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Provincializing Metabolism (On the Poverty of Modernism)

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According to accepted wisdom and textbooks, “metabolism” is a nineteenth-century term and concept, established at the confluence of organic chemistry, cell biology, and physiology. In *Microscopical Researches* (1839), Schwann spoke of the “metabolic phenomena of the cells,” using for the first time the adjective *metabolische*, from which “metabolic” entered the English language in the 1847 translation (Bing 1971). This standard account of the term, later invested with political economy analogies to describe the supposedly unique metabolism of the industrial or post-industrial era, also has curious analogies with similar narratives of other terms in the history of science. The term “environment,” for instance, first appeared in English in 1853 through another translation (by sociologist Harriet Martineau), not from the German in this case, but from the French – Comte’s 1830 *Cours de philosophie positive*, possibly via Carlyle (Pearce 2010). “Plasticity,” of course, was introduced later in the nineteenth century, and only acquired its richness of meanings and mechanisms with the development of twentieth-century bio- and neuroscience. Indeed, prior to a certain epistemological break that occurred only in some Northern European nations around the mid-nineteenth century, it seems that the world knew no metabolic exchange or rift, organism–environment interaction, plasticity of bodies, or the power of the milieu.

Bruno Latour once spoke of the “peculiar propensity” of modernistic authors “for understanding time that passes as if it were really abolishing the past behind it. They all take themselves for Attila, in whose footsteps no grass grows back” (1993: 68). I would say that as modern academics, we are also plagued by an increasing monolingualism (Gordin 2015) that makes it easy to forget more pluralistic histories of the world, before and alongside the rise of Northern European modernity. No less parochially and uncritically, we have made a radical inversion of the old medieval wisdom, according to which past knowledge could not be surpassed. We overstate the radicalism and uniqueness of our present by accumulating new intellectual capital through active forgetting of the past (Proctor and Schiebinger 2008).

Metabolism before metabolism

I am not making here an old-fashioned historiographical argument about the antecedents or precursors to modern notions of metabolism in ancient or non-Western science. Nor do I want to overlook the fact that a full understanding of metabolic processes would be unthinkable before the rise of an oxygen-based chemistry, cell-theory or the principle of conservation of energy. However, I situate my argument not at the level of scientific mechanisms but in relation to forms of life. As it is fair to recognize the uniqueness of European chemistry in the decades between Lavoisier and Von Liebig, it is also fair to pay attention to the fact that the problem of a “continuous change of matter” (Liebig 1843: 13) within the body – *metabol?*, the Greek for transmutation, renovation, change or transformation – is exactly the central issue for several traditions of thought preceding or co-existing with modern European science. Therefore, if, as many of us in the social sciences do nowadays, we expand our understanding of metabolism to include a certain ethics of living, the careful handling of the porosity of life, the anxious perception of how bodies are absorbed into places or food shapes our health and mood, and the number of individual and collective techniques required to manage this vulnerability, it is doubtful that we have moved much away from the concern of a Galen, a Vitruvius, or an Ibn Sina (Avicenna). I am not saying this to be provocative; rather, I mean to call into question the stories we tell nowadays, where we imagine a Western world dominated by tropes of sequestration from nature, biological fixedness, and the supposed long shadow of a Cartesian dualism that was actually a rather short episode in the longer history of the somatic and mental materialism promoted for centuries by humoralist medicine (for instance, Duncan, 2000). We don’t have to forget that even the notion of the soul (*psyche*) derives from a vapour in the original experience of the Greek body.

To stay within this early European example a little longer, what we today call metabolism can be seen as the whole ethical problem of the humoralist body: the continuing ingestion of matter from the surrounding world, the turning of food into the four humours, the ‘digestion’ (concoction) and transformation of it into semen, with all the possible metabolic effects on generation, heredity and race, seen as dependent on the exposure to certain food, climate, experience (see a wider treatment in Meloni, 2019). One can observe, for instance, that the verbal form *metaballein* (already part of the Hippocratic corpus and used by Plato himself in a biopolitical image in Rep. VIII, 563 E-564, see Vegetti 1968) is specifically employed by Galen in a number of treatises to describe how food is assimilated or otherwise transformed in order to become blood (for instance: *Peri Physikou Dynamion*, transl. *On the Natural Faculties*, X, 55–58). One can observe also that it is more than food that can alter the balance of humours and change the “metabolism” of bodies and minds: it can be the movement of the moon, the passage of Saturn, the sight of a scary image, the activity of reading. Each of these “exposures” transforms

the humoral metabolism, putting the identity of the body at risk of metamorphosis. A biopolitical system of body and population maintenance is then required to control the ubiquitous metabolization of life.

Based upon this understanding of metabolism, individual rules and regulations for lifestyle and food were suggested, especially for different seasons and at different ages (*Regimen Sanitatis*). The same occurred for collective technologies – the planning of public baths for instance (to regulate obstructed pores and the exchange of moisture), green spaces in cities (to remove the thickness of humours from the eyes: Vitruvius), and careful geographical details in the location of harbors or military camps (to avoid debilitation of troops from exposure to noxious air: Vegetius). This ethics of absorption was so powerful that in the late eighteenth century, doctors still wondered if bathing could relieve someone's thirst and measured weight increases of bodies after immersion in hot water (Dacome, 2001). So, when histories of metabolism make room (their kindness) for the experiments of Galileo's friend Sanctorius Sanctorius (1561–1635), who devised a weighing chair to measure the body's 'servile evacuations' and silent breathing (*Perspiratio Insensibilis*) after meals, they seem to get the story the other way round. It is not so much that Sanctorius, with his *Ars de Statica Medicina* (Venice 1614), emerged as the first student of metabolism – in fact, he is quite the last epigone of a century-long tradition of concerns with body–world interfaces, albeit Sanctorius (a modern scholar in this) always omits citations of his predecessors (Renbourn, 1960).

The Political Economy of the Modern Body and Its Beyond

If we situate ourselves at the level of the ethics, or the anthropological dimension of body–world interface, it is fair to conclude by asking: what is *modern*, if anything, about modern metabolism, industrial or post-industrial? The most obvious answer would be that we have pathologized the concept of metabolism to the extreme with all our contemporary emphasis on metabolic syndromes and disease, and nearly forgotten "good" metabolism. However, at a deeper level, the making of the modern body in nineteenth-century Europe has significantly reframed the whole problem of the metabolic body and represented a real epochal break. Following Blumenberg (1985), modern metabolism is not a secularization or translation of ancient debates, but a whole *reoccupation* of a space that remained unseen and unaddressed in previous systems of knowledge. Ancient authors didn't use the word "environment" nor "plasticity" (in the contemporary sense), because somehow everything was already environmentally driven and biologically mutable, including race and generation. Embodiment was, if not the only, certainly the most significant model for the pre-modern body. So goes the story with metabolism. It is only after a certain threshold of biological individuality has

been passed that the problem of exchange with something that is not the proper body (or its inner self-regulating system) becomes not only plausible but urgent. It is only after a threshold of biological identity and reliability has been crossed that we wonder with naive surprise about permeability to flows from the environment, exchange and transformation of matter, and excitedly celebrate corporeal plasticity. It is only at this point – when our bodies have become fully still, coordinated, sovereign, and private- that the epistemic object ‘metabolism’ can entirely come into view. This is another sense in which we (“the Moderns”) take things upside down. Marx, who well knew the Ancients, pointed to this problem when he claimed that what “requires explanation” is not so much making sense the “*unity* of living and active humanity with the natural, inorganic conditions of their metabolic exchange with nature (. . .) but rather the *separation* between these inorganic conditions of human existence and their active existence” (2005: 489, italics in original).

The apparent naturalness of this separation is the most obvious success of what we can call *biological liberalism* or *physiological modernism*: an unprecedented technology of isolation, privatization and protection of the body that makes of its inner milieu a source of freedom and individuality in the face of mutating external environments. How much we need to revisit this fiction of non-interference in the face of the ubiquitous toxicity of the Anthropocene is what makes current debates on body permeability in epigenetics and microbiomics so deeply political and urgent (Lock, 2018). The Anthropocene and postgenomics require new ideas and a new understanding of the body, we are often told, to deal with an unprecedented level of ecological vulnerability, toxic exposures, and biogeochemical instability. Definitely. But perhaps a good start is having a better and more respectful appreciation of how we got here, the complex legacy of dead and now forgotten scholars whose work, practices, and ideas preceded and coexisted with the rise of modern biomedicine and may become an important resource in this difficult journey toward a different biopolitics of body/world configurations.

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