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PLASTICITY

By Valeria Maggiore

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It. *Plasticità*; Fr. *Plasticité*; Germ. *Plastizität*; Span. *Plasticidad*. The term generally denotes the quality of being easily shaped. Its etymological root can be traced to the Greek expression *plastikè technè* which established a strong link between plasticity and the artistic dimension: it indicates the physical manipulation of ductile substances to create a work of art or a three-dimensional preparatory model. Despite its ancient origin, the derivative term *Plastizität* entered the German language (and more generically the European philosophical lexicon) only in the XVIII century (Malabou 2000: 8): it was introduced by Goethe to indicate the art of shaping, typical of sculpture and ceramics (Goethe 1999). Aesthetics was concerned with this concept mostly referring to that definition, the fulcrum of a key text of eighteenth-century reflection, Herder's *Plastik* (1778); however, since Romanticism, the term has been also used to indicate the visual arts (i.e. painting) as opposed to the arts based on writing (literature and music) or to denote, in a broad sense, the human being's spiritual and pedagogical growth (Malabou 1996: 21). The term has not ceased to evolve and, starting from the 1970s, it has taken still another meaning in the medical field, indicating the surgical reconstruction of human tissues, performed for therapeutic or aesthetic reasons.

Alongside this active function of plasticity (the act of modeling performed by artists, pedagogues or surgeons), it is necessary to underline a passive function of it. Some natural materials with great manipulative attitudes (i.e., wax and clay) have been defined as "plastic" and some solid and artificial materials that are ductile enough to be in certain phases of their manufacture forged exploiting the effect of temperature or pressure.

The active and passive functions of plasticity are closely connected because plastic arts «means first of all plasticity of the material: it means that the material does not resist at the act of shaping, that it is ductile, malleable, moldable, workable at will» (Didi-Huberman 2000: 210).

THE CONTEMPORARY PHILOSOPHICAL DEBATE

The first thinker who integrated plasticity into a philosophical reflection on the human being was the Renaissance theorist Pico della Mirandola (Pico della Mirandola 2003). Using the metaphor of sculpture to show the dynamic character of humanity over time, he favoured a conceptual shift of the term from the domain of art to that of philosophy: in his opinion, plasticity is the very expression of human dignity and manifests itself in the ability (peculiar to humans) to freely operate a metamorphosis towards higher or lower forms of existence (angels or beasts).

In contemporary times, the French essayist Roland Barthes also underlined the close link between plasticity and the character of “openness” and “modifiability” that distinguishes living beings. In his opinion, plastic is more than a substance: it is «the very idea of its infinite transformation; as its everyday name indicates, it is ubiquity made visible. [...] the trace of a movement. [...] Plastic is, all told, a spectacle to be deciphered: the very spectacle of its end-products» (Barthes 1991: 97). The idea – connected to this perspective – that plasticity can lead to a real metamorphosis, that is, to an irreversible transformation of form, has been taken up and expanded in the contemporary debate by the French thinker Catherine Malabou.

The first formal presentation of Malabou’s paradigm of plasticity can be found in her doctoral thesis on Hegel, subsequently published under the title *L’Avenir de Hegel: Plasticité, Temporalité, Dialectique* (Malabou 1996). In this essay (which starts from an original reading of the twenty-five paragraphs of the Hegelian Anthropology in the *Encyclopedia of Philosophical Sciences*) Malabou tries to identify the peculiar characteristic of humans not in a definite ability (the upright posture, the use of hand, the ability to cry and laugh, etc.), but in the attitude «to combine the thought of a sculpture of the self with that of transdifferentiation» (Malabou 2008: 79).

In her reflections, the Hegelian concept of plasticity leads to two perspectives: on the one hand, it determines a new interpretation of some widespread socio-political conflicts of our age (a perspective that approaches Malabou to Žižek and Butler – see Bhandar, Goldberg-Hiller 2015; Butler, Malabou 2010; Wormald, Dahms 2018); on the other hand, it leads to a new ontological conception of the accident which has important repercussions on aesthetics and the theory of form (Malabou 2009).

If we take into consideration organic bodies, we realize that (as the evolutionist theories have highlighted) they can be moulded from the outside and, at the same time, they can be the engine of their shaping action, in a constant play between the creation of new formal configurations and the annihilation of existing forms (Malabou 2004: 57. See also Rand 2011; Silverman 2010). In fact, according to Nietzsche – an important philosophical reference of Malabou –, plasticity is a vital force able to transform what is past and unfamiliar and make it one’s own (Nietzsche 1972: 271).

In Malabou’s opinion, in this case we are dealing with a positive concept of plasticity, in which the latter is conceived as the body’s ability to negotiate with its destruction, i.e., to recreate its formal qualities concerning the events. Although (as already highlighted by Pico della Mirandola and Barthes) the adjective “plastic” is defined in its opposition to terms such as “rigidity”, “fixity” and “ossification”, nonetheless it

must not be considered a synonym of the adjectives “polymorphic”, “elastic” or “flexible”, since plasticity is the peculiar characteristic of a material which, as the French thinker points out, «cannot return to its initial form after undergoing a deformation» (Malabou 2008: 15). In fact, organic plasticity has definite limits and the modifications implemented by organisms find their first *raison d'être* in natural and internal dispositions, on which the environment acts as a stimulus but which cannot be overcome in order not to fall back into the loss of form (Pigliucci 2001). Hence plasticity leads to a real metamorphosis, a process in which a fortuitous and accidental event can radically alter the substance of living beings: in this case the reversibility is not total, but determines a change, be it enrichment or impoverishment. Consequently, as Malabou states, in addition to positive plasticity, it is necessary to identify a negative form of it.

Thus, alongside the two meanings of plasticity cited above (to give form and to receive form), the French thinker adds a third meaning, which is especially suited to philosophical use and connects plasticity with the annihilation of forms: the explosive plasticity (Malabou 2009: 10). «We often think of plastic construction without a true connection with a radical form that is contrary to it»; instead, «construction is always counterbalanced [...] by a form of destruction. The creation, the invention is never separated from its destructive counterpart: this is a fundamental law of life» (Jardilino Maciel: 2019: 17). This destructive and explosive potential of the term is evident in the French word *plastiquage* that indicates a “plastic bomb”, a substance made of nitrocellulose or nitro-glycerine which can cause the disintegration of existing forms and their transformation into something completely different and new (this is the case, for example, of people affected by personality disorders or injured in serious accidents – see Malabou 2012) or even into the absence of form (the extreme change, the death). It follows that as Malabou synthetically states, plasticity is the «synthetic alliance between the giving and receiving form on one hand, and the powerful rupture or annihilation of all forms on the other» (Malabou 2010: 22).

DIALOGUE WITH DEBATES DEVELOPED IN NEUROSCIENCES

Malabou believes that plasticity is the «dominant formal motif of interpretation and the most productive exegetical and heuristic tool of our time» (Malabou 2010: 57) and it can be useful for understanding today's debate even in areas far from the traditional philosophical fields of investigation, such as evolutionism or neurosciences.

Therefore, we can add to the brief list of the meanings that the term plasticity has assumed over the centuries also the concept of cerebral plasticity, the guiding principle of current neuroscientific research, which denotes the peculiar ability of our synapses to modify their effectiveness as a result of experience, thanks to habit, learning and/or environmental influences (Watkin 2016: 97 ss.). Establishing a link to recent neuroscience studies, Malabou believes that the notion of plasticity could be central also to understand the self-healing action of the brain and, in particular, to analyze in a new way the phenomena of identity change due to the progress of neurodegenerative diseases such as Alzheimer's (Malabou 2012), brain damages or traumatic events (Giesbers 2018: 321). This capacity of self-modification (and in some cases of identity alteration caused by the extreme self-protection of the brain from adverse events) allows

Malabou to characterize the whole brain as "plastic" (Malabou 2008), opening new perspectives of analysis and building a bridge between philosophical investigation, theory of form and neurosciences (Isetta 2015, 2019; Žižek 2009).

Furthermore, this conception leads Malabou to question every deterministic hypothesis regarding the mind and every attempt to compare the brain to a machine or a computer: if our brain is plastic and can be continuously modelled in response to our experiences, then it is fundamentally free. At least in part (as she states in the title of one of her famous essays) "our brain is what we do with it" (Malabou 2008). Thus, as Ansermet and Magistretti said, «plasticity introduces us to a new vision of the brain, which can no longer be seen as a crystallized organ, determined and decisive once and for all. It cannot be considered as a defined and immutable organization of neuronal networks, in which connections are definitively established at the end of the early development period, causing a sort of rigidity in the processing of information. Plasticity demonstrates that the neural network remains open to change, to the contingent, modulated by events and the potential of the experience, which can always modify its state» (Ansermet, Magistretti 2008: 17).

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