

THE THREE SOULS IN THE HISTORY OF MEDICINE AND PHILOSOPHY
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PSYCHE, SOMA, SELF

Let us all take a deep breath to start off. (2) Pretend just for a few seconds that you are in a yoga class – or imagine it, if you’ve never been to one. Forget you’re sitting in a conference, where your body seems useless in a way, and your thinking processes are highly active. Perhaps you are feeling hungry, or tired, or anxious, or in need of a coffee, but you feel that somatic awareness is secondary. It is an impingement on the intellectual activity. So now imagine the yoga teacher telling you to relax your shoulders, chest, hips, limbs, jaw, and return to your body. This doesn’t happen in conferences, usually. Or in situations where we have to think methodically or fast, when we have to project ourselves out into the world, far from the embodied self. Hence the popularity of yoga classes. We all need help returning home to our body. And yet, of course, “the body” denotes many things.

We like to divide ourselves into functions, enumerate them, and assign structures to them. So what of the classical tripartite soul, in its various guises, now? Laura Bossi yesterday opened the proceedings with a wide sweep over its history. (3) We’ve been peaking at specific aspects of the story. But I want to ask now, how is it pertinent to us, not the scholars, scientists, thinkers, but us the embodied mortal beings who are looking forward to the next cup of coffee? (4) Our appetitive needs, to start with the coffee-seeking soul, aren’t so much trivial as rapidly changing. Once we’ve had that coffee, and our sensitive soul has elaborated its effects, we won’t be considering it anymore, not for a while. Our appetitive needs are self-regulating insofar as they are so structured to require satisfaction. Their lack of temporality is what can make them seem trivial - and low in the hierarchy of souls. But without appetites, we would be dead. They’re crucial, yet simple to satisfy, hence of no great interest to our intellectual selves. The intellect is the highest, most complex of functions, the one that contemplates itself, its seemingly highest object. It is also what enables us to concoct the schemes that will get us what we want. Engineers, not appetites, built that espresso machine – but in the service of the appetites. Antonio Damasio, in his latest book *The Strange Order of Things: Life, Feeling, and the Making of Cultures*, (5) identifies emotions as those driving forces without which we wouldn’t seek to concoct anything. Everything we have invented, built and

thought, is to some extent the outcome of strategies we have devised to avoid pain and seek pleasure – to flourish, as Damasio puts it.

The division into functions historically has served also the need to find a hierarchy and establish what is most important and what will ensure individual equilibrium, epistemic soundness, and social and political order. This was the case since Plato's *Phaedrus* and his chariot and horse analogy, and with the *Republic*. (6) We've been seeing since yesterday how complex the divisions can be, but the notion of a hierarchy, although it is being upended from within the sciences of mind and the social sciences, has survived in various guises even until today. One idea that history tells us has endured is our need to avoid pain and seek pleasure – like that cup of coffee. Since Darwin we've understood that need as evolved, though we've always observed ourselves as creatures whose biology was organised on the basis that pain was bad and pleasure good, and this regardless of whether our culture and epoch allow us to see ourselves as animals or not.

I won't go here into the complexities of Plato's successive theories about the tripartite soul, from the *Phaedrus* to the *Republic*, and the *Timaeus*. Nor will I return much to Aristotle. (7) I want first to jump straight to Thomas Aquinas, because the compost of traditions that would inform psychology until the 18th century broadly includes not only Aristotelianism, along with some neo-Platonism, Stoicism and Galenic psychology, but also Thomism. (8) Aquinas divided the passions into the irascible and the concupiscible. Concupiscibility was the tendency to seek good or desirable things and to avoid bad or dangerous ones. Irascibility was the tendency to fight whatever might block our way to obtaining a good or fleeing an evil. The concupiscible part of the soul was activated when one experienced desire or aversion (and all the emotions in-between), and the irascible one was activated when one experienced the hope of obtaining something or the anger of losing it, and all the emotions in-between. And this division is mapped onto the tripartite division of the soul. Scholastic psychology was long-lived from then on: the "internal senses" of the sensitive soul - cogitation, memory, common sense, imagination – were localized in the seemingly empty "ventricles" in the brain, on a continuum which allowed for the integration into an organic whole of bodily functions, passions, sensations, cognition, reason, and volition. (9) Aquinas wrote that "all the passions of the irascible appetite rise from the passions of the concupiscible appetite and terminate in them; for instance, anger rises from sadness, and having wrought vengeance, terminates in joy. For this reason also the quarrels of animals are

about things concupiscible-- namely, food and sex, as the Philosopher says (De animalibus VIII).” (*Summa Theologica* I, 81, 2. cf, ad.1.)

In other words, and as per The Philosopher himself, we partake of the whole of biological creation insofar as our desiderative function is always in play. Plato, again, had divided the soul into parts, assigning to these parts a place within the body – rational or intellective in brain, sensitive in heart, and desiderative in liver. As we heard yesterday, his craniocentrism won the day over Aristotle’s assignation of the ratiocinative function in the heart, via Galen - even though Plato was a dualist who believed the soul was imprisoned in the body, while for Aristotle the soul was divvied up into functions, with the soul as “form of the body”, from the lower to the higher. Soul without body could not operate its functions and body without soul was simply dead. It is because we were embodied that we had to take care to maintain the balance of our physiology, its *krasis*, in Hippocratic and Galenic humoural terms, without which we became unable to exercise the free will that made us also creatures able to engage in moral deliberation and decide what is right. If you are choleric and get drunk, you won’t be able to regulate your anger and you may get into a streetfight. But there is always the choice not to get drunk. (10) Unlike other animals, we’re not determined by our appetites and passions. We can, must be able to override them. On this front, though in various ways, all the ancients were in agreement, though the methods of control, and their nature, differed. The Christian Church, via Aquinas, absorbed this functional hierarchy into the fabric of its moral dicta.

The question of how material we can allow the rational soul to be has been asked again and again over the centuries, and was fundamentally a religious and theological question regarding immortality, resurrection, and divine justice. It was Augustine, rather, who influenced Christian thought and ethics on this front. Descartes, whose *cogito* is deeply Augustinian, claimed the body was a mere mechanism and depleted the soul of its material aspect. And so in a way, the modern philosophy that was born in his wake depends on the metaphysical disquiet about the potentially material nature of the rational soul being shoved under the carpet. (11) Of course even in his day, there were outcries over his turning dogs into automata that would not feel pain, love or sadness. Not everyone was Cartesian in the 17th century. Descartes himself, one should say, wasn’t wholly Cartesian: his dualism was mostly methodological, since he held on to the interaction of reason and passions. Gassendi took on board Epicurus and accepted materialism. And many physicians were Gassendists. There was also the sensationalism bequeathed by Locke, where sensations are the condition

for knowledge and their cultivation a condition for civilized life. And vitalism, of which Philippe Huneman spoke yesterday and Charles Wolfe may tell us a few things later. (12) The substantial entry in the 1765 *Encyclopédie* dedicated to the passions begins like this: (13) “Tendencies, inclinations, desires and aversions of some intensity, along with a blurred sensation of pleasure or pain, occasioned or accompanied by some sort of irregular movement of the blood and of the animal spirits, that is what we call passions. They can eradicate all use of freedom, state in which the soul is in some way rendered passive - hence the name passions.” So we’re back with that complex relation of passion and reason, and with the pleasure-pain polarity, on a continuum, despite the Cartesian break, with the “desire” and “fear” of scholastic psychology, which encompassed most of the other emotions and allowed one to index them according to motivation, action, and reaction. The whole process was intensely physiological. There was nothing immaterial about it. But then, the *Encyclopédie* was at heart a subversive enterprise.

We’ve been discussing the many ways of holding on to a material soul against metaphysical and methodological odds. And we ask again, what of the tripartite soul now? Not the soul – the soul is an even bigger, looser idea. I ask specifically where we stand on the historical continuum of soul division, or rather of the functions of what we today call the mind. We are still puzzled by the materiality of mind, and that puzzlement is part of our human story - even though the rapidly evolving sciences of mind themselves seem to be taking us out of that story, and some argue (though not I), out of our humanity, into some strange technoland. (14) We’ve heard just before from Laurent Cohen about how things go wrong in the mind when they go wrong in the brain. (15) I want to push that account a little bit, in general terms but really for the sake of discussion. Because aspects of the erswhile rational soul – cognition, volition, agency, even consciousness - are studied in the neuroscience on which neurology partly rests, and that mark a departure into a historically novel scientific realm. (16)

Yet what has been emerging over the past two decades, starting in part with Damasio’s first book in 1994 *Descartes’s Error*, and with subsequent theories of embodied cognition, (17) is that the focus on the rational soul – on the brain- *apart from the emotional, pleasure-seeking and pain-avoiding body in which it is embedded* - that focus doesn’t give us all the answers about who we are, as conscious embodied beings. About why, for instance, we have stomach aches or backaches when we’re stressed or depressed, or why moral outrage can come with rapid heartbeat. It doesn’t tell us the whole story about stress, sadness, or

depression. We need to look at those other two souls to understand and heal ourselves. We are literally psychosomatic creatures. Emotions, without which we are unable to act properly upon the world, are somatic processes. We are constituted by our bodies, born as such, and die as such. Yet gastroenterologists, say, and neurologists and psychiatrists don't usually think of each other's specialism when they examine their respective patients, as if the individual organs took precedence over their interconnections and their projections to the somatotopic cortex. (18) Modern mainstream medicine partly rests on a post-Cartesian, mechanistic model (as Ohad suggested yesterday), cuts us up into pieces, forgetful of the interconnected three souls – Didier Sicard may tell us more about this later today. (19) Meanwhile, though, some neuroscientists, such as Sarah Garfinkel and Hugo Critchley, (20) or indeed Manos Tsakiris, (21) who we will hear this afternoon, are starting to look at the CNS in its relations with the non-central nervous systems – the non-rational souls – that is, the peripheral and autonomic nervous systems. The whole body, viscera, guts, is becoming an object of scientific study.

There always was a lag between theory and practice – this emerged very clearly when I wrote my history of humoral theory. (22) That theory remained the medical standard even after anatomical discoveries from the 16th century on should have put an end to it, showing as it did that the liver, heart and brain – those seats of soul - were not connected as the theory had supposed. It relied on the idea developed within scholastic psychology that *pneuma* and spirits were gradually refined from one organ to the other, from natural in the heart to vital in the heart. (23) (Laura mentioned this in her introduction yesterday) The cerebellum then refined some of these spirits into smaller, animal spirits, responsible for the transmission via the nerves of sense perceptions to the *sensus communis* - the seat of common sense, separate from though connected with ratiocination and volition. Heat and cold, dryness and moistness, affected the course of these spirits. And the effects of the four humors – choler, melancholy, blood and phlegm - on mood, thought, health changed according to the degree of heat, moisture, agitation in the organism. (24) Once William Harvey (25) had shown that blood circulated through the heart which functioned as a pump - replacing the humoral hydraulic model with another hydraulic model – the anatomical basis for this theory collapsed. But humours remained, along with the three-soul continuum. Even Descartes's ontological dualism wasn't really a psychological dualism. It was in large part a product of the constraints of the new physics he sought to construct as a replacement for Aristotelianism, and he held on to the causal relation between emotive perception and physiology. Harvey's blood circulation didn't undermine the division of the mind into the three souls, each on a

continuum with the other. Doctors didn't change their habits, however reviled and mocked they might be. (26, Molière) People were bled and purged to be rid of toxic humours even until the turn of last century, and when one goes to spas today, we still hope to purge and purify ourselves, rebalance an imbalanced, dyscrasic organism. (27)

This is just a snippet from a wider history we've been exploring here – and whose modern aspects George and Justin recounted. As co-convenor of this conference, my task may be to point at the continuities, and to explore what they tell us – beyond trying to connect various themes brought up here. I alluded just before to the lag between neurology and neuroscience, and that corresponds to the lag that has always prevailed between biological theory and medical practice, or between anatomy and physiology. Anatomy remains clearer than physiology even now – structures are easier to seize than functions, which are dynamic and depend on many variables. Neuroscience seeks to understand cerebral function. For a few decades there prevailed a fashion in cognitive science that mental function was potentially independent of the brain, that the brain happened to be a processor, akin to computer hardware, and that mental processes were akin to software, functions that could potentially be run on a non-biological structure. (28) In computational theory of mind (CTM), thoughts were computations. Never mind physiology - biology, genes, blood, neurotransmitters, hormones, emotions. Forget the sensitive and appetitive souls, in other words. Or indeed, the desire for that cup of coffee. Or addiction, for that matter. Some computational theories applied to the mind can be useful. The Bayesian brain hypothesis, developed notably by neuroscientist Karl Friston (29), throws illuminating light on aspects of mental experience and on our understanding of mental illness, notably schizophrenia. But Friston has been developing a method, not a misguided analogy. As Siri Hustvedt put it in her essay “The Delusions of Certainty”, in her 2016 collection (30) *A Woman Looking at Men Looking at Women* – and we'll be hearing more from her later today - “Flesh-and-blood human beings are wet, not dry creatures”, and “Biological realities play no role in computational theory of mind except as an inferior gelatinous substrate or annoying complexities to be cut through so a conceptual essence can be revealed. The leaky, moist, material body is not part of its model of mind.” The model of mind researched within that theoretical framework (of CTM) is as disembodied as Descartes's soul, the ultimate separation of the rational soul from the other two, as if the desiring, sensing body had nothing to do with cognitive processes.

So in a sense when we got rid of the Aristotelian and scholastic models of soul, or mind – I'm now deliberately conflating the two terms, since again, we're not concerned here

with an ontological exploration of soul – when we got rid of that, we threw the baby away with the bathwater. (31) Hence the Cartesian, Augustinian, body-denying alternative. We stand now at an interesting historical and theoretical crossroads. The mind-body split first gave way to the brain-body one Ohad referred to yesterday, a “neurocentrism” that seemed to shed, in turn, the dualist Cartesian legacy for a materialistic monism. In the 1960s, as Laura mentioned too, neuroscientist Paul McLean developed his “triune brain”, (32) which divided the brain itself into broad systems according to their evolutionary age - the reptilian complex as the most ancient, then the limbic system, and then the new, neocortex. It was a hierarchical view of mental function - based in part of that of Hughlings Jackson - since then shown to be an over-simplification, but it shows how enduring is our need to envision in anatomical terms the continuum of appetite, sense and cognition. The frontal lobe does indeed process our highest intellectual functions, but much as one can localize some functions, the brain is rather made of interconnected networks, we now know. This is also how we rarely think in an emotional vacuum. We even *feel* our thoughts, sometimes.

Well before MacLean, and just as neuroscience was making epochal strides in the 1890s, Freud, also inspired by Hughlings-Jackson, had proposed his tripartite model of id, ego and superego, (33) a hierarchy within the psyche rather than within neuroanatomy, whose struggles nevertheless could be, he thought, somatized and made manifest in “conversion” or “dissociative” symptoms pertaining to the peripheral and autonomic nervous systems. These symptoms were repressed emotions. Today, conversion disorder is called functional neurological symptom disorder, but there are no visible neurological lesions in such cases, and its aetiology is still quite mysterious. It seems to be a self-feeding phenomenon of somatic misperception that doesn’t necessarily translate any particular psychic state other than the anxiety associated with pain. Some recent research suggests that it involves the emotional centers in the brain’s thalamic (McLean’s “reptilian”) structures, which evolved to respond to environmental menace, and are activated when one is in a state of high alert, inducing a response of fight, flight, or freeze. Normally such a state is punctual, and lasts only as long as the environmental menace is present. In conversion, this automatic, evolutionarily ancient response is prolonged, and one is as if stuck on survival mode. Still, the - neurologically, rather than psychically unconscious - mechanisms at play in conversion are not well understood.

So yes, even without such extreme states, we know that we are psychosomatic creatures, and emotional processes and the psyche-soma connection are becoming clearer – witness also the work of Jaak Panksepp, and more recently Robert Sapolsky, as well as efforts

in neuropsychanalysis (34) that may be returning Freud to his neuroscientific origins. But we're still struggling with that brain-body connection in specifically medical and neurological *practice*, despite the theoretical tools we have with which to explore it. Hence, yes, yoga (35) and related psychosomatic practices, acupuncture and the holistic, humoral "alternatives" to mainstream, western mechanistic medicine - worth about \$34 billion in the US alone. Yet indeed we are starting to recouple brain and body within neuroscience. There is also the recognition that we must think of a body-brain-*world* connection. We're necessarily *embedded* within our environment, having evolved within it. As neuroscientist, philosopher and psychiatrist Georg Northoff (36, 2016) put it, the self is "intrinsically linked to the body", thus embodied, and, "because it is based on self-reference", it is also "intrinsically linked to the environment", hence "embedded and social" (...). It's not "located somewhere in the brain, isolated from both body and environment. The brain's neural activity is intrinsically neurosocial", and "cannot avoid the social-environment context when encoding stimuli in its intrinsic activity".

So I've finally sneaked in the third term in my title, "self" – another large topic. But it is relevant here, because behind the notion of three souls, there is the assumption of their constituting a unitary self of some sort, regardless of how we want to define that self ontologically. I thought quite a bit about the connection of self with embodied soul after some invasive surgery last year. The phenomenology of it led me to realize how profoundly embedded within the body is the self, and how surgery constitutes an aggression to its somatic integrity, one that provokes a stress response in the autonomic – sympathetic and parasympathetic - nervous system. (37) We know that a stressed ANS, which by the way used to be called the vegetative system, has an impact not only on vascular and gut function, via immune and inflammatory responses throughout the organism, but also on the CNS – on our cognitive capacity and our ability to regulate ourselves within the world. (38) Inversely, we may perceive a stressful situation cognitively at first, before it affects our whole system. Or we may perceive it somatically before realizing we're in fact stressed. (39)

The self is primarily a somatic entity, where the brain is a central node within that soma. We feel with our whole bodies, in a constant feedback loop with the emotional pathways in the brain – (40) here is Joseph Le Doux showing how conscious emotions are indexed on the survival circuits we share with other animals. (His studies of fear from the 1990s were groundbreaking.) And we can inverse the relation, since this is a loop, and think of how somatic is the brain – intrinsically connected to the body, the rational soul in constant

dialogue with the sensitive and appetitive souls. The central, peripheral and autonomic nervous systems constitute one embodied, embedded self, and while the brain is, as it is said, the most complex object in the universe (41), its functioning cannot be understood apart from the environmentally responsive and conditioned organism of which it is a part. No one will ever unravel the brain with its 80 million neurons, even more numerous glial cells, and about 1000 trillion synaptic conditions (42), but this is not what understanding our tripartite soul is about. We need the body and the world in which we have evolved, on that Aristotelian continuum with the rest of creation, to understand the brain. Damasio, in *The Strange Order of Things*, suggests an idea that in fact inverts the ancient tripartite hierarchy: “minds depend on the presence of nervous systems charged with helping run life efficiently, in their respective bodies, and on a host of interactions of nervous systems and bodies. ‘No body, never mind.’ Our organism contains a body, a nervous system, *and* a mind that derives from both”.

And we can now understand pleasure and pain themselves, and hence all our feeling life, as the upshot of the ancient homeostatic processes whereby an organism perceives environmental conditions. Damasio sees these processes as central to mental life: “both its simple aspects and its extraordinary achievements”, he writes, “are partial by-products of a nervous system that delivers, at a very complex physiological level, what simpler life-forms have long been delivering without nervous systems: homeostatic regulation.” An emotive transformation is “a collection of actions that change the background homeostasis”, which “include the release of specific molecules in certain sites of the central nervous system or their transport, by neural pathways, to varied regions of the nervous system and of the body. Certain body sites – for instance, the endocrine glands – are brought into play and produce molecules capable of changing body functions on their own. The upshot of all this bustle is a collection of changes in the geometries of the viscera – the caliber of blood vessels and tubular organs, for example, the distension of muscles, the change of respiratory and cardiac rhythms”. So you may be dreaming of that coffee by now, and starting to wriggle in your seats. (43) There is after all that finding in psychology that judges tend to assign guilty or harsher sentences before lunch more frequently than after lunch. Homeostasis has an impact on justice too. And caffeine has an impact on homeostasis. It fits into receptors for the neuromodulator and vasodilator adenosine, which enhances dopamine and stimulates the secretion of adrenaline. (44) Chemistry matters, whether we call the substances that condition our moods and feelings humours or neurotransmitters. We may invent hierarchies and imagine we can think ourselves out of our bodies, but an illness, a heartbreak, or indeed a

simple craving for coffee, will return us to our tripartite, unitary, dynamic, emotional, homeostatic selves. And by taking a deep breath again, (45) we will calm our multiple systems and center our thoughts and perhaps have a clearer sense of what complex animals we are, and what we can be at our flourishing best.

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