“Stahl was often closer to the truth”:

Kant’s second thoughts on animism, monadology and hylozoism

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In the *Dreams of a Spirit-Seer elucidated by Dreams of Metaphysics* (1766), Kant remarks that Stahl, with his admission of “immaterial forces” for the explanation of organisms, was “closer to the truth than *Hoffmann* and *Boerhaave*, to name but a few”, although the latter adopted a “more philosophical method”. This puzzling statement is very significant for the understanding of Kant’s reception of animism, as it documents Kant’s reaction to the issues raised by the Leibniz-Stahl controversy and a striking preference for Stahl’s non-mechanistic account of organisms. Kant agrees with Stahl that organisms suggest the existence of immaterial thinking beings, but at the same time the example of this speculative hypothesis leads him to question the explanatory power of metaphysical hypotheses in natural philosophy in general, as well as the possibility of empirically distinguishing among different hypotheses, such as monadology, materialism and hylozoism. After the analysis of Kant’s sceptical conclusions in the *Dreams of a spirit-seer*, I discuss how this earlier connection of medicine, life-sciences and metaphysics leaves traces in Kant’s later work, by analysing Kant’s discussion of Samuel Soemmering’s claim that matter “can be animated” in *On the Organ of the Soul* (1796) and the preliminary drafts for this essay.

1.

Kant's connection to Georg Ernst Stahl's medical theory has not been the object of detailed investigations. Indeed, references to Stahl are very limited and scattered in Kant's writings and just two of them concern medical theory: a rather puzzling passage in the *Dreams of a Spirit-Seer elucidated by Dreams of Metaphysics* of 1766 (Kant 1900–, II, 331), and a short mention in a rectoral address of 1786 (Kant 1900–, XV, 943).[1] Both passages praise Stahl for having detected the limits of mechanistic accounts of organic beings and medicine (represented exemplarily by Friedrich Hoffmann and Hermann Boerhaave) and emphasise the special status of living beings and the medical importance of mind-body interaction. According to John H. Zammito (2018, 21), these statements belong to "a new research program in German physiology" that was established "over the course of the eighteenth century" and intersected the controversy of the great physiologist Albrecht von Haller with Stahlian physicians. "Late in that century, as Haller's own stance came under criticism, aspects of Stahl's views received more favorable mention". As prominent examples of this revival in the second half of the 18thcentury, Zammito names Kant and Johann Friedrich Blumenbach, the theorist of the "formative drive" (*Bildungstrieb*) and Kant's most important biological reference in the third *Critique*. However useful and correct this general contextualization turns out to be, Kant's early endorsement of Stahl in 1766 cannot be straightforwardly connected to the views that he expressed in the critical philosophy of the 1780s and 1790s. In 1766, Kant was still pursuing metaphysical research and favourably mentioned Stahl's account of "organic beings" as conducive to the purposeful causal

1 Stahl's chemical – rather than medical – theory is celebrated in the Preface to the second edition of the *Critique of Pure Reason* (Kant 1900–, III, 12–13). English translations, when available, are from the *Cambridge Edition of the Works of Immanuel Kant*, ed. By Paul Guyer and Allen W. Wood. Other translations are mine.

influence of "incorporeal beings" on matter. As we will see, this favourable mention concerned the metaphysical and epistemological sides of Stahl's account, as if they were immediately connected. In critical philosophy, on the contrary, Kant not only excluded any possible knowledge of incorporeal souls in the *Critique of Pure Reason*, but he also excluded, in the *Critique of the Power of Judgement*, "that some purposiveness in nature (in organic beings) is intentional" (Kant 1900–, V, 391). Thus Kant rejected his former superposition of metaphysics and epistemology, separating the subjective, epistemic notion of purposiveness from the (allegedly) objective teleological design of organic beings, which would be a mark of the existence of incorporeal intelligent beings, as was the case with Stahl's theory. A persistent element in these different stages of Kant's thought was the epistemological thesis that mechanism is unable to explain organic beings and that some principle of purposiveness has to be admitted for the sake of scientific investigation. Nevertheless, as this kind of critique of mechanism became a mainstream element of late 18th century natural science, Kant disagreed with the emerging proliferation of concepts of life-force and the attached connection of physiology and metaphysics. On the whole, Kant's relation to Stahlianism and contemporary life sciences had different stages that need to be articulated in more detail, for they entailed major changes in Kant's reaction to the philosophical-scientific context. In this perspective, I will argue that there is indeed an interesting, if convoluted story connecting Kant and Stahl.

My first claim will be that Stahlianism was a major factor for Kant's early understanding of "organic beings" and was connected, in the *Dreams of a Spirit-Seer* and other writings of the 1760s, to Kant's struggle to develop a monadological metaphysics and avoid its collapse into materialism. Therefore, my argument will not merely address Kant's interpretation of Stahlianism; it will have to be fleshed out in the broader context of Kant's engagement with Newtonianism, monadology and contemporary life-sciences (§§ 2-3). In § 4, I will briefly

address the impact of Kant's critical turn on his reassessment of the notions of soul and life-force. In § 5, I will argue that Kant's earlier interest for non-material causes in living beings left significant traces in Kant's view of the separation of philosophy and physiology in criticism. A brief analysis of Kant's essay on Samuel Sömmering's *On the Organ of the Soul* (1796) – a book by a notable anatomist making the hypothesis that matter in the brain could be "animated" (*animirt*) – and of the extant manuscript drafts of this essay will document a close connection of Kant's late thought with his early interest in Stahl.

2.

As is well known, the *Dreams of a Spirit-Seer explained by Dreams of Metaphysics* (1766) is a unique document of Kant's philosophical crisis. Emanuel Swedenborg's baroque visions of the afterlife provided the occasion to test the whole sustainability of the project of metaphysics that Kant himself had defended for almost twenty years trying to connect Leibnizian and Wolffian monadology to Newtonian natural science (Schönfeld 2000). This context will turn out to be crucial for understanding Kant's appraisal of Stahl.

Stahl is named in the second section of the first part of the *Dreams*. In this section, Kant addresses the problem of the "community with the world of spirits" as it can be possibly conceived according to metaphysics, natural science and experience in general. The reference to Stahl appears in a paragraph that is concerned with the use of immaterial principles in philosophy.

"The resort to immaterial principles is the resort of lazy philosophy. For that reason, explanation of this sort is to be avoided at all costs, if the causes of phenomena in the world, which are based upon the laws of the motion of mere matter, and which are uniquely and alone capable of intelligibility, are to be known in their full extent. Nonetheless, I am

convinced that Stahl, who is disposed to explain animal processes in organic terms [*organisch*], was frequently closer to the truth than Hoffmann and Boerhaave, to name just a few. These latter, ignoring immaterial forces, adhere to mechanical causes, and in so doing adopt a more philosophical method. This method, while sometimes failing of its mark, is generally successful. It is also this method alone which is of use in science. But as for the influence of incorporeal beings: it can at best be acknowledged to exist; the nature of its operation and the extent of its effects, however, will never be explained" (Kant 1900–, II, 331).

First of all, what does it mean to explain "animal processes in organic terms [*organisch*]"? Kant introduced the question in previous paragraphs, making the hypothesis of "a type of being which contains the ground of *life* in the universe. Such beings are, therefore, not the kind which enlarge the mass of lifeless matter as constituents, or increase its extension. Nor are they affected by lifeless matter acting in accordance with the laws of contact and impact. They rather, by means of their activity animate [*beleben*] both themselves and also the dead stuff of nature" (Kant 1900–, II, 329). Thus the existence of organic beings, defined negatively as those beings whose processes cannot be explained mechanically ("with laws of impact and contact", i.e. "by mechanical causes"), suggests the existence of the immaterial soul as the cause of physiological processes, however the "nature of its operation" and "the extent of its effects" will never be explained. Thus, when Kant claims that Stahl might have been "closer to the truth" than mechanistic physiologists, he connects the epistemological and the metaphysical dimensions of the question: the explanatory failure of mechanistic accounts of animal processes provides a good reason to infer immaterial principles and beings. Kant points out that mechanism is still the standard of scientific explanation and that this kind of hypothesis normally belongs to lazy philosophy, but it is supported in this case by the

evidence of a different kind of causality characterized by special laws (however the understanding of the relative causes and their operations transcends our intellectual powers). On the one hand, phenomena of lifeless matter can be given a "physical explanation", and this kind of explanation, "when the physical and the mathematical are combined, is called *mechanical*". Immaterial beings, on the other hand, act according to "*pneumatic*" laws and "in so far as corporeal beings are the mediating causes of their action in the material world", these laws are called "organic". Once we grant – in our search for an explanation of organic beings – the existence of immaterial beings as "spontaneously acting principles, and thus substances and natures existing in their own rights", these beings can be assumed to form an "immaterial world (*mundus intelligibilis*)" (Kant 1900–, II, 329).[2] This conclusion was reframed in the 1770 *Dissertation*, where Kant eventually argued for a strict separation of the intelligible and the sensitive worlds.

But why Stahl was relevant for the investigation of this truth? Kant's discussion invoked two original aspects of Stahlianism: the conception that the term organic means "organized according to and because of specific purposes" (Stahl 1737, § XXXIX, p. 16) and the position of the immaterial soul as the ground of life in matter. Regarding the meaning of Stahl's views, scholars have traditionally separated his "animism", according to which actions do not belong to matter but to a soul acting *on* matter, from kinds of "vitalism" that endow matter itself with an active power.[3] The status of Stahl's notion of the soul was subject to different

2 It is interesting to point out that this approach to living beings as characterized by "special laws" of voluntary motion was also characteristic of Newton (see Iliffe 1995, in part. 454). As we will see below (§ 3), Kant's Newtonianism would conspire to his appraisal of Stahlianism.

3 Wolfe (2015) separates "metaphysical vitalism", which explains life in terms of immaterial substances and forces, from "vital materialism", which endows matter (at different levels) with life. On the origins and meaning of the term "animism" in this context see Chang 2002, 220–221 and Zammito 2018, 26ff.

interpretations, and today's scholars are also divided: some have insisted that Stahl was both a dualist and a mechanist (Chang 2002, 171, 193–4), some have claimed that the "hypothesis organicus" of the Stahlians rejected any separation of soul and body (Geyer-Kordesch 27–37), some have pointed out that Stahl himself did not elaborate a full-fledged philosophical position and have discriminated his views from those of his students (De Ceglia 2009, 161-268 and 88ff for the reception).[4] For our present purposes it is sufficient to assert that Stahl admitted the soul's activity as a necessary integration of mechanism: on his account, the soul is immaterial, with both a physiological function, as the condition of life, and rational ones, as "reason" (purposeful, but unintentional) and "ratiocination" (purposeful and intentional) (Stahl 1701). The physiological function concerned the preservation of life from its otherwise necessary physical collapse, but besides this limitation Stahl's physiology was mechanistic.

To be sure, Kant's view of Stahl, as is usual with his interpretations of philosophers and scientists, turns out to be non-philological, but connected to previous discussions. The kind of metaphysical dualism and interactionism advocated by Kant can be seen as a peculiar reaction to the Leibniz-Stahl controversy in the *Negotium otiosum*, whose publication in 1720 renewed the philosophical discussion on physiology in 18th century Germany.[5] Indeed, Leibniz is the "Stone Guest" of Kant's discussion, who will come onstage below in my analysis (§ 3). Leibniz had notably defended a fully mechanistic and chemical account of "organic beings", conceived as infinitely complex machines (see Smith 2011). On his theory of preestablished harmony, Leibniz denied that immaterial substances could interact with bodies and considered this alleged influx as a violation of mechanical laws, using this argument against Cudworth's theory of "plastic natures" (in

4 For a survey also see Duchesneau and Smith's *Introduction* in Leibniz (2016, xxvi-xxxviii).

5 See the Introduction by Duchesneau and Smith in Leibniz (2016, xxxviii-lxxxix) and Zammito (2018, 28–36).

> the *Considerations on Vital Principles and Plastic Natures* of 1705) and then against Stahl's soul. Concerning Stahl's soul, he pointed out that it actually played the role of Descartes' animal spirits and was therefore inseparable from matter, thus provokingly claiming that Stahl's position was similar to Hobbesian materialism.

"It is held in the same place that sense is nothing other than the reaction of subtle external motions to subtler motions produced by the soul for the sake of perceiving. I fear that in this way the soul would be rendered corporeal and mortal, and would be transformed into that very thing that is called by others "spirits" (to wit, corporeal spirits), especially as the distinguished man denies that spirits of this sort are distinct from the soul. Of course, it was with this approach that Hobbes explained sensation in terms of reaction" (Leibniz 2016, 49).

Kant's debts to Leibnizian philosophy in the "precritical" writings were obvious. In the *New Elucidation of the First Principles of Metaphysical Cognition* (1755) and the *Physical Monadology* (1756), Kant had sketched a metaphysics which included monads and a reformed kind of "preestablished harmony", and he had focused on the problem of materialism, which was also a central topic of contemporary Wolffian philosophy. Thus it is striking that Kant, in the above quoted passages on Stahl, disagreed with both sides of Leibniz' anti-Stahlianism: he wanted souls that *interact* with matter in order to explain organic beings, and he defended the *immaterial* nature of these souls. It is also interesting, in this regard, that this position was taken in the essay inspired by Swedenborg, whose speculative claims entailed an interactionist metaphysics and a rejection of Leibnizian

harmony.[6] On the whole, Kant clearly disagreed with Leibniz's negative picture of Stahl and found something different and promising in the latter's original views.

Nonetheless, in the *Dreams*, Kant's tortuous quest for metaphysics led momentarily to the proliferation of conjectures of a "fathomless philosophy" (Kant 1900–, II, 348). Kant argued that explanations of organic beings can be construed in a number of different ways, including materialism. There is an "immeasurable but unknown hierarchy of beings and active natures, in virtue of which alone the dead stuff of the corporeal world is animated [*belebt*]". But "it will, perhaps, forever be impossible to determine with certainty how far and to which members of nature life extends, or what those degrees of life, which border on the very edge of lifelessness, may be". The alternative theories range from "*Hylozoism*", which "invests everything with life", to "materialism", which "when properly considered, deprives everything of life" (Kant 1900–, II, 330). Here Kant identified "materialism" with what we call "mechanistic materialism", i.e. the Hobbesian kind of materialism that was the most debated one in early 18th century Germany (Rumore 2013; Dyck 2016). Since Kant excluded a mechanistic account of organic beings, hylozoism, which recognized the need of a non-reductive conception of life, turned out to be the most important alternative. Hylozoism, however, also turned out to be particularly worrying with regards to one of the vexed

6 I will not dwell upon Swedenborg's knowledge of the philosophical-scientific context and its possible importance for Kant. Swedenborg had some knowledge of Leibniz's, Wolff's and Stahl's writings. In *The Infinite* (1732), he admitted the existence of "simples", i.e. simple substances. In a number of essays on the mind-body interaction he rejected pre-established harmony. In post-'revelation' writings, Swedenborg even reported his conversations with the deceased Leibniz. A focused study could provide an unexplored background for the understanding of Kant's apparently weird connection of Leibnizian-Wolffian metaphysics to the *Arcana coelestia* of the Swedish Spirit-seer. Some material can be found in Nemitz 1994.

questions of contemporary discussions on materialism, that is the separation of souls and matter – indeed, it actually belonged to what we call "vital materialism" (see footnote 3). Kant's example of a hylozoist was Pierre-Louis de Maupertuis, who "ascribed the lowest degree of life to the organic particles of nourishment", while "other philosophers regard such particles as dead masses, necessary for the mechanical arrangement of animal machines" (Kant 1900–, II, 330). Maupertuis, in his *Essai sur la formation des corps organisés* (later retitled *Système de la nature*) endowed matter with "some principle of intelligence, something similar to what we call desire, aversion, memory" and applied this hypothesis to "the smallest parts of matter" (Maupertuis 1768, vol. II, 147; 149). But Maupertuis' hypothesis was just one of the alternatives: while Kant took for granted that Cartesian and Leibnizian mechanism (referred to with the formula "animal machines") was inadequate, he argued that different kinds of beings suggested a variety of degrees of life. For example, plants lack free movement, which is an "undisputed characteristic mark of life", but this does not entail that they lack any degree of life. Thus Kant mentioned the ancient "immaterial principles" of the vegetative, animal and rational souls, as an interesting, if uncertain, attempt at classifying different kinds of beings. One more case was the "separate life of limbs" in Haller's experiments that led to introduce "irritability" as a property of nerves and of some plants (Kant 1900–, II, 331). This example corresponded to a different articulation of degrees of life, for Haller allowed of irritability and sensibility (as a kind of consciousness in the nerves) besides the rationality of an immaterial substance "whose seat is in the head" (cf. Haller 1757–1766, I, 488; IV, 467–470).

The passage on Stahl and the advantages and disadvantages of immaterial principles of life immediately followed this survey of hypotheses. On the whole, Kant's discussion – granted the epistemological claim that purposiveness cannot be reduced to mechanism – ended up in a radical metaphysical uncertainty and seemed to attribute this uncertainty to the

underdetermination of empirical data with respect to different metaphysical hypotheses, such as Aristotelian and Neo-Platonic souls, Maupertuis' organic molecules, Haller's forces and thinking soul. Kant's predilection for "immaterial forces" in the above quoted passage and in his natural philosophy in general may have suited a Newtonian perspective such as Haller's. Hence it is not immediately clear why Stahl's animism stood out among the alternatives. The positive mention of irritability suggests that Kant construed Stahl's soul in a "Newtonian" style, as the unknown ground of a force that was detected by experience, while at the same time securing that this "immaterial force" could not be ascribed to matter.[7] Such original combination of alternative theories would correspond to Kant's typical method of reconciling metaphysics and natural science in the precritical writings, which he had applied to Leibniz and Newton. But then, which are the elements of Stahl's original theory that motivated Kant to try this connection in the first place? The advantage of Stahl's theory seems to be that it attacks hylozoism on its own ground, by granting to the immaterial soul an explanatory role concerning organic beings and by sharply underlining the passivity of matter, while Haller's theory raised concerns in this regard. Indeed, La Mettrie had famously interpreted Haller's physiology as conducive to materialism (Zammito 2018, 81).[8] In order to cast more light on this interpretation of the passage on Stahl in the *Dreams*, however, we have to examine in

7 A much later text, as we will see in § 5, retrospectively confirms that he connected the resort to the soul and the notion of irritability.

8 In the critical writings, Kant would keep the contrast between life as spontaneity and matter as intrinsically passive (in the *Metaphysical Principles of Natural Science*), as well as the recognition that teleological principles must integrate mechanism (in the third *Critique*). Huneman (2008, 171–174) provides a penetrating analysis of the intertwining of metaphysics and biology in the passages that we have examined, discussing both the relevance of Haller's irritability and the connection to Kant's critical doctrines.

more detail how alternative theories of life were related to both Newtonianism and Kant's favourite metaphysical hypothesis: monadology.

3.

Kant's discussion of organic beings and Stahl in the *Dreams* has to be considered against a complex background. On the one hand, the fact that Kant pondered the plausibility of alternative metaphysical explanations of organic beings, including materialism, reflected the rise of Newtonianism in 18th century life sciences (Zammito 2018, 98–171). As a Newtonian natural philosopher and a metaphysician in the Leibnizian tradition, in his works of the 1750s, Kant replaced preestablished harmony with a scientifically more fruitful theory, which allowed of monadic "interdependence" by means of Newtonian forces (Kant 1900–, I, 415). Kant's reception of Newtonian theories of the properties of living beings, conceived by analogy with gravitation (from Maupertuis to Haller), presupposed this metaphysical foundation. However, Newtonian life sciences were compatible with different metaphysical frameworks, from dualism to kinds of materialism, and monadology, as Kant would eventually realize, was not in itself a solution, but was concerned by this indeterminacy. This problem – I submit – produced the favourable view of Stahlianism.

In the *Physical Monadology* (1756), Kant had introduced physical monads as point-like centers of Newtonian forces.[9] This provided a metaphysical foundation to Newtonian science, but produced the problem of understanding how monads could exist in space. Leibniz had often pointed out that monads do not properly occupy any point in space.[10] The concept of point-like substances – including physical "elements" – was introduced by Christian Wolff

9 For an outline of 18th century monadologies see Pecere 2020.

10 "To fix it [the soul] to a point, to diffuse it all over many points, are only abusive expressions, *idola tribus*" (Leibniz 1875, VII, 365–366).

(e.g. Wolff 1740, § 215). Wolff was also the first to present materialism as a noteworthy – although false – hypothesis, and his followers soon started to point out the need to separate point-like monads from matter in the Wolffian system. In 1741, Martin Knutzen – Kant's teacher – first suggested that Leibniz' thesis of the sensibility of monads may provide "weapons" to the materialist (Knutzen 1744, 38). Indeed La Mettrie, in *L'homme-machine* (1748), provocatively maintained that Leibnizians "with their Monads [...] spiritualized matter rather than materialize the soul" (La Mettrie 1747/1960, 148), thus suggesting that monadology could be empirically indistinguishable from materialism. Kant was particularly pressed by this problem in the mid-1760s, as he was reconsidering his own monads as centers of Newtonian forces (Pecere 2016, 181–186).

In the *Inquiry into the Principles of Natural Theology and Moral* (1764), Kant reprised the theory of physical monads, arguing that we know that bodies are reciprocally present to each other by their dynamical interplay, i.e. action at contact and attraction (Kant 1900–, II, 288). However, Kant now admitted that it was entirely unclear how to understand the interaction among immaterial souls and their presence in space. In the *Dreams of a Spirit Seer*, Kant realized that his monadology was in fact unable to justify substance dualism and even spelled out the possibility that monadology, in this form, might end up in materialism. The whole argument needs to be considered for our purposes.

First, Kant introduces the (Wolffian) distinction between substances endowed with "the power of reason" and physical elements. Then he argues that the former would be "indistinguishable" from the latter, since we know only the "powers of their external presence" and have "no knowledge whatsoever" of their "inner properties" (Kant 1900–, II, 321). Hence we can prove that the "indivisible I" is a simple substance, but we cannot tell whether this substance is "material" or "immaterial" (Kant 1900–, II, 322). As regards material phenomena, we can empirically "recognise" the activity of a repulsive force in the

filling of space, yet we do not "understand" it, because at this stage reason reaches its "limit"; i.e., we cannot tell what is the ground of repulsive force. On the whole, we can infer the existence of different kinds of substances and envisage the possibility that these substances are characterized by a different kind of "activity" compared to the "moving force" of corporeal substances – notably we might attribute our own representations to these substances, as Leibniz did. Yet we would not be able to prove neither the possibility, nor the impossibility of this claim, for both alternatives would "likewise remain incomprehensible" (Kant 1900–, II, 323).

In the case of organic beings, this cognitive limitation entailed the problem of discriminating bodies animated by immaterial monads from active matter intrinsically endowed with mental powers, like in Maupertuis' theory. As we have seen, Kant was not alone in connecting this problem to the legacy of Leibniz. The anonymous translator of the German edition of the *Essai sur la formation des corps organisés* pointed out that "the main argument looks to me to be identical to Mr. Leibniz's monadology" (Maupertuis 1761, s.p.). Kant quoted this edition in his writings and could hardly miss this passage. In a lecture of metaphysics (standardly dated 1782/3), he would reprise the analogy between monadology and materialistic theories, commenting on the inferences about simple elements as grounds of phenomena which were made by Leibniz with his theory of monads "as well as by materialists from this proposition of Leibniz" (Kant 1900–, XXIX, 930). He was arguably thinking to Newtonian materialists such as Maupertuis, but at the same time he may have been reconsidering the theoretical instability of his own past metaphysics.[11]

Be that as it may, the challenge of materialism as a possible and undesired result of Kant's metaphysics was overtly addressed in the first chapter of the *Dreams of a Spirit-Seer*.

11 Kant concluded that the theory of monads was a "phantom of the brain" and simple substances had to be ruled out.

Unsurprisingly, the subject turned up in a discussion of the seat of the soul. According to Kant, there is no evidence that the I has a particular seat in a "microscopically tiny region of the brain", as it is felt as being located "wholly in the whole of body" (Kant 1900–, II, 325).[12] Kant does not investigate the plausibility of different localization hypotheses, which "admit only of a very superficial proof, or no proof at all"; he wants to "examine the conclusion to which a theory of this kind may lead me". If we accept the general hypothesis of the presence of the soul, then we lack "any characteristic mark" to discriminate the soul from "the raw elements of matter […] Then the idea jokingly proposed by Leibniz that in drinking our coffee we may perhaps be swallowing atoms destined to become human souls would no longer be a laughing matter. But, in such case, would not this thinking 'I' be subject to the same fate as material natures?" (Kant 1900–, II, 327).[13] The issue was not solved in the *Dreams*. The uncertainty depended on Kant's conviction that the only kind of interaction that could be accepted in philosophy was physical influx, hence Leibniz was unable to convincingly explain the interaction of immaterial monads with bodies; but this interactionist view led to materialize monads and hence towards hylozoism. This left a serious problem, for Kant's metaphysical and religious inclination was to admit "immaterial beings" (Kant 1900–, II, 327, 349–350).

This problematic view of monadology as either inadequate for scientific explanation, or conducive to undesirable consequences arguably oriented Kant' interpretation of mechanistic medicine. Hoffmann argued that the resort to the soul as an explanatory ground promoted "laziness and ignorance" among the students (Hoffmann 1718-1739, 281, App. 37). As the

12 This experience supported the "holenmerism" that Descartes had borrowed from the Scholastics (Pasnau 2011, 296–298, 337), and that Newton had borrowed from Henry More.

13 The picture of monads in the coffee had been first attributed to Leibniz by Michael Hansch in his Latin translation of Leibniz' *Monadology* (Hansch 1728, 135).

Pietists in Halle had started to endorse Stahlianism, Hoffmann, who had pronounced a famous "Oration on the Usefulness of the Mechanical Method in Medicine" (1703), became a favourite example of mechanistic physician among the Wolffians (Rumore 2014; Zammito 2018, 19. Also see De Ceglia 2009, 112-116). Wolff also defended a purely mechanistic medicine and focused on the analogies and irreducible difference between the forces and "psychological laws" of souls and the forces and "mechanical laws" of bodies (Wolff 1972 [1734], §79. See Favaretti 2021). This convergence between Wolffian philosophy and Hoffman's iatromechanism was evidently rooted in a common Leibnizian background. Kant did not want to take sides in the partisan polarization, but he pointed out the limits of mechanism concerning organic beings and hence attempted a theoretical conciliation of medicine and dualism. Now, given his interpretation of monadology, point-like substances in Wolffian style turned out to be inadequate to contrast materialism. The explanation of organic beings was the point where the whole Leibnizian-Wolffian tradition showed its limits and needed a reassessment (see § 4).

We are now in the position to confirm our hypothesis: Stahl's theory of souls and organic beings, in this context, may have appeared as a hypothesis that showed the limits of mechanistic explanations and at the same time realized the metaphysical task of preserving the immateriality of the soul – thus overcoming the metaphysical limits of Newtonians and Leibnizians. Indeed, Kant's interpretation of Stahl in the *Dreams* overturned the charge of materialism that had been spelled out by Leibniz against the latter: it was rather Leibnizian monadology that could collapse into materialism, while Stahl appeared as the author of a more consistent dualist view.

4.

After the *Dreams*, Kant would soon drop his positive evaluation of Stahlianism, as he elaborated a different strategy against materialism. At the end of the *Dreams*, Kant already admitted that the whole hypothesis of spirits was weak and resorted to the widespread theme of the ignorance of the causes. Before drawing this conclusion he added one last conjecture that opened a new direction in his investigation of incorporeal beings. He argued that there are indeed experiences that suggest a reciprocal interaction of spirits: moral impulses show that we are subject to "a rule of the general will" that can be thought by analogy with Newtonian gravitation "as a manifestation of that which takes place in us, without establishing its causes" (Kant 1900–, II, 335). Thus moral phenomena would be a way of experiencing the purely spiritual side of humans without entering the vexed issue of the interaction of souls and bodies.

This argument entailed a separation of representations of spiritual life from those belonging to the "bodily-life". Kant concluded that any attempt at understanding one world in terms of the other was ill-posed (and monads were only improperly represented as "tiny little plumps"). But this meant that no metaphysical theory could ultimately be proved by experience; on the contrary, Kant blamed metaphysical hypotheses for their "flexibility" and capacity to be adapted to any kind of empirical evidence. A liberal approach towards metaphysics would even allow daring and uncontrolled speculations like those included in Swedenborg's reports, and had to be avoided in philosophy.

This conclusion would be reprised in the *Dissertation* and persisted in critical philosophy, determining the separation of the question of the soul from the question of organic beings. Kant would retain the epistemological thesis that organic processes cannot be reduced to mechanism and require different principles of explanation, i.e. teleological principles. In this regard, Zammito is right to include Kant in the revival of Stahlian ideas in German life sciences, but it must be pointed out that, after the *Critique of Pure Reason*, Kant did not

believe anymore that this epistemological argument could entail the existence of *immaterial substances* as explanatory grounds. After this turn in his metaphysical project, indeed, Kant found a better candidate than Stahl to isolate intelligible beings from the world of bodies: Leibniz himself, if only his doctrines were correctly understood (or emendated). As he put it in a manuscript Reflection of the 1770s: "Monadology cannot help in the explanation of phenomena, but only in the distinction of the intellectual from phenomena in general" (Kant 1900–, XIV, 153). Many times, in the 1780s, Kant would submit this new interpretation of monads as purely intellectual beings, arguing that it was "more suited to his [Leibniz's] purpose" (Kant 1900–, VIII, 248) and leading to the somewhat paradoxical statement that critical philosophy was "the true apology for Leibniz, even against those of his disciples [the Wolffians] who heap praises upon him that do him no honor" (Kant 1900–, 248, 250). Kant's new interpretation of monadology answered the call of Moses Mendelssohn in the Preface to the *Morning Hours* (1786), who had invoked the intervention of Kant "the all-destroyer" against the "inclination towards materialism" of contemporary German thought and endorsed a Platonic interpretation of intellectual substances (Pecere 2013, 37–40). Indeed, as vital materialism was rising in late 18th century Germany, Kant would have the opportunity to reconsider his past theoretical crisis and the teachings that he had derived from the controversies over Stahl and monadology.

5.

As is well known, in the years of criticism Kant developed his old arguments on the purposiveness of organic beings in new ways. The positive evaluation of Blumenbach's theory of the "formative drive" (*Bildungstrieb*) represented a methodological compromise between the a priori principles of physics expounded in the *Metaphysical Foundations of Natural Science* (1786), which excluded life and objective purposiveness from matter, and the

need of teleological reasoning for the understanding of living beings. Kant's philosophy of nature now excluded any bridge between sciences of life and metaphysics: "organic beings" counted as epistemological exceptions because of their part-whole interdependency (Kant 1900–, V, 373) and the explanatory function of the soul disappeared.[14] Indeed, Kant presented the principle of "the *life of matter* (in it, or also through an animating inner principle)" (V, 392) as belonging to "hylozoism", thus apparently conflating Stahl's view with the latter.

At the same time, the idea of "life-forces" as *objective* principles for the explanation of organisms was rising in German philosophy and physiology. Johann Gottfried Herder notably turned against his old teacher, arguing that each being is born from a "living point" and develops according to the action of a "organic, living force". Herder also examined Joseph Priestley's view that matter and spirit may be homogeneous, then claimed that living "force" could survive to the death of the organized body in a different form, possibly in the "ether", considered as the "sensorium of the Omnipotent, whereby He animates and warms everything". In his investigation of the "Realm of invisible forces" that underlay organisms Herder also made a reference to Leibnizian monads. Thus Herder brought back into discussion the whole set of hypotheses of Kant's early speculation (Herder 1784/1967, 169, 172, 199–201).

But this was just the beginning: in the 1790s, many prominent natural philosophers would present "life-force" as the fundamental concept of natural science and reject the Kantian discontinuity between life and rationality in their grand projects of history of nature. For example, Johann Friedrich Kielmeyer (1793, 37) argued that "what was previously irritability develops in the end into the capacity for representation". To Kant's dismay, as Zammito points out, "*Lebenskraft* and *Bildungstrieb* became virtually synonymous" in German *Naturphilosophie* (Zammito 2018, 280, and chapters 8-10).

14 For an overview see Goy and Watkins (2014).

Faced with this new intertwining of metaphysics and physiology, Kant realized that he needed to address once more the issue of "hylozoism" and the separation of a priori rational principles and empirical knowledge advocated by critical philosophy. The publication of Samuel Sömmering's book *On the Organ of the Soul* (1796) provided an opportunity to intervene. Sömmering derived the hypothesis of the seat of the soul as located in the ventricular fluids from his new anatomical discoveries on the afferent nerves in the brain. He maintained, in Kantian jargon, that the hypothesis belonged to a "transcendental physiology", since the anatomical data were interpreted in the light of the claim that "a fluid can be animated [*animirt*]". Hence he argued that "our spirit, that is the whole force of our developed individual, of our I, is […] contained in a drop of soft liquid" (Sömmering 1796, 37–42). Sömmering quoted a very mixed set of ancient and modern sources of inspiration, including Leibniz, Herder, and Ernst Platner. Platner had notably maintained – in an essay on Stahl that was republished in 1796 – that the latter's view was either materialism (which he preferred) or a confused blend of ancient theories of the soul (Platner 1796, 156). In a letter to Markus Hertz of 1773, Kant had rejected Platner's program of a "physiological anthropology" with its "eternally futile inquiries as to the manner in which bodily organs are connected with thought" (Kant 1900–, X, 145)[15]. Sömmering was retracing the whole itinerary from Leibniz and Stahl to the materialist interpretations of their views that Kant had crossed in his works of the 1760s, and it was a sign of the times that the anatomist could naively mistake his animation of matter for a teaching of transcendental philosophy, inviting the philosopher to contribute with an essay.

Kant's short essay, published as an appendix to Sömmering's book, is the most developed exposition of his views on physiology and the soul in the critical philosophy. First of all, Kant straightforwardly rejected the issue of the localization of the soul. According to Kant the claim that the soul has a place in the brain was a "contradiction" (Kant 1900–, XII, 33) and

15 See Sturm 2009, in part. 265.

therefore it had to be dropped in order to avoid an unfruitful conflict between philosophy and medicine. Kant's argument was twofold: first, he argued that the soul's temporal dimension cannot correspond to a spatial determination; second, he argued that a priori principles cannot be reduced to the empirical principles of physiology and hence to spatial relations (Kant 1900–, XII, 31). [16] Examples of the irreducibility of a priori to empirical principles were the *rational* laws of law and religion, in contrast with the "empirically conditioned" doctrines of law and religion. These examples corresponded to the university faculties and illustrated their conflict with philosophy, but further philosophical cases where the logical laws and the moral laws. For example, in the *Doctrine of Virtue* (1797), Kant would complain that "the moral imperative does not get into the heads of those who are used to physiological explanations" (Kant 1900–, VI, 378).[17] In general, rational principles were irreducible to laws of nature. Kant also took in serious consideration Sömmering's theory of ventricular fluids as the seat of the "*sensorium commune*", and hence of the imagination: this side of cognitive activity *could* be examined in physiological terms and Kant suggested that chemical processes in the brain could account for the ongoing organisation of representations. He sketched a chemical interpretation of the law of association, grounded on the new theory of the decomposition of water in different fluids that could correspond to different kinds of sensory stimuli (Kant 1900–, XII, 33–34). Hence a physiology of "mind" (*Gemüth*) was possible on chemical grounds, provided that it did not conflate with the philosophical investigation of "pure consciousness" with its a priori principles (Kant 1900–, XII, 32 n.). The "soul" as substance was left entirely out of the picture.

16 On Kant's argument see: McLaughlin 1985, 197–198; Euler 2002, 472-473; Sturm 2009, 272–273; Pecere 2016b.

17 Kant may have been thinking to Locke, whom he famously criticized for having realized a "physiology of the human understanding" (Kant 1900–, III, ix; also see IV, 105). For a critical view of this interpretation of Locke see Wolfe (2016).

As documented by the preliminary drafts of the essay, dealing with Sömmering involved a recollection of Kant's own earlier theoretical inclinations. In draft H^1 Kant presented the task of Sömmering's book as a "temptation": "Isn't the notice of communication of your finished work on the principle of the living force in animal bodies [and] the seat of the soul a malicious temptation for the metaphysician to dare a step beyond his limit in the field of physiology and thereby show his weak spot? This may be the case. But this trap would not be without fault" (Kant 1900–, XIII, 398). According to Kant, the temptation was aroused from the "dogmatic appearance" of attributing properties of the self to external objects in order to understand the relation between man and material nature. As an example of this metaphysical delusion Kant introduced again Maupertuis' organic particles, which were mocked by Voltaire in the "Doctor Akakia" (see Kant 1900-, XIII, 398 and 414), and commented on this famous episode with a confession:

"I do not want to conceal that I was myself tempted by such a tendency [*Hang*] to dare a transition from the theory of the soul to physiology (to the nature of living matter) and – besides the *mechanical* (statical and hydrodynamical) and the more deeply hidden chemical laws – to think of an affinity of animal matters, analogue to the latter but regulated by *laws of vitality*, and to admit of a special life-force (or irritability, as one otherwise may prefer to call it) in each part of these matters where nerves and their movements are effective, and thereby to admit of a principle of peculiar sensibility of these parts, even though the unification of sensations of so many animated [*belebten*] organs in a consciousness of the soul can only be effected through the nerves that connect the affected organ to the brain, an opinion that, being an amateur, I completely leave to the mature judgement of the faculty" (Kant 1900–, XIII, 398–399).

In this passage, Kant goes back to the mistaken connection of the soul to the special laws of organic beings – e.g. of Haller's irritability – that he had examined in the *Dreams*. Here we find the set of hypotheses that Kant had envisaged and connected to the undesired collapse of the immaterial soul into material substance. Sömmering's essay provided an opportunity to recollect Kant's second thoughts and point out again that the path from metaphysical psychology to empirical natural science was interrupted by a gap: "nobody understands anything of this schematism of thought and of the exhibition [*Darstellung*] of the unity of consciousness in the intuition in general" (Kant 1900–, XIII, 412). Thus Kant, in the published essay, maintained that Sömmering's anatomico-physiological hypothesis, although it was "quite probable", could not justify the view that the soul is present in the body by some kind of life-force. The "presence" of the soul as "consciousness" – rather than substance – was "a *virtual presence*, which belonged only for the understanding, and which just for that reason is not spatial" (Kant 1900–, XII, 31).[18]

With these arguments, Kant described his way out of the metaphysical theories of animated matter that were becoming the driving force of German science. In this regard, the fate of Kant's program has been described as a "defeat" (Zammito 2018, 237). But the impact of the essay on Sömmering has been underestimated. The essay was widely read and eventually, through the reception of Kant's ideas by Alexander von Humboldt and, later, by Hermann von Helmholtz, Friedrich Lange and Emil du Bois-Reymond, inspired the new physicalist program of the "organic physics", that is, precisely the rising force in mid-19th century Germany that advocated once more the banishment of souls and life-forces from physiology (Pecere 2018). As Kant recollected his second thoughts on metaphysical vitalism in his late works, he could not imagine that a similar path would be followed by a future generation of philosophers and scientists, eventually leading to a new battle against metaphysical vitalism.

18 The notion of virtual presence was introduced in the 1770 *Dissertation* (Kant 1900–, II, 414), as Kant formulated a different anti-reductive theory of rational beings.

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