

Reflex Action and Transcendental Aesthetics: Kant and the Physiology of his Time

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A COPERNICAN REVOLUTION IN PHYSIOLOGY

Let's get started with a proposition from *The formation of the concept of reflex in the 17th and 18th centuries*, in which Georges Canguilhem describes what he calls a Copernican Revolution in physiology. According to the French epistemologist, this physiological Copernican revolution - analogous to the astronomical one - "did not happen all at once", but occurred in the course of these two centuries due to "the dissociation of the notions of brain and sensory-motor centre, the discovery of eccentric centres [1]". This displacement of the sensory-motor centre from the brain to other centres located in different parts of the body is what made possible the discovery of the concept of reflex act. It would be, of course, difficult for us to imagine that this description is suitable to characterize the transcendental revolution set in motion by Kant. The fact is, however, that Kant was totally aware of this new trend in the physiology of his time.

[1] G. Canguilhem, *La formation du concept de réflexe aux XVIIe et XVIIIe siècles*, Paris, Vrin, 2015, pp. 127-28.

In a passage from *Dreams of a Spirit-Seer*, Kant says: “I am convinced that Stahl, who likes to explain animal process organically, is often nearer the truth than Hoffmann or Boerhaave”, who “ignore immaterial forces” and “adhere to mechanical reasons”[1]. This is not an isolated remark[2]. Kant was profoundly imbued with the Stahlian vitalism, and his commitment to Stahlian doctrine explains his decentralised view of the body’s functioning.

My exposition on the central role physiology plays in Kant’s thought will be divided into two parts. In the first one I will show how the physiologist Johann August Unzer (1727-1799) explains reflex acts and how his explanation bears striking similarities to the Kantian Transcendental Aesthetics and to his doctrine of sensibility in general. I will try to show that these similarities are not accidental, because both Unzer and Kant share the same vitalistic principles. In the second part we will see how the Copernican revolution in physiology gives Kant the possibility of rethinking teleology in the sense of a *Zweckmäßigkeit ohne Zweck*.

[1] I. Kant, *Träume eines Geistersehers erläutert durch Träume der Metaphysik*, AA 02: 331. English translation *Dreams of a Spirit-Seer elucidated by Dreams of Metaphysics* by David Walford in collaboration Ralf Meerboot, in I. Kant, *Theoretical Philosophy*, Cambridge: Cambridge University Press, 1992, p. 319.

[2] See also the comparison between Hoffmannians and Stahlianos: “Qui posterius statuunt, quos vocant Stahlianos, mentis vim insignem in morbis sanandis aut acuendis celebrant. Philosophi est ad posterius advertere menti”. I. Kant, *De Medicina Corporis quae Philosophorum est*. Refl. n. 1256, AA 15: 943.

PART 1

KANT ' S VITALISM

Johann August Unzer (1727-1799)



I. Kant: "Celeberrimus Unzerus"
Entwurf zu einer Opponenten-
Rede. Refl. 1525, AA 15: 924

In the entire corpus of his work – published and posthumous – Kant makes only two references to the physician Johann August Unzer. In the *Entwurf zu einer Opponenten-Rede*, he calls him *Celeberrimus Unzerus* [1], and in the *Essays on Mental Diseases* he comments on the Unzerian explanation that diseases of the mind may originate in the digestive tract. This theory is presented in numbers 150, 151 and 152 of the magazine *Der Arzt*, a magazine that was entirely written by the physiologist. This publication was a great success among its audience in the 1760s and had two editions. This is why Kant speaks of the widely famous, recognised Unzer. It is very likely that Kant read other issues of the magazine. Unzer is known because he was probably the first to have employed the expression *reflex action* in the history of medicine.

[1] I. Kant, *Entwurf zu einer Opponenten-Rede*. Refl. 1525, AA 15: 924.

In number 18 of his periodical, Unzer presents what he calls the “law of sensation”, which we can say that it is just another name for reflex action:

Dies ist das Gesetz der Empfindungen. Auf eine jede Empfindung erfolgt in unserem Körper eine Bewegung, die, ihrer Lebhaftigkeit gemäß, jeder Empfindung eigen ist, und die man bloß aus der Erfahrung muß kennen lernen. Durch dies Mittel hat die Natur unsere eignen Kräfte zu Aufsehern und Leibärzten über uns bestellet. Wir würden erblinden, wenn ein allzu lebhaftes Licht in unsere Augen fiele, ohne daß wir es hindern könnten. Allein, weil sich nach dem Gesetze der Empfindungen der Stern des Auges jederzeit nach Proportion der Stärke des Lichts enger zusammenzieht, ohne daß wir es hindern können; wo verhüten wir hierdurch, *sogar ohne unser Wissen*, daß nie zu viel Licht auf einmal in unser Auge hineindringen kann. Ebenso ist in allen übrigen Fällen“.

J. A. Unzer, *Der Arzt*, 1. Theil, 18. Stück, p. 280, (1769), p. 244. Italics added.

This is the law of sensations. Every sensation gives rise to a movement in our body which, according to its liveliness, is unique to each sensation and can only be known from experience. Through this means, nature has ordered our own powers as supervisors and personal physicians over us. We would go blind if a too vivid light fell in our eyes without being able to prevent it. This is only because, according to the law of sensations, the pupil of the eye contracts at any time according to the proportion of the strength of the light, without us being able to prevent it; where by this, even *without our knowledge*, we do prevent too much light from ever entering our eye at once.



Cover page of the magazine *Der Arzt*.
Eine medicinische Wochenschrift. First
edition: 1760-1764. Second edition: 1769.

It is important to note here the Stahlian legacy: the soul inspects without interruption everything that occurs inside the body, like a doctor who would be on hand 24 hours a day. And it works not only when there is an emergency, when, for example, the individual ingests some food that is harmful to their health. As a watchful physician (*Aufseher* and *Leibarzt*), the soul is also responsible for all reflex acts, as in the case of the pupil contracting itself in order to prevent too much light from entering the eye at once. And many other similar actions are achieved by it without us noticing that the soul is performing them.

According to Unzer, this silent functioning of the sensory-motor apparatus depends on the coworking of *two types of sensibility*. The terms he uses to express these two types are: a sensation of which we are not necessarily aware and do not command is *Gefühl* or *sinnlicher Eindruck*; whereas *Empfindung* is the word for those kinds of sensations that traverse the entire chain of nerves, from the affected organ to the brain, causing the sensitive impression to become conscious. Unlike what happens with *Gefühl* or *sinnlicher Eindruck*, which can give rise to movements without perception, *Empfindung* is always a perceived sensation; it is, in other words, a representation (*Vorstellung*) [1]. Being a close friend of Georg Friedrich Meier, Unzer was concerned not only with physiology but also with philosophy, in this case with the Wolffian-Baumgartian empirical psychology.

We can say that physiology would thus help to solve an epistemological problem, that is, how we can have a representation. Even if Unzer makes no claim to explain how a representation originates, it is the silent sensitiveness that puts our nervous structure in the suitable condition for a sensation to reach the mind. The keyword here is *proportion*. The tacit work of sensitiveness puts imperceptibly the organs in the right proportion for the apprehension of what affects them.

[1] "If external objects that are present touch our nerves, either immediately or because of their consequences, a representation in the soul emerges, which we call sensation". *Der Arzt. Eine medizinische Wochenschrift*. Hamburg/ Lüneburg/ Leipzig, I, 18. Stück, p. 280. In the Baumgartian context in which Unzer makes his philosophical education, the terms *Empfindung/empfinden* are the translation of *sensation/sentio*. See Baumgarten, *Metaphysica*, § 534. AA 15: 013. In this same article number 18, which is crucial for his theory and will be therefore republished in its entirety in the 1769 edition (see below), Unzer deals with other types of representation (imagination, premonition, reflection, abstraction, affections, passions, etc.), all of them described in their connection with the body. The formation of sensitive representation serves as a model for all these others.

Despite differences in terminology, we can find entirely similar explanations in Kant, who also works with two kinds of sensibility. A sensation (*Empfindung*), he writes in Reflection 619, “indicates the state of the subject” and it is called “feeling” (*Gefühl*), but if the sensation is in relation

to an external object, it is called phenomenon. From this we see that all our representations [*Vorstellungen*] are accompanied by a feeling, in that they are affections of the state of the soul[1]

On one side we have the sensation, on the other the phenomenon. Soon afterwards a distinction is made between *Empfindung* and *Anschauung*. A further distinction is important for understanding his physiology. Kant distinguishes the senses into objective and subjective. Let us see first how he describes a subjective sense, for example, taste:

Nature has endowed us with taste so that we should examine through it what is useful for our body, which we do even without paying attention to it [*ohne darauf zu sehen*]. [...] Therefore the glands, the viscera, and everything together must constitute a system, and taste examines what is salutary for it [*was demselben zuträglich ist*] [2].

[1] „Diese Empfindung, so fern sie bloß den Zustand des subjects andeutet, heißt Gefühl; gehet sie aber (ist sie in Verheltnis) auf einen äußeren Gegenstand, so heißt sie Erscheinung. Daraus sehen wir, daß alle unsere Vorstellungen mit einem Gefühle begleitet seyn, indem sie affectionen von dem Zustand der Seele sind“. Refl. 619, AA 15: 268. The difference between *Empfindung*, *Erscheinung* and *Begriff* is already in Refl. 272, A 15: 103. See also Refl. 289, AA 15: 109. Cf. Refl. 291, 292, 293 AA 15: 110.

[2] *Anthropologie Friedländer*, AA 25: 499. Trans, p. 70. Translation slightly modified.

Kant employs here the same vitalist idea as Unzer, who is known to have given prominence to the role of glands (and the parasympathetic system in general): as an autonomous system of nerves, encompassing glands, viscera etc, taste watches and examines everything that is salutary or harmful to its body. This is how Kant explains a subjective sense. In a passage of the *Anthropology Collins*, he compares taste and vision, which is an objective sense:

First, we must distinguish between sensation and phenomenon. Sensation expresses the change that takes place in our body; phenomenon, however, is when we *represent* something corresponding to this sensation. Sometimes the sensation is predominant, or has preponderance, and sometimes the phenomenon. For example, if we put vitriol acid on our tongues, the sensation prevails; we no longer distinguish whether it is sour or sweet. In the case of objects, however, which strike our eyes, the phenomenon prevails, because the *equilibrium of our body as a whole is thereby only imperceptibly suspended*; hence the common man also believes, not that the rays of light fall from the objects into our eyes, but that they fall from our eyes upon the objects[1].

[1] I. Kant, *Anthropologie Parow*, AA 25: 272-73: „Zuerst müssen wir die Empfindung von der Erscheinung wohl unterscheiden. Durch die Empfindung drückt man die Veränderung aus, die in unserm Körper vorgeht; die Erscheinung aber ist, wenn wir uns etwas dieser Empfindung correspondirendes vorstellen. Zuweilen herrscht oder hat ein Übergewicht bald die Empfindung bald die Erscheinung. Z. E. Wenn wir Vitriol Säure auf die Zunge legen so herrscht bey uns die Empfindung, wir unterscheiden hier nicht mehr ob es sauer oder süße ist. Bey den Gegenständen aber die auf unsre Augen würken, herrscht die Erscheinung weil das Gleichgewicht unsers Körpers im ganzen Betrachtet dadurch nur unmerklich aufgehoben wird, daher der Gemeine Mann auch glaubt, nicht daß die Lichtstrahlen von den Gegenständen in unsre Augen fallen, sondern daß sie aus unsern Augen auf die Gegenstände fallen.“ Italics added. The same idea in Refl. 294 AA 15: 110.

In the case of objective, cognitive acts, the subject's state does not make itself felt, because this is the proper, healthy condition for him. But it is important not to forget that the two sensibilities, the two ways of feel – objective and subjective – are interconnected. As Kant writes:

There are sensations *without the phenomenon being noticed*, and phenomena without the sensation being noticed; but both always go together.[1] (Refl. 620, AA 15: 268).

Physiology appears thus for Kant as a heuristic key that makes him understand many epistemological points. The two sensibilities allow us, for instance, to face again from another perspective the problem about the *affizierende Gegenstände*. As Jacobi asked: how could Kant say that an object *affects* me, without having recourse to the transcendental category of cause and effect? We are now able to respond better to the problem. Recurring to Reflection 295, we can say in an almost drastic way: "All the effects of the senses seem to extend to the viscera [2]". This extreme statement, however, is also true for the objective senses. The object is always related to our sensibility in two ways. In the case of sight, for instance, it can be said not only that light touches our eyes, because through very shocking colours light can also go to the viscera and provoke there a *widrigen Eindruck*, as Kant says in the same Reflection [3]. The same can be said of the sense of hearing. Musical sounds are still much more powerful than light. Although they correspond, like light, to objective, physical, phenomena (air vibrations), by the use of them one can remove worms from a patient's stomach, as reported in a clinical case [4].

[1] „Es giebt Empfindungen ohne merkliche Erscheinung und Erscheinungen ohne Merkliche Empfindung; doch sind beyde iederzeit beysammen.“ Ibid., italics added.

[2] "Alle Wirkungen der Sinne scheinen sich aufs Eingeweide zu erstrecken." I. Kant, Rx. 295, AA 15: 111.

[3] I. Kant, Rx. 295, AA 15: 113.

[4] I. Kant, Rx. 295, AA: 15: 111-13. Cf. I. Kant, *Anthropologie Menschenkunde*, AA 25: 910.

These are clear examples where objects that affect the sensitive organs also affect the vital sensibility. But attention: for objective knowledge to occur the bodily alterations *must be* minimal, imperceptible, that is, both sensibilities must operate together without making themselves felt. Otherwise, there would be no phenomenon, no intuition, no representation. It is not unreasonable at all to think that Kant arrived at his a priori forms of intuition by reflecting on this physiological apriorism of the “law of sensations”, of the reflex acts. Indeed, much of what is said in the Transcendental Aesthetics about space and time is attributed to the sense of sight and hearing in the Lectures and Reflections on Anthropology (As, for instance: “*Wie sich verhält das Gesicht zum Raum, so das Gehör zur Zeit.*” Refl. 265. AA 15: 100)

But to me another way of putting the question is to say that we are facing two forms of apriorism corresponding to the two sensibilities we are dealing with. And if so, Kant is still following the lessons of the Stahlian vitalism. A cursory observation of François Duchesneau will show us why. The Canadian scholar reminds us that in Stahl’s medical theory the soul works in two ways. In one way, it acts spontaneously, and *without representation*; in the other way, it is subject “to the conditions of schematism, to use an expression from the *Critique of Pure Reason*” [1]. It is a pity that Duchesneau did not explore this comparison further. Because not only one, but both forms of the Stahlian soul have great similarity to the two forms of sensibility in Kant. Let’s take a closer look at this.

The two modes of psychic operation are given Greek names by Stahl: *logismós* and *lógos*. In the Latin translation of his followers, they are known as *sensus rationalis* and *sensus vitalis*. Kant adopts this latter term, when he establishes the opposition between *sensus fixus* and *sensus vagus*, between organic senses and vital sense (*Vitalempfindung*, *Vitalsinn*). But in adopting the *sensus vitalis* of the Stahlian, we can say Kant transcendentalises it. If so, there are two forms of apriori sensibility in Kant.

[1] F. Duchesneau, *La physiologie des Lumières. Empirisme, Modèles et Théories*. Haia/Boston/Londres : Martinus Nijhoff, 1982, p. 25.

The first kind of apriori is known: the understanding determines the spontaneous imagination in ordering the diverse into the forms of space and time. Interesting enough, and maybe not by chance, Stahl describes his *logismós* in similar terms, saying it is not only as a capacity of calculation, but it also implies *figure, time, and imagination*. That is why François Duchesneau hits the jackpot when he compares the *sensus rationalis* with the Kantian schematism.

The other kind of aprioristic sensibility or sensitivity (to follow a suggestion by Georges Canguilhem) is that of the *lógos* or *sensus vitalis*. In Stahl, the soul has the ability to detect all that is salutary and harmful to the body, to the *mixture* (*mixtio*) of solid and fluid elements that it has produced itself. With this keenness the soul is able to directly perceive the *ratio*, the proportion of things, without the intermediation of reasoning or calculation. We have already seen that it is the same with Kant. I remind you one of his passages on this topic again: "... the glands, the viscera, and everything together must constitute a system, and taste examines what is salutary for it [*was demselben zuträglich ist*]" [1]

Kant thus transcendentalises not only our sense of spatiality and temporality, but also this sense of proportion. This is noticeable when he describes what would be the ideal condition for knowledge or for making observations. This ideal condition occurs when the two sensibilities are very well tuned. The rule he presents for the best tuning between them reads as follows:

Viel Organ- und wenig Vital-Sinn ist der glücklichste Zustand, in dem ein Mensch seyn kann. Das Vermögen, Gegenstände durch meine Sinne zu erkennen, ohne an meinem Wohlbefinden viel afficirt zu werden, ist der glücklichste Zustand zu Beobachtungen; denn je weniger das Leben eines Menschen bei einer Sache, die er beobachtet, afficirt wird, desto mehr wird der Gegenstand wahr vorgestellt. (*Anthropologie Menschenkunde*, AA 25: 912)

[1] *Anthropologie Friedländer*, AA 25: 498-99. Trans, p. 70. Translation slightly modified.

Repeated twice in these few lines, the expression the happiest state indicates both the most fortunate and the most propitious state of mind to cognition in general. And we should not think that this statement about the happiest state of mind is an isolated passage in his writings, nor that it is only a psychological and anthropological description. It seems clear, after all that has been said, that the physiological assertion has a clear transcendental-epistemological value. In fact, with some alterations and further elaboration, the reader finds something similar in § 21 of the Critique of Judgement:

§ 21. Ob man mit Grunde einen Gemeinsinn voraussetzen könne.

Sollen sich aber Erkenntnisse mittheilen lassen, so muß sich auch der Gemüthszustand, d. i. die Stimmung der Erkenntnißkräfte zu einer Erkenntniß überhaupt, und zwar diejenige Proportion, welche sich für eine Vorstellung (wodurch uns ein Gegenstand gegeben wird) gebührt, um daraus Erkenntniß zu machen, allgemein mittheilen lassen: weil ohne diese als subjective Bedingung des Erkennens das Erkenntniß als Wirkung nicht entspringen könnte

[...] Aber diese Stimmung der Erkenntniskräfte hat nach Verschiedenheit der Objecte, die gegeben werden, eine verschiedene Proportion. Gleichwohl aber muß es eine geben, in welcher dieses innere Verhältniß zur Belebung (einer durch die andere) die zuträglichste für beide Gemüthskräfte in Absicht auf Erkenntniß (gegebener Gegenstände) überhaupt ist; und diese Stimmung kann nicht anders als durch das Gefühl (nicht nach Begriffen) bestimmt werden.

Exactly like what happens with light affecting the eye, each object requires a *proportion* between the faculties of the mind suitable for its knowledge. Moreover, there is a state of mind that is the most *zuträglich* for knowledge in general.

And with this we see how vital sensitivity lies at the very core of the critical system. When transcendentalised, the sentiment of life receives the name of *the feeling of pleasure and displeasure, and is linked to the Judgment (Urteilkraft) as a superior faculty of knowledge.*

Kant explains this in first paragraph of the Third Critique, when he affirms that the feeling of pleasure and displeasure is one of the species of the vital feeling:

Ein regelmäßiges, zweckmäßiges Gebäude mit seinem Erkenntnißvermögen (es sei in deutlicher oder verworrener Vorstellungsart) zu befassen, ist ganz etwas anders, als sich dieser Vorstellung mit der Empfindung des Wohlgefallens bewußt zu sein. Hier wird die Vorstellung gänzlich auf das Subject und zwar auf das Lebensgefühl desselben unter dem Namen des Gefühls der Lust oder Unlust bezogen: welches ein ganz besonderes Unterscheidungs- und Beurtheilungsvermögen gründet, das zum Erkenntniß nichts beiträgt, sondern nur die gegebene Vorstellung im Subjecte gegen das ganze Vermögen der Vorstellungen hält, dessen sich das Gemüth im Gefühl seines Zustandes bewußt wird.

(Kritik der Urteilkraft, § 1, AA 05: 204)

PART 2

**HERMANN S. REIMARUS
JOHANN A. UNZER:**

DECAPITATED ANIMALS AND "ZWECKMÄSSIGKEIT OHNE ZWECK"

In the second part, we will very briefly see how the displacement of the command centre from the brain to other parts of the body was also important for Kant's teleological thought. Unzer is once again a key figure, alongside with Hermann Samuel Reimarus. A passage from the *Dreams of a Spirit-Seer* shows us that Kant was already in the 1760s aware that the soul doesn't need to be in the brain, and that there are other centres of sensibility scattered in the body:

Examples of injuries have been adduced where a substantial part of the brain has been lost without the injured person losing his life or suffering any impairment to the power of thought.

[...] in anxiety or joy, the sensation seems to have its seat in the heart. Many emotions, indeed the majority of them, manifest their chief force in the diaphragm. Pity moves the intestines, and other instincts express their origin and their sensibility in other organs[1].

[1] I. Kant, *Träume eines Geistersehers, erläutert durch Träume der Metaphysik*. AA 02: 325; english translation by David Walford in collaboration with Ralf Meerbot: *Dreams of a Spirit-Seer elucidated by Dreams of Metaphysics*, in Immanuel Kant, *Theoretical Philosophy 1755-1770*, Cambridge: Cambridge University Press, 1992, p. 313.

This existence of different principles of life in an animal or a man does not mean that there are many souls in them. The soul is a unity event if there are many centres of sensibility:

A living being has only one soul, this is a grounding principle in psychology. From the consciousness of my subject, there already follows the consciousness of the unity of my soul. If we also think of several life principles in the body, which are in union, that therefore many lives unite into one, then this is still one soul. (Slide 21) [...] a cut wasp grabs the abdomen with its head and the abdomen defends itself with its sting. The earth crab can be guided by its claws, and these then still pinch away the body, which it has seized. It is therefore no improbable that multiple lives are concentrated in the body under a single principle. Therefore, there are not several animals, because several life-principles are in different parts of the animal[1].

What is striking in this text of *Metaphysik K-2* on the unity of soul are also the examples of an insect which, despite being dismembered, continues to act with life in the two split parts, and an invertebrate that is driven by its claws. The topic was very widespread and discussed in the physiological literature of the 18th century. Linking it to the cases of partially decapitated men, Unzer gives it a very shrewd interpretation. In his treatise *Erste Gründe einer Physiologie der eigentlichen thierischen Natur thierischen Körper*, he discusses the topic at length, explaining that the astonishment caused by the reaction of decapitated animals comes from seeing them perform only by force of their nerves (*Nervenwirkung*) actions that they usually do guided by the force of their souls (*Seelenwirkung*).

[1] I. Kant, V-Met-K2/Heinze, AA 28: 753 (Eng. trans. D. W. Wood).

In such animals, the impression is not capable of provoking a sensation and a representation, nor is it commanded by any voluntary decision. For example, if by a violent contact (*eine heftige Berührung*) the decapitated animal rises and flees,

so bewundern wir es, weil eine solche Empfindung zuvor immer mit dem sinnlich willkürlich gefaßten Entschlusse zu entfliehen verbunden war, von dem wir doch wissen, daß er jetzt nicht Statt finden kann.

we admire it, because such one was previously always connected to the sensually arbitrary decision to escape, and is not commanded by a decision, of which we now know, however, that it cannot occur.[1]

According to these observations, Unzer concludes:

die hirnlose Thiere, ob sie gleich, aus Mangel der Vorstellungskraft, ganz unempfindlich sind, dennoch durch die äußern sinnliche Eindrücke, die unaufhörlich in sie wirken, alle die Handlungen verrichten, alle die Geschäftigkeit äußern, alles, was denkende Thiere sinnlich willkürlich thun, bloß durch die natürlichen Kräfte der sinnlichen Eindrücke bewerkstellungen, und kurz, ebenso ordentlich, zweckmäßig, und gleichsam überlegt handeln können, als ob sie dächten [...] [2]

Zweckmäßig, gleichsam, als ob: for the reader of *Critique of Judgement*, the terms are self-eloquent. In fact, Unzer anticipates by almost two decades the *Zweckmäßigkeit ohne Zweck* of the Third Critique. And we should not forget that in the *Entwurf zu einer Opponenten-Rede* Kant refers to this handbook, the *First Principles*, by the Celeberrimus Unzerus, where these two passages come from.

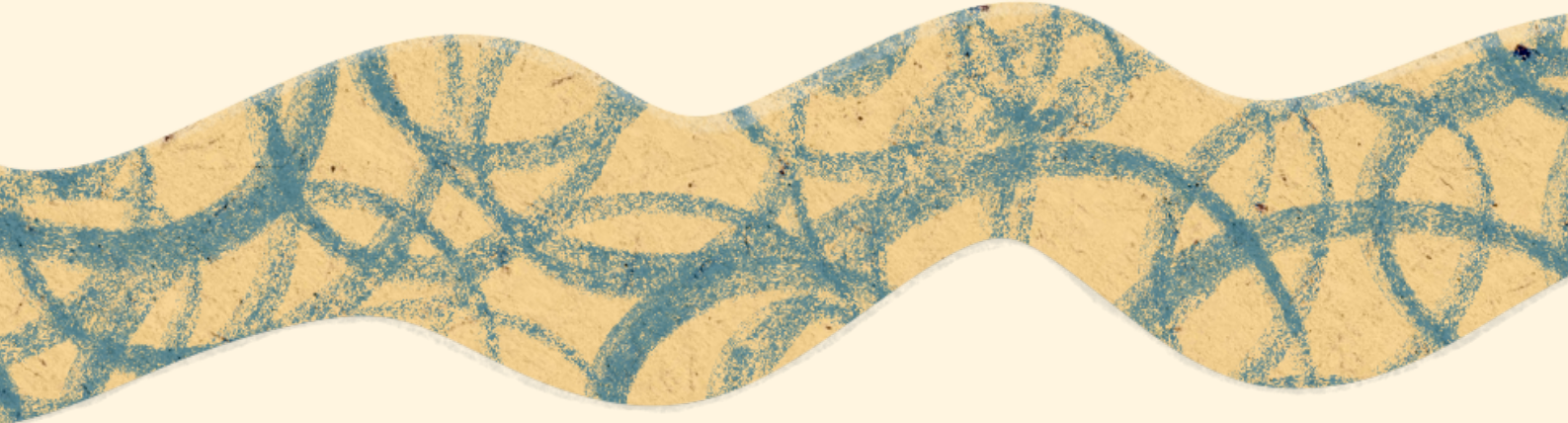
[1] J. A. Unzer, *Erste Gründe einer Physiologie der eigentlichen thierischen Natur thierischer Körper* (Leipzig: Weidmann, 1771), § 439, p. 443.

[2] Id, *ibid*, § 439, p. 444. Italics added.

To get a full picture of Unzer's and Kant's finalistic position it would be necessary to present to you Hermann Samuel Reimarus' solution to the supposedly intelligent action of animals. According to him, animals are not endowed with intelligence at all but with artistic instinct (*Kunsttrieb*), an astonishing capacity that rivals and even surpasses the products of human art. Contrary to what Georg Friedrich Meier and also Christian Wolff claimed (*Deutsche Metaphysik*, § 794), animals are not endowed with understanding, but "sie handeln so verständig mit ihrem Unverstand, *als ob sie eine übermenschliche Vernunft, Wissenschaft und Sittsamkeit besäßen*" [1]. Reimarus writes his work against the explanations of Meier, who had sought to expand the Baumgartian *analogon rationis* by trying to show to what extent the faculties of empirical psychology could be also applied to *animal* psychology [2]. The discussion is very interesting, not only from the teleological aspect, but also from the methodological one. Reimarus tries to explain *the correct method to use analogy*, an explanation that will be fundamental for Kant. But this is a subject for another occasion.

[1] H. S. Reimarus, *Allgemeine Betrachtungen über die Triebe der Thiere*, Leipzig: Bohn, 1762, p.373. Italics added.

[2] Georg Friedrich Meier, *Versuch eines neuen Lehrgebäudes von den Seelen der Thieren*. Halle: Hemmerde, 1749.



**Thank you so
much for your
attention and
patience.**

