

Lived Experience, Emotional States and Observations at the Microscope

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Introduction

This article is based on a previous one [1] written as a commentary of the book "Through the microscope. Neuroscience and the base of clinical reasoning" (in Italian), Springer, Milan, 2011. It concerns mainly the relationship between microscopic observation, the emotional state and the lived experience of the observer. Among the various issues addressed in that book, this is the hardest one to write about, because the reasoning is not grounded on anatomy or physiology, with the exception maybe of emotions whose neurological pathways are partially known. Before getting to the point, it is worth recalling how microscopic observation is transformed into knowledge, that is, how visual perception is integrated into lived experience. According to Gestalt Psychology, visual perception is accomplished through two processes: the first one concerns the physical properties of the objects leading to the distinction of the figure from the background, the second one is that of the cognitive processing of interpretation. Actually, a kind of interpretation occurs already in the first process when the so-called "unconscious inferences" [2] may intervene to correct the perception, but it mainly takes place when the perception confronts the mental patterns previously established through the formation of an internal analogical signaling system through which the perception is internalized. Semiology teaches us that this system develops in time on the basis of the complementarity between the sign and the reading apparatus [3]. To know means to explore signs and their significance; it is always subjective and is objectified in science through standardization. It also means to modify things and to be modified, because the learning apparatus is modified by the observed object. The knowing apparatus does not allow us to reach the "soul" of things, but only their features [4].

The most important thing to be accounted for is that the structure capturing the sign remains permanently modified and is no longer the same as before. This is in line with the concept of the "panta rei" (πάντα ῥεῖ ὡς ποταμός) of Heraclitus and it corresponds to the individual historicization and to the anatomical modification of the brain produced by knowledge and long-term memory [5], so that the structure that receives the sign is no longer the same as before. The internal analogical signaling system may simply be the memory of the external sign, but it can influence behavior and, projected outwards, it does not reproduce the event that gave origin to it which is no longer connected with the individual. The comparison between the inside and the outside produces a reassembling of the former. In this procedure, inter-subjectivity intervenes to give a semblance of truth, as well as the hypothetical function that is at the basis of the scrutinizing ability. Language would derive from the inter-subjectivity through the semiotic communication. Platonists would not agree, but it is generally accepted that in communication there would be nothing universal, because the semiotic process would coincide with the cognitive one and communicating would indicate complementarity with the world.

Communication would become cooperative and language would be a linguistic cooperation [6]. To find the name of things means to explore nominal categories.

At the microscope, to name the objects means to know them and this brings us back to the "universals" of William of Ockham and Duns Scotus and to Linnaeus's maxim "nomina si nescis, perit et cognitio rerum" (if you do not know the names, the knowledge of things also perishes). This statement has two philosophical consequences: the first one is that we cannot know the "thing" in itself, Kant's noumenon and we must limit ourselves to its appearance or, rather, to our experience of it, which gave origin to Existentialism and Phenomenology [7-11] that today represent a widely accepted approach to the outside world [12].

Science does not advance by stratification of data, but by a change in parameters. On the one hand, science is compelled to the objectivity of nature and, on the other hand, to a continual questioning of its methods. The historicization of science leads to the non-existence of absolute truths and to relativism: at this point two questions arise. One is the possibility to make mistakes due to errors in data collection or because of the internal analogical signaling system not being in a dialectical relationship with inter-subjectivity. Another possibility is represented by the intervention of hypnoic or hypobulic mechanisms [13] (below the level of consciousness or will); corresponding to the unconscious, without taking into account errors in general reasoning. Both are errors that can be made by scientists. Science has been defined [14-16], but not its demarcation from non-science, a matter still under discussion [16]. As such, science cannot make mistakes; it can only change interpretation of the external world as a result of changing parameters.

This topic would require more extensive treatment, but the purpose of this article is to offer insights about the reciprocal influence between the emotional state, the lived experience of the observer and the microscopic world. Regardless of the "unconscious inferences", prolonged observation through the microscope may include moments of relaxation in which our imagination goes beyond the logic of the hypothetical function and eludes the control of attention and critical thinking: we can see things that do not pass through sensations. In the past, this state has been confused with fantasy, but this is not the case [16] and, on the contrary, it produces imagery in which consciousness overcomes materiality and runs free. This must not be confused with "imaginative" in the sense of rich in images. This reasoning brings us back to the concept of mental images conceived as symbolic and non-pictorial representations that do not coincide with what is perceived, but are used to recognize it. Since they may give origin to something that has nothing to do with perceived images and is creative, as in the recollections of the past (5l), if used for the recognition of the external world they may lead to errors.

Observation at the microscope entails an endless number of visual stimuli that can evoke infinite associations from the lived experience, not only recollections, but also feelings, states of mind, moods that have apparently nothing to do with the observed external world, but enrich the mind of the observer during the observation. Many examples could be given and this eventuality is well known to people using the microscope. The opposite may also happen: the evoked associations influence the recognition of objects in the microscopic field or at least, they let the anthropomorphism in the observation expand out of control. There is a dialogue between the microscopic and the inner world that has been profusely described in the book from which this article originated.

One wonders in what the so-called objectivity of science could consist. The answer is basically the validation of data through scientific inter-subjectivity.

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