Disposition and Morphology: Imagen and classification in 18th century.

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Abstract

At the half of the 18th century the microscopic world almost disappears from the scientific field. The difficulties in attaining both clear images and higher magnifying power challenged most of the actual observations of the 17th microscopists. A lack of a theoretical frame were microorganims could be teleologically (and theologically) explained also quickened a disengagement from microscopic research, although it remained a main tool in botany and natural history. Even if social curiosity maintained it as entertainment, it was going to be hard to found any novelty in the microscopic image, and even new microscopic images (except one: the projection microscopical layouts). The microscope seems to have reached the top of its power.
Instead, new technologies as wax models emerged to replace pictures in the teaching of medical practice. What was stressed was the ability of putting apart the body by selecting functional blocks. Although the reconstruction of the body was still important, suppression of movement makes impossible to retain functional integrity. However, it was movement what had led the fragmentation process. From Galvani to Bichat, the connection between inner and outer spaces was relocated: the outside does not refer to the external appearance of the body but to environment. Specific inputs affect similar inner surfaces: there must be then an interface that could connect both. Bichat's answer to the question seems to us very familiar: *Dans la vie animale, le premier ordre s' établit de l' extérieur du corps vers le cerveau, et le second, de cet organe vers ceux de la locomotion et de la voix.* Differences in connections would be the basis in the distinction between organic and animal life, between passive growing and locomotion.

But Bichat also makes a difference between movement and time, and embedded the last in the former by using the balance as heuristic model. *La vie*, he says, *est l' ensemble des* fonctions qui résistent à la mort [...] *tout ce qui les entoure* [to the living beings] *tend à les détruire* (Reflexions physiologiques sur la vie et la mort, 1800). Growing and aging can be understood as a changing proportion of opposite forces, that is, as disequilibrium. [As Bichat well knows, there was not need for a microscopical approach (Lacaba)]

What is the model that arises from this picture? Bichat retains two typical features of the Enlightenment: equilibrium (hence, balances) as basis of physical and economic dynamics and affinity and sympathetic attraction. But at least one thing has changed in the way the information is supposed to be retrieved from the body: the need to interpret histological reaction as a measure of aggression displaced body integrity to the outside. A new target for social policies and communal definition was born: safe environment.

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The aim of this paper is to explore what were the main traits of the notion of system and environment that arise from Bichat's notion of tissue; and how and why this notion was challenged by the explaining potential of images related to the cell theory. Our main hypothesis is that diagrams and visual approaches to complex systems found a more suitable and modular language in cell theory, and that this approach was also more akin to a moral individualistic approach in vogue. However, notions of time, size and range – as well as environment and emergence/plasticity – were also key in developing an alternative view of tissular reaction and intersystemic connections.