

Kant, Metaphysics and the Progress of Science

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ABSTRACT

In this paper Immanuel Kant's critical metaphysics is discussed, taking the antinomies in the Critique of Pure Reason and the Critique of the Power of Teleological Judgment as point of departure. An assessment is made as to what extent Kant's metaphysics has been borne out to be correct in the progress of science.

Keywords:

Immanuel Kant, Kant's antinomies, Metaphysics, Progress of Science

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Intruduction

In this paper I engage with Immanuel Kant's critical metaphysics, without trying to develop a full and detailed account thereof, which have been done elsewhere (recently, for example by [De Boer 2020](#); [McLoud 2018](#)). The goal of this short essay is rather to assess key aspects of his critical metaphysics in the light of the progress of science and ask to what extent his views had been born out with the 300th anniversary of his birthday having been celebrated recently.

Despite the fact that Kant, in his *Critique of Pure Reason* (First *Critique*; edition A 1781, edition B 1787), rejects all "proud ontologies" (A247) or dogmatic metaphysics, he did allow for the use of regulative reason to formulate a metaphysics (often said to be "problematically assumed"). I will focus on certain key aspects of his critical metaphysics, especially as presented within the framework of his Third Antinomy developed in the First *Critique* as well as his philosophy of science developed in the *Critique of the Power of Judgment* (Third *Critique*; *KdU* 1790), to formulate a speculative or theoretical model or hypothesis on par with other mathematical or scientific models describing the workings of the universe. The purpose is not to develop a critical analysis of the different positions in this regard; the discussion merely serves to provide the philosophical background necessary to present a short formulation of Kant's critical metaphysics that can be used to evaluate the Kantian position in terms of contemporary science. As interpretative difficulties in Kant's work have led to different interpretations thereof, this exposé should also be regarded within the context of this constraint.

I will compare the Kantian metaphysical model with our current scientific understanding of the cosmos, assessing to what extent his views had been borne out as correct in the progress of science. As Kant was a Christian, this metaphysical model stands at the crossroads of the conversation between the Christian worldview and science and I will also make some comments in this regard.

1. The Third Antinomy

In my view the best place to start the discussion of Kant's critical metaphysics is with the third antinomy (a conflict of law).

Whereas in the first part of the First *Critique* Kant is primarily concerned with the possibility and conditions of human cognition, in the Dialectic he continues with an investigation into the possibilities of achieving cognition beyond our sensible reach. He shows that even though the faculty of reason has the ability to reach beyond the objects of sensibility to explore the domain of things in themselves or noumena, no knowledge of this domain is possible.

Reason has the characteristic that, in its logical use, it seeks for a synthesized whole (A307/B364, A409/B436). For any conditioned, it demands the unconditioned in the series of conditions (i.e., the whole). Reason, therefore, goes from the categories of the understanding (those that allow such a synthesis) to an absolute whole, in which case these are called concepts

of reason or “transcendental ideas” (A311/B368). Among these transcendental ideas, cosmological ideas are of special interest for metaphysics as they are the only ones that presuppose an object (A479/B507).

Kant’s philosophy suggests two competing strategies for considering the unconditioned, namely proceeding from the transcendental idealist and empirical realism perspectives respectively. Both these strategies are at home in Kantian philosophy. This twofold approach follows directly from the fact that his transcendental idealism is at the same time an empirical realism as he says: “[T]he transcendental idealist is an empirical realist, and grants to matter, as appearance, a reality which is not inferred, but is immediately perceived.” (A372; see also [Allais 2004](#))

When the thesis and antithesis positions generated by these opposing positions are brought into conflict in the framework of the antinomies, Kant demonstrates the errors of the dogmatic idealist/rationalist and dogmatic empiricist positions (A465-6/B493-4; [Allison 1990, 13](#)). As Kant mentions, these two opposing traditions have a long philosophical history going back to Plato and Aristotle respectively.

In the four antinomies formulated in the First *Critique*, the thesis positions advance that the world has a beginning and is bound in space and time, every complex substance consists of simple parts, the cause of some phenomena lies outside the series of appearances in space and time (i.e. spontaneity and free actions exist in the world) and the existence of a necessary being. The antithesis position advances the opposite, namely that the world had no beginning and is also spatially infinite, no simple entities exist (i.e. objects are infinitely divisible), everything happens necessarily (i.e. deterministically) in accordance with the laws of nature and no necessary being exists.

Even though none of these positions can be held “constitutively” or dogmatically, Kant also introduces the “regulative” use of reason according to which the unconditioned merely serves as a “problem” (i.e. can be problematically assumed) guiding scientific research towards an ever more complete understanding of objects, insofar as they may be empirically given (see [B537, B692, and Cicovacki 2010, 88](#)). As such these antinomial conflicts can actually open up new avenues for considering and understanding the workings of nature.

Whereas the first two antinomies (called mathematical antinomies) lead to a real conflict insofar as the positions are irreconcilable, the third antinomy (as well as the fourth antinomy; together called the dynamical antinomies) has the distinct feature that both the thesis and antithesis positions can under certain circumstances be true. In this scenario both determinism and absolute spontaneity can co-exist as effective causes within our world, with spontaneity then making human freedom possible (A534/B562; B461-462) in the spheres of both reason and morality. In this regard Kant’s conception of a noumenal world through which “freedom can be saved” comes into play ([A537/B565; McLoud 2018, 16-17](#)).

As Kant mentions in the *Critique of Practical Reason* (Second Critique; 1788), freedom is the foundation of his philosophy (KpV 5: 3-4). And since freedom holds such a prominent place in Kant's philosophy, the third antinomy is of central importance as it provides the fundamental building blocks on which his systematic critical metaphysics that incorporates the possibility of spontaneity is construed.

2. Systemic Nature and the Noumenal Realm

As the third antinomy is concerned with existence alone i.e. no magnitudes of the series of conditions are considered (A536/B564), it can easily be absolved from those conditions (the condition of appearances can fall outside the series of appearances, see A531-2/B559-560). As such, the transcendental and empirical use of reason (i.e. the thesis and antithesis positions) can be extended *to conceptualize* both the intelligible/noumenal and sensible worlds (i.e., as "whole" regimes of existence or world-concepts). In this case, the sensible world does not refer to material nature as an aggregate (an accumulative world-whole) but rather a concept of nature as a systemic whole (A419/B447). In this way systemic nature (henceforth: nature) and the noumenal realm, which form the basic components of Kant's metaphysics, are introduced into his critical metaphysics.

What is important about these world-concepts is that they are both "transcendent" to our experience. Kant mentions that systemic nature is comprised of the totality of all causal relations, which he calls mechanism. As a concept distinct from the causality of the Second Analogy, the "mechanism of nature" is only introduced in the second edition of the First Critique as a transcendental idea of reason (similar to the transcendental idea of freedom) in the context of the third antinomy (see Bxxvii-xxx, A419/B447 n., and *KdU* 5:379). As the intelligible world, in contrast, falls "*outside*" nature (not to be confused with our current concept of nature), transcendental freedom (absolute spontaneity) can as a consequence without contradiction be ascribed to it as the governing principle (Kant views this as the only alternative kind of causality, see A532/B560).

What we now discover about the third antinomy is that proponents of the antithesis (empiricist) position *think* the unconditioned in the framework of sensible conditions whereas those of the thesis (idealist) position do not merely contemplate the unconditional; they can also *think it outside sensible conditions in an intelligible (noumenal) world*. Instead of creating a conflict of reason, this represents a real (logical) possibility. The value of this way of considering things (with the thesis position taken outside possible sensible conditions), is that *existence in two different worlds can be brought into interaction with each other*, i.e., an intelligible cause can produce phenomenal effects in nature. The same procedure applies to the fourth antinomy, in which case the possibility arises that a necessary being can bring forth contingent existences.

Absolute spontaneity as an effective cause of phenomena *has no previous causal links in the structure of causal relations* governed by the Second Analogy (in the world of phenomena) or even in nature (governed by mechanism); this is why it is viewed as beginning “a series of occurrences *entirely from itself*” (A534/B562, italics in the original). Kant says:

Accordingly, a causality must be assumed through which something happens without its cause being further determined by another previous cause, i.e., an absolute causal spontaneity beginning from itself (A446/B474, boldfacing in the original).

As such the grounds for transcendental freedom (that is, noumena) stand forever outside the causal chain of events that constitute nature; it can, however, without contradiction produce outcomes which interact with the causal chains of the phenomenal world. As such it is not “incompatible” with nature (A558/B586).

3. The Antinomy of Teleology in the Third Critique

Kant continues developing his critical metaphysics in the Third *Critique*, in the second part called Critique of the Teleological Power of Judgment, where he sets out his philosophy of science pertaining to biological nature. As before, Kant formulates an antinomy, called the antinomy of teleology, again one in which both the thesis and antithesis positions can hold true if they are taken in a mere regulative manner (instead of a dogmatic manner).

In the Third *Critique*, Kant construes a metaphysical picture that serves as the ground for his scientific theory. Even though based on the third antinomy, he now develops a much more sophisticated and extended critical metaphysics, with the supersensible realm (as the noumenal realm is now called) taken as the substratum of systemic nature. As before, two similarly construed kinds of effective causalities govern the supersensible realm and nature respectively, namely teleology (“final causes”, named in analogy to human achievement of goals; called “a spontaneity of a cause” in [KdU 5:411](#)) and mechanism.

These two kinds of causality are brought into conflict in the antinomy of teleology, with the thesis position stating that mechanism can explain all material objects whereas the antithesis states that for some material objects like the products of nature (organisms) an appeal has to be made to final causes. Although all generation of material things needs to be judged as possible through mechanistic laws, some products of nature cannot be judged as such and require an entirely different law of causality, namely that of final causes ([KdU 5:386](#); Allison 1012, 205). When these maxims are taken as mere regulative principles of the reflective power of judgment, the conflict disappears because both are possible even though we can gain no insight into the way this happens ([KdU 5:415](#)).

In Kant’s view the unifiability of the *two ways of representing* the possibility of nature “may well lie in the supersensible principle of nature (outside as well as inside us)” ([KdU 5:429](#)). In

the same way the effects of both mechanism and transcendental freedom (or: the causality though freedom) can cohere in the same subject (as was shown in the *First Critique* and mentioned in the published introduction of the *Third Critique*; see [KdU 5:196](#)), the outcomes of mechanism and teleology can cohere in the same product of nature.

When we allow that the unity of the forms of nature is produced in accordance with a rule (as an ordered outcome) and not merely “contingently” in accordance with mechanism, then such an *a priori* principle *would be outside the concept of nature*:

[W]ithout the help of a special kind of causality, namely that of ends (nexus finalis), this [order in nature] is all in the highest degree contingent, i.e. that nature, considered as mere mechanism, could have formed in a thousand different ways without hitting precisely upon the unity in accordance with such a rule, and that it is therefore *only outside the concept of nature*, not within it, that one could have even the least ground *a priori* for hoping to find such a principle ([KdU 5:360](#), *my italics*; see also [KdU 5:371](#)).

Within nature, everything is regulated by the concept of mechanism (deterministic causality), which means that it is only outside systemic nature, in the supersensible substratum of nature, that we can seek for the possibility of another kind of causality, namely in accordance with final causes (that have ordered outcomes in nature). Kant makes it clear that this kind of causality could be possible only in the context of the supersensible realm:

We have related such an effect [in the products of nature] in the whole to a supersensible determining ground beyond the blind mechanism of nature ([KdU 5:377](#)).

What is particularly striking about Kant’s exposé in the *Third Critique* is that he introduces the idea of parts and wholes into his conceptualization of final causes and mechanism. In this instance, the ground for the aggregated material parts and wholes constituting the products of nature consists of non-extensive non-material wholes and parts that can be described as “non-extended wholes-and-parts” ([McLoud 2018](#)) situated beyond proper space in the supersensible substratum of nature. In Kant’s reinterpretation of Leibniz’s view in *Metaphysical Foundations of Natural Science* (1786; 4:507-508) these parts of are called “simples”. These non-extended wholes-and-parts effectively replace the noumena of the *First Critique*, with the parts now building upon the idea of simple parts (also found in the second antinomy). Kant’s conception of noumena was modeled on Leibniz’s monads, the fundamental building blocks of the world ([Cicovacki 2010, 85](#); [Friedman 2010, 243](#); [McLoud 2018, 27, 48](#)).

In the same way noumena can spontaneously produce phenomena in nature, Kant now introduces a potentiality called a “productive cause” ([KdU 5:370, 379, 421](#)) that allows these non-extended wholes-and-parts to produce outcomes in nature:

[W]e have discovered in nature a *capacity* for bringing forth products that can only be conceived of by us in accordance with the concept of final causes... [The idea of which], as far as its ground is concerned, leads us beyond the sensible world (*KdU* 5:381).

4. The Purposiveness of Nature

The Critique of the Teleological Power of Judgment also introduces a guiding principle for the scientific study of nature, namely the teleological principle. Kant does not argue for the traditional teleologies (and thus for Aristotelian science; Guyer 2010, 433). Instead, he argues that, at a basic level, purposiveness has a necessary place in science.

Scientists have no choice but to assume the general purposiveness of nature as a *heuristic* principle (*KdU* 5:411), namely that nature (and its products) is treated *as if* it is designed even though only mechanistic explanations may eventually be available (*KdU* 5:413). All general laws of nature, which purport to describe the whole of nature as an ordered system (in contrast to mere empirical laws which describe particular phenomena), are grounded in this principle of purposiveness. As such these principal guides science as a research programme.

A question arising is whether the real cause of the purposiveness of nature and even nature itself (i.e. the universe) can be established. In Kant's view the restricted nature of our human constitution makes it impossible to establish objectively what such a cause might be; only a reflective judgment (in according to the teleological principle) is possible. He discusses two possible causes, namely the mere mechanism of nature and a cause that acts intentionally, which would be God (*KdU* 5:434). In Kant's opinion God provides a good explanation for the apparent design in the universe and also allows for a purpose to existence. But even though an intentional cause or God may exist there is no possible way for us to establish that in objective terms:

Hence, we can make no objective judgment whatever, whether affirmative or negative, about the proposition as to whether there is a being who acts according to intentions and who, as cause (and hence author) of the world, is the basis of the beings we rightly call natural purposes (*KdU* 5:401).

Kant's critical metaphysics is actually a reflective metaphysics in accordance with a teleological judgment viewing the world as if it consists of nature as well as a supersensible substratum of nature, accommodating both mechanism and spontaneity (teleology), even though these presuppositions may eventually turn out to fall beyond empirical discovery (which was what Kant believed). The purposiveness found in nature can moreover be ascribed to an intentional cause (or necessary being) that brought the world into existence in the beginning. According to Kant, we can conceive of the "maternal womb of the earth" having had an original purposiveness without which the "possibility of the purposive form of the animal and vegetable kingdoms cannot be conceived at all" (*KdU* 5:420).

As such we can think that the design for all life on earth is present in the supersensible realm and unfolds through time in the progressive emergence of ever more complex “products of nature”. The various “wholes” (“designs” of animals and plants) underlying these life forms, from the simplest to the most complex, i.e., the human noumenon (the noumenal self), evolved in this manner (*KdU* 5:435). In this last instance, the transcendental idea of freedom makes practical freedom possible. At this point, the noumenal realm which forms the substratum of nature both outside and inside us (5:429) becomes part of Kant's moral philosophy.

Kant's systematic critical metaphysics (not a dogmatic position) thus includes the following components (as they follow from resolving the antinomies):

1. Spontaneity (complimenting mere determinism)
2. The world had a beginning in space and time
3. A necessary or intentional being (God) exists who was the creator of the cosmos and the author of its purposiveness (design)
4. A noumenal or supersensible substratum of systemic nature exists

The universe consists of both systemic (material) nature and a supersensible substratum (not consisting of matter)

5. The noumenal self (soul) exists in the noumenal realm
6. Noumena can spontaneously produce effects in nature; allows for human freedom, i.e. reason and morality

Non-extended wholes-and-parts (consisting of elementary or simple parts) can produce extended wholes consisting of parts (products of nature)

7. A form of teleological evolution that includes both mechanism and a potentiality to produce the products of nature is postulated.

What immediately follows is that critical metaphysics is for the most part consistent with traditional Christian metaphysics, with the addition of certain novel aspects like teleological evolution. Some of Kant's critics like Friedrich Nietzsche (*The Antichrist*, Chapters 10-12) saw it in that way and believed that he introduced the noumenal realm to save the Christian position. Many post-Kantian philosophers of the nineteenth century also rejected or criticised Kant's idea of a noumenal realm. In scientific circles the position that gained much traction during that period was that determinism is the only ruling principle governing a static universe, that no necessary being, supersensible realm or soul exists and that evolution is a mere mechanistic process.

5. The Progress of Science

The world of science has changed quite dramatically since Kant formulated his critical metaphysics in the years 1781 to 1791. The primary question asked in this paper is to what extent the outline of Kant's critical metaphysics given above was borne out to be correct in the course of the “progress of science” (a concept that Kant often refers to). We can thus view

Kant's critical metaphysics pertaining to the workings of nature and the universe (except for the existence of God) as a speculative or theoretical model or hypothesis on par with other mathematical or scientific models.

Of all important scientific developments over the last 250 years (since Isaac Newton), the most significant that are relevant to our discussion are definitely J. J. Thomson's discovery of the electron (i.e. of elementary particle physics) in 1897, Max Planck's discovery of quantum physics (i.e. of the quantum) on 14 December 1900 and Albert Einstein's general theory of relativity presented on 25 November 1915 (the final version of his field equations of gravity). Other important discoveries can be listed but that fall outside the scope of our direct concern.

These discoveries did not only change the world of science irrevocably, they also dramatically confirmed some of the basic assumptions of Kant's critical metaphysics despite the fact that philosophers of science at first assumed that the observations found in quantum physics proved his "law of causality" (according to the Second Analogy) wrong (Brittan 2009, 159).

5-1 Spontaneity

Spontaneity was introduced into quantum physics when Niels Bohr in 1924 discovered that in quantum theory a *causal* connection between electronic motion and radiation cannot be exhibited in *space and time* (Pringe, 2009). As a result of this insight, Bohr later on in 1928 published his so-called quantum postulate, a theoretical generalization based on an empirical assumption, in which this discontinuous or spontaneous process resulting from the indivisibility of the quantum is a central feature:

"[Quantum theory's] essence may be expressed in the so-called quantum postulate, which attributes to any atomic process an essential discontinuity, or rather individuality, completely foreign to the classical theories and symbolised by Planck's quantum of action." (Bohr 1928, 580)

The quantum postulate "means that in the case of all atomic processes every energy change result from an indivisible – and because of that discontinuous – transition between different states that cannot be continuously connected" (Valente, 2010, 1). As a consequence of this discontinuous nature of quantum physics, all quantum outcomes are always described in probabilistic terms. Quantum physics is intrinsically probabilistic, that is, non-causal (Bitbol and Osnaghi, 2013, 160).

Some quantum theorists have tried to develop interpretations of quantum physics that are in keeping with a deterministic view of the world, for example the De Broglie-Bohm theory (Bohmian mechanics) and the Ghirardi-Rimini-Weber (G-R-W) theory (ascribing a stochastic origin to instantaneous quantum processes; Allori et al, 2008, 357). The problem with the De Broglie-Bohm theory is action-at-a-distance (in conflict with the Lorentzian space-time

manifold) whereas the G-R-W theory has recently been shown to be wrong by the Majorana Demonstrator experiment ([Donadi et al. 2020](#)).

In fact, Michael Redhead (1987) has indeed shown on mathematical grounds based on Bell's theorem that in the case of the Aspect experiment, the reduction of the wave packet is truly spontaneous without any possible stochastic form of determinism involved.

5-2 The Origin of the Universe

The idea that the world had a beginning entered science when Alexander Friedman in 1922 (and 1924) found a solution to Einstein's field equations of general relativity that shows the universe had a beginning. Even though Einstein himself refereed the paper, he failed to appreciate the significance of Friedman's predictions, himself having held to the view that the universe is static. In 1927, the Belgian priest, Georges Lemaître, discovered the same solution independently from Friedman (who died in 1925) and was the first to theorize about an expanding universe that originated with a "creation-like" event that became known as the Big Bang. He was also the first to propose that the expansion explains the redshift of galaxies.

Confirmation for the Big Bang theory came when Edwin Hubble in 1929 discovered that the universe was indeed expanding. This discovery was based on the observation that the red shift of galaxies is directly proportional to their distance from earth (as proposed by Lemaître and today called the Hubble-Lemaître law). Other supporting evidence includes the accidental discovery in 1965 of the cosmic microwave background radiation (at 2.7 K) and its temperature fluctuations later on that correlate with early star and galaxy formation.

The Big Bang theory has since become the only generally accepted model for the origin of the universe since the last piece of evidence cannot be explained by any other model. Even though images obtained from the James Webb space telescope have fueled speculation that the Big Bang theory is "broken", careful analysis has shown that this is not the case. The observations simply show that some smaller galaxies (with 10^8 solar masses) formed at a very young age in the history of the universe ([Keller et al. 2023](#)).

An interesting feature of the Big Bang is that the origin of the cosmos is mathematically described as a singularity (in several measurable quantities like the energy density and the curvature of space-time). What is concluded from this description is that the cosmos started out as an infinite dense point of energy from which space, time and the universe were born. Even though the singularity is not really satisfactory and scientists generally take this to mean that the theory breaks down at this point and that we do not know what really happened, it also means that the Big Bang theory is metaphysically neutral with regard to the question about the ultimate origins of the universe.

Other models like the Multiverse are being entertained but no substantial empirical evidence to support them has been provided and to the extent that they are concerned with what happened

before the Big Bang (described as a singularity, which is an absolute discontinuity), they are also untestable and thus unflaskifiable.

5-3 A Supersensible Ground of Nature

One of the great challenges of scientists is to reconcile the very different workings of nature found in the quantum and classical descriptions of the world. Whereas the quantum world manifests feature like superpositions of states, entanglement, non-locality and spontaneity, they are absent from the classical world which only knows locality and determinism. This “gap” between these two worlds is also visible in the difficulties of reconciling our two very best scientific theories, namely quantum field theory and general relativity (gravity).

Kantians will immediately be reminded of the similar “gap” that separates systemic nature and the noumenal realm, also called the realms of nature and freedom. As a consequence, the question can be asked as to what extent Kant’s noumenal realm or supersensible substratum of nature agrees with the quantum realm (with nature corresponding with the classical world). Various Kantian philosophers of science have actually associated these realms with each other, mostly for mere methodological purposes (Cuffaro 2010, 16; Pringe 2007, 157, n. 31; Fano 1988). Willem McLoud (2018) has shown that the quantum realm (in the quantum field description) satisfies all the conditions (or characteristics) that Kant ascribes to the supersensible realm in contradistinction with nature, namely

- (1) It is supersensible,
- (2) It is outside space-time, with its own conceptualized ‘ideal’ space (or: space-time) structure which corresponds with proper space-time,
- (3) Noumenal entities are conceptualized as non-extended wholes-and-parts existing *outside systemic nature* (taken as superpositions of states existing in the quantum realm),
- (4) Two heterogeneous principles govern the two modes of existence, namely a spontaneous potentiality to produce outcomes in nature and mechanism (in nature), and
- (5) Two kinds of appearances can be discerned accordingly.

What is more is that in keeping with Kant’s conception of another kind of causality that allows noumena or non-extended wholes-and-parts to produce outcomes in nature, various philosophers of science have also described quantum entities producing phenomena in nature (as a consequence of the reduction of the wave packet) in causal terms (Cartwright 1983, 182; Bartels 1999, S170 and Pringe 2007), with Hernán Pringe even using the Kantian concept of an absolute spontaneous cause to describe what he calls quantum causality. Following in the footsteps of Niels Bohr, Pringe (2023) moreover shows that even though quantum physics takes us beyond Kant’s epistemology, it is nonetheless consistent with that and quantum phenomena can indeed be regarded as objective knowledge in the Kantian sense (see also Kauark-Leite 2010).

In quantum physics the process of decoherence is associated with the “emergence” of classicality from the underlying quantum realm. This agrees closely with the Kantian idea that the products of nature and even nature itself emerge(d) from the supersensible substratum of nature.

5-4 Teleological Evolution

Even though Neo-Darwinian evolution that only assumes mechanistic processes in the evolutionary process is still the dominant theory among biologists, scholars in the field of quantum biology that study quantum processes in biological context are of the opinion that such quantum processes may play a role in genetic mutations (Al-Khalili and McFadden 2014). If Kant’s teleological theory of evolution is understood in terms of the quantum world as described above, this assessment will then be in line with the Kantian view that both mechanism and teleology (final causes) play a role in evolution producing more advanced species in accordance with an underlying “design”.

In fact, some prominent biologists like Denis Noble argue, in direct conflict with the Neo-Darwinian standpoint, that the process of evolution is indeed purposive. In Noble’s view, purposiveness is an “objective” part of evolution and is present from the earliest cells (Noble 2016; Noble 2024). Noble even uses the idea of “Kantian wholes” to describe the dynamic purposiveness that characterizes the biological systemic components of evolution. Even though he believes that this purposiveness is an emergent feature of evolution, he acknowledges that a more comprehensive divine purposiveness cannot be excluded (it is simply impossible to demonstrate, consistent with the Kantian view). Clearly, Noble’s view comes very close to the Kantian model of evolution.

5-5 The Soul

It could in the final instance be mentioned that that some philosophers of science (Halvorson 2011; McLoud 2024) have in recent years engaged with the issue of the existence of the human soul but that is quite an extensive topic on its own and will not be engaged with in this essay.

Conclusion

I conclude this paper with the assessment that Kant’s critical metaphysics has proven to be remarkably accurate. Even though the scholarly consensus during his own lifetime and for many years afterwards was that Kant was wrong to introduce the noumenal realm into his philosophy, good arguments can be made that time has indeed to a large extent proven him right. What follows from the foregoing discussion is that Kant’s metaphysics and accompanying philosophy of science have withstood the test of time remarkably well. When taken as a scientific hypothesis, its basic tenets do cohere quite well with current scientific interpretations of the world (as far as the reach of science has progressed and it can thus be tested). In some cases, like biological evolution Kant’s view does not (yet?) agree with the most popular scientific theories but some scientists are proposing views consistent with Kant’s scientific hypothesis.

As Kant's critical metaphysics is with some caveats a rational expression of the traditional Christian worldview and metaphysics, it seems reasonable to conclude that science has through the years moved much closer to that position. The progress of science might be the ultimate measure and impartial judge as to the correctness of the different metaphysical views, but we should keep in mind that Kant also emphasises the limits of empirical science which may complicate matters. In the end a final verdict might not be that apparent.

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