*, clarified in its peculiarity with respect to the spiritual moment. Husserl had, in fact, traced living-experiences present under the traditional determinations of soul and body, which were not denied, but rather analytically investigated through a long process of clarification. It was precisely the lack of this clarification which the phenomenologist reproached Descartes in the first of his meditations (cf. Husserl, 1950b, § 10).

Edith Stein continues in this direction and individuates in each living being the nucleus (*Kern*) or centre of the personal identity: the soul, whose life is guided from within and from above, between interiority and transcendence. The soul is the form of the whole psycho-physical individual, the root source of the human person. In this point of view, the *Leib* cannot be considered as a “prison” of the soul, which would hinder it by preventing it from elevating itself, as much as its “mirror”, in which the interior life is reflected and through which the invisible makes itself visible. The living body is thus illuminated by it; the same light that fills the soul penetrates it and irradiates, making it its dwelling for the concrete realization of a free life. At this point, the distinction between “soul” and “spirit” becomes so fine as to be almost evanescent: if with the spirit one turns intentionally towards the external world, the soul receives it within itself and joins together with

it – every soul in its own peculiar way. But this difference disappears the moment in which the total reception consists in a comprehension in the soul and with the soul, or rather the emergence of the soul from itself – it is, in fact, a typically spiritual action. Edith Stein concludes that the life of the soul, from the moment it emerges from itself and makes its appearance in the world, is a *spiritual actuality*.

In the French school, Maurice Merleau-Ponty refused the Cartesian dualism that defines the “body” as the mere sum of parts without interiority (body-object) and the “soul” as being completely present to itself without distance (consciousness-subject). On the contrary, the experience of corporeality reveals the ambiguous and complex modality of existence: if one thinks of it as a bundle of processes in third person – “sight”, “motion”, “sexuality” –, one realizes that such “functions” cannot be related among themselves and to the external world through a relationship of causality, but they are all taken and involved in a unique drama. The body is therefore not an object, a thing, and for the same reason, the consciousness we have of it is not a thought. Whether it be someone else’s body or my own, we have only one way of knowing the human body: by living it, and that is, by making the drama that passes through it our own.

In the end, I would like to recall the important contribution of the existential analysis (*Daseinsanalyse*) of the psychiatrist Ludwig Binswanger, who explicitly defined the lacerating Cartesian separation of the human being in *res cogitans* and *res extensa* as the cancer of every psychology. Moving between Husserl and Heidegger, he worked on the theme of the co-presence and co-being, indicating at the same time the danger of the radical loss of the *proprium* of being human, because of the processes of massification. Overcoming the reductively diagnostic and objectifying moment, the way indicated by Binswanger contains the trace of a profound experience of clinical reality, which investigates “how” one meets another according to the pathic modality that is constitutive of every interpersonal relation.

II. ON EMPATHICAL FEELING. SUBJECTIVITY, INTERSUBJECTIVITY AND VIA INDIVIDUATIONIS

Much has been said about Edith Stein’s intellectual debt towards her teacher, Husserl. And it is a fact that he had worked on empathical *Erlebnis* since 1905, even if not in a systematic or unitary way, specifying the main points of his research in *Grundprobleme der Phänomenologie* (1910-11), in *Ideen zu einer reinen Phänomenologie*

und phänomenologischen Philosophie (the first volume of which was published in 1913), and also in *Cartesianische Meditationen*, the famous series of lectures held at the University of Sorbonne in Paris (1929). All this to show that in phenomenological investigations the problem of empathy is an old theme, whose importance is known to Husserl, himself: he addresses it in the ample sphere of intersubjectivity concerning the “extraneous I” (*fremde Ich*). Edith Stein’s merit is precisely that of having subjected the empathical living-experience to phenomenological analysis with a scientifically serious, rigorous, coherent and unitary study in her Dissertation, shedding light upon the modalities with which personal otherness presents itself to a knowing consciousness. A brief clarification may be useful at this point.

According to Husserl, empathy is the presupposition that allows for knowledge of the objective world, whose constitution is in any case linked with intersubjective relations; whereas Edith Stein proposes a true and proper phenomenology of the empathical act, describes its essence, individuates its genesis and structure, investigates its modalities of actualization: in fact, she is interested in the knowledge of the psycho-physical and spiritual experience of others. Her attention is thus turned as much towards the intersubjective pole as towards the root of the subjectivity, that is the *via individuationis*.

Empathizing means “feeling from within the other”. In the various modern western languages the verb “to feel” is polysemantic: in Italian, the verb *sentire* can mean listening, hearing (a sound, a voice, a melody), feeling in a sentimental or emotional sense (love, joy, pain, fear, melancholy), having a sensation (hot or cold, taste or odour), perceiving in an immediate and intuitive way, etc. In German, the verb *fühlen* – similar to the English *to feel* – can be specified as *ein-fühlen* (“feeling within”), and its respective noun is *Einfühlung*. From the Greek *pathos*, the term used by Edith Stein has been translated with “entropathy” or “empathy”. Analyzing the *Einfühlung*, the phenomenologist Edith Stein clarifies the *ego* and *alter-ego* relationship, shedding light upon the theme of intersubjectivity (already profitably studied by Husserl) and investigates the possibility of perceiving in a non-ordinary way an extraneous ordinary living-experience, or rather, otherness. Empathy is a *sui generis Erlebnis*, which allows me to understand the other as a bearer of a psycho-physical and spiritual life analogous to my own; *in a specular way*, I am able to perceive my constitutive structure in relation to another subject, even if between these two there is no identity, coincidence nor even an annihilating assimilation. The contact or meeting with the other happens in virtue of the only objectifiable data of otherness: the *Leib*.

Through the presence of numerous living-experiences, of whose flow there is consciousness, the meaning of the intersubjective relationship is unfolded in virtue of the *medium* of the living body. The *Leib* is thus an unavoidable *medium* of relation: through a fine play of perception and apperception, it permits the grasping of the meaning of the body, the psyche and the spirit of the other “I”. On the other hand, the *alter ego* constitutes me, individuates me, legitimizing the ontologico-phenomenological foundation of the human being and giving sense and completeness to the intersubjective pole, so individuated in its state of being born, in its topological moment, as pure relationship. Far from constituting a prison, the *Leib* designates the unrepeatable peculiarity of every human being, who in his own corporeality already reveals its unicity, dignity, inviolability and freedom. The physical body’s link with a subject, in fact, cannot be reduced to simple spatial inseparability; it is rather the *Leib* that *feels*, perceives and apperceives. Through empathy, I realize that the other is living a series of motorial and perceptive acts which refer to corporeality (*Leib*); and other reactive, impulsive and instinctive acts which refer to the mental or psychical (*Psyche*) dimension; and still other acts implying the sphere of values and consisting in taking voluntary positions, making conscious choices, free decisions, and dealing with motivation, freedom, responsibility, which thus refer to a dimension described by Edith Stein with the unitary term “spiritual” (*Geist*).

Personal spirituality means vigilance and openness: not only I am and live, but *I am conscious* of my being and living, and all in a single act. The originary form of knowledge, which is proper to being and spiritual life, is not *a posteriori* reflective knowledge, in which life becomes an object of knowledge, but it is like an originary knowledge of the other than self. It means to be in other things, looking into the world faced by the person. With regard to the *via individuationis*, the nucleus (*Kern*) or root of the human person possesses a certain interior quality, differing from individual to individual, which determines the fullness and the vitality of actions; its width and its depth describe its way of being, “this” peculiar, unique, unrepeatable individuality, which confers an original mark on all that comes from such nucleus.

Concerning the relationship between the subjective and the intersubjective, it is helpful here to remember the Husserlian reflection in the fifth of his *Cartesianische Meditationen*: others are in the world intertwined in the way that is proper to bodies, as psycho-physical objects; within its living consciously, the “I” experiences the world together with others, and the sense of such experience implies that others are not synthetic formations lacking an “I”, but constitute a

world extraneous to the “I”, as *intersubjective*, a world that is there for all and whose objects are available for all. According to Husserl, the *being-there-for-me* of others is a philosophical problem of a special kind, which is the theme of the transcendental theory of the *experience of the extraneous*, or rather, of the analysis of the empathical living-experience (cf. Husserl, 1950b, § 43).

III. EMPATHY AND MIRROR NEURONS. PHENOMENOLOGY AND NEUROSCIENCE

Concerning the controversial mind-brain connection and its undue reductionism, philosophically debated in the *Theory of Mind* analytical research area, in the last decade it has been neurophysiology to take gigantic steps and indirectly confirm the phenomenological analysis of Husserl, Stein and Merleau-Ponty on subjectivity and intersubjectivity, to the point of formulating the need to «phenomenologize cognitive neurosciences rather than naturalizing phenomenology [...]. More dialogue between neurosciences and phenomenology is not only to be hoped, but necessary. Future neuroscientific research will have to concentrate even more in first person on the human experience and to study better the personal characteristics of single subjects of such experience» (Gallese, 2006, p. 294 and p. 321).

We refer here to the Italian discovery of *mirror neurons*, gifted with an extraordinary property: that of causing a specular reaction in the neural system of the passive observer of an action. They are activated – one could say they “resonate” – both when an action is carried out in first person and when we see others carrying it out, and thus they constitute the proof of a basic neurophysiological mechanism which allows us to enter in relationship with others. Through the paradigm of *embodied cognition*, “as-if” modalities of reciprocal interactions have been studied that enable the creation of models of the self/other. As the neuroscientist Vittorio Gallese explains: «The planning of an action requires the estimate of its consequences. This means that when we are about to take a certain action, we are also able to foresee its consequences. This kind of prediction is the result of the activity of the model of action. If it were possible to establish the process of motorial equivalence between what is acted and what is perceived, thanks to the activation of the same neuronal substrate in both situations, a direct form of comprehension of others’ action would be possible. Neuroscientific research tells us that things are exactly like this. Our brain is in fact gifted with neurons – mirror neurons – located in the

pre-motor cortex and posterior parietal, which are activated when we carry out an action or see it carried out by others. The predictions regarding our actions as well as those of others can thus be characterized as processes of modalization founded on simulation. The same logic that presides the modelization of our actions presides that of others as well. Perceiving an action – and understanding its significance – is equivalent to internally simulating it. This allows the observer to use its own resources to penetrate the world of another through a process of modelization which has unconscious, automatic and pre-linguistic connotations of a motor simulation [...]. The presence of mirror neurons makes it possible for the observation of another's action to constitute a form of simulation of the same. The presence of a neuronal substrate shared between the agent and the observer, which subtends the actions directed towards objects as well as communicative actions, constitutes a space of *shared intersubjective meaning*. Through the embodied simulation one's own body becomes the origin of the constitutive and genetic function of intersubjectivity» (*ivi*, pp. 304-305).

In this way, the strategy of mirror neurons provides the scientific basis for overcoming solipsistic and egocentric logics surrounding the reductive mind-brain binomial: their action can be codified in a “virtual resounding cavity” perspective, in which the neural codification makes dialogue interactive and sharable. The neural representations derived from it are thus shared, in common, already at an intentional level. The existence of the other, of others, is in a certain way written in our neurons: in fact, the system of mirror neurons determines the emergence of a *shared space of action*, in which the process of communication and intersubjective comprehension is generated. The root of human subjectivity is in reality an *original and primary intersubjectivity*.

At this point, it is helpful to reconsider the Husserlian argumentation in the second volume of *Ideen*, and then proceed to confront it with the recent discoveries in neurophysiology. According to the phenomenologist, every human being, in virtue of his corporeality, is in a spatial context among things; psychic life empathically inheres every other living body to the point that when a living body moves and finds itself in a new place, the psyche is also moved: the psyche is in fact constantly fused with the living body. In order to establish a relationship between *ego* and *alter-ego*, to communicate something to someone, it is necessary to establish a bodily connection through physical processes. According to Husserl, the fact that the living body and the psyche form a peculiar unity of experience, and in virtue of this unity the psychical acquires a place in space and time, constitutes the grounds for a legitimate “naturalization” of consciousness (cf. Husserl, 1952, § 46).

Obviously, this sort of “naturalization” is not of empirical or factual kind.

IV. PHENOMENOLOGY AND NEUROPHYSIOLOGY
ON THE “IMMEDIATELY SHARED”.
THE COMMON GROUND OF HUMAN EXPERIENCE

Recently the neurophysiologist Giacomo Rizzolatti, of the University of Parma, together with his collaborators, has observed that the mechanism of mirror neurons is able to codify the sensorial experience in emotional terms. This means that the immediate comprehension in first person of the emotions of others is the necessary prerequisite for that empathical conduct which inheres the large part of intersubjective relationships. Mirror neurons map the observed actions on the same nervous circuits which control their active execution and thus allow for an internal representation, a sort of *embodied simulation*, of a determinate real and concrete action, whether it be socio-comportamental or linguistic.

The intentional consciousness problem, traditionally the object of philosophical investigations, presents itself to the scientist in the richness of its meaning: the two disciplines, too often distanced and not in communication, now result to be significantly intertwined, despite the autonomy of their methods and procedures. This allows for overcoming the cultural prejudice, which has unfortunately become consolidated, by which philosophy is not considered a science and science does not philosophize. In phenomenological terms, it can be observed that from Rizzolatti’s argumentation, the difference emerges, *mutatis mutandis*, between originary and non-originary living-experience and even the different quality of the physical, psychical and spiritual *feeling*, upon which Husserl and Stein had so insisted. Certainly the perspective is only neurophysiological, but the scientist is aware of the limits imposed upon the results of his research when he argues that sharing another’s emotional state on the motorio-visceral level is something quite different than feeling empathical involvement with someone. For example, if we see a grimace of pain we are not automatically led to feel compassion: it often happens, but these two processes are distinct, in that the second implies the first, and not *vice versa*. Moreover, compassion depends on other factors besides the recognition of pain: for example, it depends on who the other is, on the kind of relationship we have with him/her, on the fact that we have more or less intention of taking upon ourselves his/her emotional state,

desires or expectations. These “other factors” mentioned by Rizzolatti have been acutely evidenced by the phenomenological analysis of the empathical living-experience and identified in the *spiritual sphere of values*.

The prominent philosophical question is now whether the empathical *Erlebnis*, which allows for the phenomenologico-ontological foundation of personal otherness, is thus confirmed, “naturalized” on a neurophysiological basis. All the experiments conducted establish, in fact, that the system of mirror neurons is able to decodify not only the observed act, but also the intention, the aim with which it is carried out: in agreement with the paradigm of *embodied cognition* (cf. Gallese, 2005), the intentions of the *alter-ego* can be understood without any reflective mediation, be it conceptual or linguistic, through what phenomenologists call *Leib*. As Merleau-Ponty well indicated, it involves a co-construction of the intersubjective relationship through living corporeality. This means that *mirror neurons do not “feel”*: it is the *whole human being*, structurally experiential, that comprehends what the other goes through, lives and feels, in his/her overall constitutive dimensions, just as the phenomenological analysis has put in evidence. The reciprocity that links us with other human beings is a *natural, pre-linguistic and pre-rational condition*: far beyond Cartesian dualism, this important scientific result demonstrates how artificial the dichotomy is between the “mind”, understood as logically discursive and calculating capacity, and the emotional, psychophysical and relational sphere. And it shows how necessary it is to rethink the relation between philosophy and science, philosophy being a “rigorous” but not “exact” science in the way empirical sciences are, and science having only recently come across, despite itself, the problem of the intentionality of consciousness.

Experimental evidences sustaining the role of *embodied simulation* in mediating the experimental comprehension of others’ sensations extend themselves to the empathization of pain: in this regard, Gallese quotes the recent research of Tania Singer, in which the same nervous structures result to be activated in first person, both during the use of painful stimuli on the subjects and during their “symbolic” and indirect perception. As if to say: the human being is not simply oriented or directed towards the content of a perception with the aim of labelling it according to the usual conceptual categories; but rather the human being finds itself in a peculiar relationship of intentional consonance with the *alter ego*. It involves a *relation of sense*, as the neuroscientist Gallese does not overlook underscoring: «Thanks to intentional consonance, the other is much more than another representational

system. The other becomes *another person as we are*» (Gallese, 2006, p. 317). The theoretical gain of the phenomenology of the human being, and in particular of the empathical living-experience, consists in the identification of the modality of knowing constituted by apperception. In § 46 of the second volume of *Ideen*, Husserl writes: «It is also out of the question that in solipsistic self-experience I encounter all that is subjective about me, along with my perceptually given body, as a reality, i.e., in the form of a *perception*, although my body has such a multivarious unity with what is subjective. It is only with empathy and the constant orientation of empirical reflection onto the psychic life which is appresented along with the other's Body and which is continually taken Objectively, together with the Body, that the closed unity, man, is constituted, and I transfer this unity subsequently to myself» (Husserl, 1952, § 46).

The consonance between the conclusions of the Italian neuroscientist Rizzolatti and the theses of Husserl is very interesting: «The system of mirror neurons appears so decisive as to raise from that *ground of common experience* which is at the origin of our capacity to act as subjects not only individuals but also and above all social. More or less complicated forms of imitation, of apprehension, of gestural and even verbal communication find, in fact, a punctual comparison in the activation of specific mirror circuits. Not only: our same possibility of perceiving the emotional reactions of others is correlated with a determinate whole of areas characterized by mirror properties. Just like actions, emotions also result to be *immediately shared*: the perception of another's pain or disgust activates the same cerebral cortex areas that are involved when it is us who feel pain or disgust. This shows how deeply rooted the bond is that unites us with others, or rather how bizarre it is to conceive an *I* without an *us*» (Rizzolatti & Sinigaglia, p. 4).

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