
Heaven on Earth. On systematicity and aesthetic pleasure in Kant's *Universal Natural History*

El cielo en la tierra. Sobre sistematicidad y placer estético en la Historia Universal de la Naturaleza de Kant

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Abstract: In addition to its intense and innovative cosmological dialogue with predecessors, Kant's *Theory of the Heavens* (1755) and its systematising goal tell us something more about the young Kant's thoughts concerning humanity and the world. We intend 1) to show how Kant's approach to the question of the order of the universe finds a middle path between the extremes of theology and naturalism; b) to show how purposiveness [*Zweckmäßigkeit*] exemplifies this middle path, and how this progressive resistance is a theoretical device to which Kant would frequently resort; c) to examine the extent to which the discernment of purposiveness and its theoretical order are felt by us as a singular aesthetic pleasure.

Keywords: Kant; purposiveness; systematicity; aesthetic pleasure.

Resumen: Aparte del intenso e innovador diálogo cosmológico con sus predecesores, la *Teoría de los cielos* (1755) y su objetivo sistematizador dicen algo más sobre el modo kantiano de pensar el hombre y el mundo. Nos proponemos a) investigar cómo piensa Kant la cuestión del orden del universo, entre los extremos de la teología y del naturalismo; b) mostrar cómo la conformidad a un fin [*Zweckmäßigkeit*] es la imagen de esa vía media, y cómo la resistencia progresiva es un dispositivo teórico al que Kant va a recurrir siempre; c) investigar hasta qué punto el discernimiento de la *Zweckmäßigkeit* del orden teórico consiguiente son sentidos por el hombre como un singular placer estético.

Palabras clave: Kant; conformidad a un fin; sistematicidad; placer estético.

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1. KANT THE COSMOLOGIST. HIS RELATION TO KANT THE PHILOSOPHER

Even before he devoted himself to topics in Aesthetics, Geography or Anthropology, which he did between the decades of sixty and seventy of the 18th century, the younger Kant was among other things, and not unrelated to the previous fields¹, a *cosmologist*: a *beholder of the firmament*, an inquirer of the origin and development of the edifice of the world and the order of the cosmos. This much is said by Kant himself in his much neglected² *Universal*

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1. The cosmological enterprise of the study of the order of the universe (1755) was either preceded, or accompanied, or subsequently confirmed in many different yet akin scopes in Kant's work: with regard to *geography*, which to Kant was one of the propaedeutic fields of all sciences, see the writings "Untersuchung über der Frage, ob die Erde in ihrer Umdrehung um die Achse..." (1754), "Die Frage, ob die Erde veraltet, physikalisch erwogen" (1754), the three writings on the geological causes of earthquakes in the meridional areas of Europe, occasioned by the great earthquake of Lisbon, in 1755 (all three writings dated 1756), or Kant's "Neue Anmerkungen zur Erläuterung der Theorie der Winde" (1756), as well as Kant's later *Lectures on Physical Geography* (AA 26.1 and AA 26.2). As to *anthropology*, the other propaedeutic field of all sciences, see Kant's writings in the decades of 60 and 70, such as "Versuch über die Krankheiten des Kopfes" (1764), "Recension von Moscatis Schrift..." (1771), "Von den verschiedenen Racen der Menschen" (1772) as well as Kant's *Lectures on Anthropology* (1772-1789). As to *aesthetics*, see, among others, Kant's reflections on aesthetics, or commentary to Georg Friedrich Meier's *Auszug aus der Vernunftlehre* (1752) (AA 16), or his *Beobachtungen über das Gefühl des Schönen und Erhabenen* (1764).
 2. The work in question, *Universal Natural History and Theory of the Heavens, or Essay on the Constitution and the Mechanical Origin of the Whole Universe according to Newtonian Principles*, has been in fact *doubly* neglected by scholars in general: by Kantians and non-Kantians alike, in what it adduces to the cosmological debate of the time and its repercussions in our days; but especially by Kantians, in what concerns the importance of such an early work for the remainder of Kant's career, be it regarding the occurrence some of the fundamental concepts of Kant's philosophy and thought in general, be it regarding the reflexive construction and metaphorical application of said concepts, which is here inaugural, and to which we shall devote this essay. Among the notable exceptions to this rule, see H.-J. WASCHKIES, *Physik und Physikotheologie des jungen Kant. Die Vorgeschichte seiner Allgemeinen Naturgeschichte und Theorie des Himmels* (Verlag B. R. Grüner, Amsterdam, 1987); M. SCHÖNFELD, *The Philosophy of the Young Kant: The Precritical Project* (Oxford University Press, Oxford, 2000); M. SCHÖNFELD, *Kant's Early Cosmology*, in G. BIRD (ed.), *A Companion to Kant* (Wiley-Blackwell, 2010); H. BLUMENBERG, *Die Genesis der kopernikanischen Welt* (Suhrkamp, Frankfurt am Main, 1981); R. CALINGER, *Kant and Newtonian Science: The Pre-Critical Period, "Isis" 70/3* (1979) 348-362; R. POZZO, *Kant e Weitenkampf. Una fonte ignorata:*

Natural History and Theory of the Heavens, or Essay on the Constitution and the Mechanical Origin of the Whole Universe according to Newtonian Principles (AA 1: 215-367)³, the work which contains the core of Kant's cosmologic and cosmogonic reflection. In this work Kant assumes the role of a veritable *cosmic traveler*, thereby undertaking the "dangerous journey" (AA 1: 221)⁴ of traversing the universe with his gaze and, if possible, sight "promontories of new lands" (id.), previously unknown to mankind; an endeavor which, according to the philosopher, has its own natural "difficulties" (ibid.), or "strong obstacles" (ibid.), which was undertaken by some before him with different fates, but on which Kant feels he must persist, which Kant feels must not at all "discourage" (ibid.) him, for behind its "fog" lurk not "monsters" (ibid.), but "with its most vivid splendor, the majesty of the supreme being" (ibid.).

This Kant does, and by so doing he achieves a unitary conception of the universe, he does "see from afar the promontories of new lands" (id.: 221) and thereby³ lays the foundations for a new and unequivocally important contribution for the history of cosmology:

Dell'Allgemeine Naturgeschichte und Theorie des Himmels e della prima antinomia della ragion pura, "Rivista di Storia della Filosofia" 48/2 (1993) 283-323; P. KERSZBERG, *La création en mouvement. Essai sur le sens philosophique d'une interrogation cosmologique fondamentale dans la Théorie du Ciel*, in P. KERSZBERG, J. SEIDENGART, A.-M. ROVIELLO (eds.), *Histoire générale de la nature et théorie du ciel* (Vrin, Paris, 1984) 205-250; P. LABERGE, *La psychothéologie de l'"Allgemeine Naturgeschichte und Theorie des Himmels"* (1755), "Revue Philosophique de Louvain" 70 (1972) 541-572; J. SEIDENGART, *Genese et structure de la cosmologie kantienne précritique*, in P. KERSZBERG, J. SEIDENGART, A.-M. ROVIELLO, (eds.), *Histoire générale de la nature et théorie du ciel* (Vrin, Paris, 1984) 7-59. For a vision dissimilar to my own, namely, according to which this text altogether discards teleology, see also some of Giorgio Tonelli's works on the young Kant, or R. W. SHEA, *Filled with Wonder: Kant's Cosmological Essay, the Universal Natural History and Theory of the Heavens*, in R. E. BUTTS, *Kant's Philosophy of Physical Science* (Springer, New York, 1986).

3. In its original German title: *Allgemeine Naturgeschichte und Theorie des Himmels oder Versuch von der Verfassung und dem mechanischen Ursprunge des ganzen Weltgebäudes, nach Newtonischen Grundsätzen abgehandelt* (1755), in I. KANT, *Gesammelte Schriften*. Hrsg. Von der Königlich-Preussischen Akademie der Wissenschaften zu Berlin – Akademie-Ausgabe (Georg Reimer, Berlin, 1901ff.).
4. All citations, not only Kant's, but also from other authors, will be presented in a traditional manner (Abbreviation of work, Volume of work, number of page(s)). All citations have been translated from their original German language into English. The citations are of my own translation.

and so certain was Kant of this, that, according to him, “those who have the boldness to proceed with the investigation shall walk on them [the new lands], and shall have the pleasure of designating them themselves with their names” (id.: 221). By the attainment of “new lands”, by such an investigation, its obstacles and natural peril, and even by the inclusion of all men in such a universal task, Kant is however referring not just to the matter at hand—the envisioning of the cosmos in its universal order—but to a first noteworthy aspect, namely, to the enterprise which is *that of man’s thought upon considering such superior elements of the cosmos*, from its apparently infimal position on Earth. In other words, Kant is hereby alluding to the reflexive processes of the individual who is between what is greater, and what is smaller than him, and how that individual, and all individuals may, *through thought*, conceive themselves in the order of things of Creation: an order of which the human being must be but a part, of which he must be but a link, and yet *the* link, for he is the *reflexive link of it all*: for his is the task of thinking himself, and all things, as part of a same order, as intertwined in the same universal structure of things and as a part of a perhaps not interchangeable, but indeed intercommunicable set of laws which apply to him, as to the whole universe. The traveler is hence real; but the travel, its perils, its ordeals and also its inevitability: all these are of a reflexive nature, and their final goal, as well as Kant’s, is to define the position of the human being amid the universe so as to ascribe it a purpose and a dignity. This goal, we believe, would be often proposed by Kant throughout his work; the difference being that the work *Universal Natural History*, and the will to bring a new order to cosmology, due to its temporal position, is perhaps the first explicit rendition of such a reiterated attempt; and hence, due to its precociousness, it must be seen with special care by all of Kant’s readers.

A second aspect to be taken into consideration again arises from Kant’s depiction of such a reflexive endeavor and the difficulties inherent to it. Man, so shall Kant present him in *Universal Natural History*, has its own due place in the order of the elements of Creation and to him is reserved the task of *perceiving through thought* that same order, through which man simultaneously inscribes him-

self in it. That much we have seen as being a first important aspect; and that much is Kant's objective throughout his whole body of work, and to this is devoted the work of 1755. The discovery of the systematicity of the elements of nature, of man, of the cosmos itself—and especially the mental processes which lead to it, or through which man is able to position himself and understand all that surrounds him, above and below, before and after—these, however, are not just contingent or circumstantial opinions of Kant. That is, this is for Kant too universal a position, and too originally human a reflection, to be just a simple position or a reflection on a position; that is, to be applied but to man and the cosmos or here, merely in the work *Universal Natural History*. Quite on the contrary, we propose that such a central cosmological position reserved to man is key in Kant's reflection on the human and that it would be constantly reenacted by the philosopher not only in his political, but also in his aesthetic and philosophical lines of thought. Furthermore, we propose that the *mental processes* through which Kant explains man's position in the universe, and through which all men may systematically explain their position in the universe, are in truth a personal, very Kantian model of thought, a pattern of thinking which Kant would never abandon until the end of his career, always resorting to it as a reflexive device of an aesthetic, anthropological or political employability; namely, *the device of a resistant progression of opposed forces, that of the purposiveness [Zweckmäßigkeit] of nature*, or the path which Providence lays for men, which men must follow both physically in actions and in the aesthetic pleasure of discerning it in thought. This is to say, on the one hand, that this position and reflection, along with the aforementioned will of systematicity, do appear sketched for the first time in *Universal Natural History*⁵; but, on the other hand, that none of the latter are confined to this work, or this stage of Kant's evolution as a thinker, rather are the cornerstone for Kant's systematic understanding of man between nature and God, the same which would lead to his work on the three

5. See sub-sections a) and b) of section 2 this article.

parts of philosophy⁶ and hence further prolong the difficult travel of thought through the study of the human.

In view of both these aspects, the ground is laid for our analysis of Kant's *Universal Natural History*. Our objectives are two and we present them as follows:

1) First, to ascertain how Kant conceives *the systematical* of the universe and respective elements between a supernaturalist and a naturalist views of the problem; namely, how through an intermediary path Kant attempts not to separate but to link God and nature in the framework of the Creation.

2) Finally, to search alongside Kant for *proofs for the validity of such a singular method*. Here we expect to find two proofs, each of which leading to the next; but all aiming at unveiling archetypical positions and reflexive procedures of Kant, the most important of which is his concept of purposiveness, man's position in it and the aesthetic pleasure felt by him, through the mental discovery of such systematicity, upon acknowledging that concept. This singular crystallization of action and reflection, we hope to confirm, is what gives life to Kant's concept of purposiveness; and this unique union of reflection and feeling, within the human spirit, enabled by the concept of purposiveness, is what animates Kant's concept of human existence.

2. KANT'S *VIA MEDIA*: THE INTERMEDIARY REFLECTION BETWEEN NATURALISTS AND THEOLOGIANS

The question which presides over, and pervades the whole of *Universal Natural History and Theory of the Heavens*, is enunciated at the very beginning of the work. It consists of ascertaining the systematicity, and hence the mechanicalness of the edifice of the world; in Kant's own words, the aim is to set out to "discover the systematic

6. Namely, the three parts of philosophy deriving from the three faculties of the mind, as Kant expounds them in a letter to Karl Leonhard Reinhold dated 28th -31st December 1787: "theoretical philosophy, teleology and practical philosophy" (AA 10: 515), derived from "the faculty of cognition, the faculty of feeling pleasure and displeasure, and the faculty of desire" (AA 10: 514).

which connects the great members of creation in the great extension of infinity” (AA 1: 221) and, if possible, to “derive the formation of the celestial bodies and the origin of their movements from the first state of nature, through mechanical laws (...)” (id.). A question *per se* complicated, to which is to be added an additional difficulty, one which had already been faced by Kepler⁷, Newton⁸ or Huygens⁹ in their previous efforts, and which Kant brings to word in the Preface: namely, the fact that the very assessment of the systematicity, or not, of celestial bodies and the whole cosmos, which is in itself of great complexity, still presupposes a certain positioning of the assessing eye, a positioning which will greatly influence the outcome of this question.

As such, *either one positions oneself as an advocate of faith, a man of religion* (i. e., a supernaturalist), for whom the affirmation of the undeniable beauty of the formation of the world, if derived from mere laws of nature, is the same as denying the hand of God in the project¹⁰ —and who therefore states that the universe must be exclusively a creation of God, and its systematicity of his authorship, inasmuch as nature, in its inherent lack of order, could never have created such a well ordered whole¹¹—; *or one positions oneself as a*

7. Namely, J. KEPLER, *Epitome Astronomiae Copernicanae*, 3 Bde. (Johannes Plancus, 1617-1621). Kepler greatly influenced Kant, who in turn mentions him both in *Universal Natural History* (1755) and in the text *Idea for a Universal History with a Cosmopolitan Purpose*, 1784.

8. Namely, C. HUYGENS, *Cosmotheoros* (Adrianum Moetjens, Hague, 1698).

9. Namely, I. NEWTON, *Philosophiae naturalis principia mathematica* (Josephi Streater, Londini, 1687); to this work and the affirmation of the laws of motion and the law of universal gravitation therein contained, devotes Kant his *Universal Natural History*.

10. An argument which Kant presents as pertaining to naturalists, as follows: “If the edifice of the world, with all its order and beauty, is only an effect of matter left to its universal laws of motion, if the blind mechanism of natural forces knows how to develop itself out of chaos so magnificently and to reach such perfection on its own, then the proof of the primordial Divine Author, which one extracts from a glance at the beauty of the edifice of the world, is completely debilitated, nature suffices itself, the divine government is unnecessary, Epicurus lives once again in the midst of Christendom, and an unholy philosophy tramples the faith which offers a bright light to illuminate it” (AA 1: 222).

11. A counter-argument which Kant presents as one professed by men of faith, as follows: “One is accustomed to take note of and emphasize the concordances,

naturalist, for whom the beauty of the world is in fact derived from the laws of nature, which have evolved from chaos to perfection without any divine intervention —and for whom God had no participation in the systematicity of the cosmic edifice, and hence must be excluded from the equation of the latter’s formation¹²—. Now, according to Kant, until the question of the fundamental point of view of this question is solved, the question itself cannot be solved; and that because, if the latter depends on the former, then it is from this additional difficulty that should arise the correct image of the systematicity of the whole universe.

Kant, for whom the problem was not unknown —for, during his life, he would face many akin forms of the latter (one of which caused by his writing *Religion within the Boundaries of Mere Reason* and the polemics thereby created among the supernaturalist theologians of Tübingen, which would be at the origin of the idealist movement¹³)—; Kant, we say, had for this dilemma a very particular solution, which could be designated as *an intermediary path* in relation to the other two. Namely, it is not necessary that religious men and philosophers should put forward such extreme arguments, nor is it necessary, nor advisable, that from their equations they should altogether suppress God or nature —thereby turning

the beauty, the purposes, and a perfect reference of means to the latter in nature. However, while one on the one hand extols nature, on the other hand one seeks to once again diminish it. This consonance, it is said, is foreign to nature; nature, if left to its universal laws, would bring forth nothing but disorder. The concordances show a foreign hand, one which knew how to force a matter bereft of all regularity into a wise plan” (AA 1: 222-223).

12. Another naturalist argument, expounded by Kant in the following words: “You must admit, therefore, says the freethinker, that if one can derive useful and purposeful dispositions aimed at purposes from the most general and simplest laws of nature, and one has no need for a special government of a Supreme Wisdom: then here you see proofs which will surprise you in your own confessions” (AA 1: 224).
13. On this conflict, which involved the Tübingen orthodox Professors G. C. Storr and J. F. Flatt, and Immanuel Kant, Friedrich Karl Reinhold and even later Johann Gottlieb Fichte; which was of paramount relevance not only for the younger generation of students in Tübingen, such as Fr. Hölderlin, G. W. F. Hegel and F. W. J. Schelling, but also for the older generation, such as F. I. Niethammer, H. E. G. Paulus or I. C. Diez, see especially chapters II and IX in the first volume of D. HENRICH, *Grundlegung aus dem Ich* (Suhrkamp, Frankfurt am Main, 2004).

their own weakness into the other party's strength and consequently eternalizing the conflict (see AA 1: 222)—. Quite on the contrary, Kant suggests, there is here *a possible plane of accord between religion and philosophy*; namely, instead of using an argument to *refute* the other, one rather uses an argument and its proofs to *confirm* the other —thereby highlighting what both state, not what they reject, in their fundamental propositions, and stressing what the latter may have of compatible, not of divisible—. Hence —Kant concludes— one must rather recognize, as he does, “all the value of those proofs which are extracted from the beauty and perfect order of the edifice of the world” (id.), not for the refutation, but “for the confirmation <of the existence> of a supremely sage creator” (ibid.). And so, let the naturalist be conceded that there are “general laws of the effects of matter” (id.: 223); and the man of religion, that “the general laws of the effects of matter are equally a consequence of the supreme project” (ibid.) —for both statements, from both sides, are undeniable—. And if this is so, and conceding that the first and second cases are true, then, given the incontrovertible design of the creator and the supreme convenience of nature as his mold, one must conclude, as does Kant, that the general laws of the effects of matter, if they exist, and if they were created by God, “could not have (...) other determinations but to fulfil for themselves the plan which the supreme wisdom proposed” (ibid.) —and they are as such the very clay with which God, the supreme artist of supreme beauty, models life, the world, the cosmos, and renders them well-ordered and systematic—.

Now, the problem for Kant is clear, and could be enunciated as follows: if, on the one hand, one sees absolutely rigorous systematicity *only* in the hand of God, then one has to see but total disorder and chaos in nature; if, on the other hand, one sees acquired systematicity *only* in nature and its phenomena, then one is bound to see no systematicity in the action of God. This means that in either case, such one-sided systematicity is easy to discern and perceive: either one sees the systematic in God and hence in his creations, which the human eye, if disregarding nature in the process, may perceive everywhere if it so wishes; or one sees the systematic in nature and

its creations, in which case the human eye, if disregarding God's concurrence in the process, is once again able to detect perfection everywhere. But to have one's eye—that is, one's mind's eye—look upon one's worldly existence and worldly things and discern *in them the systematic perfection of nature as molded by the perfectly systematical hand of God*; that is, to have to look at the elements which compose the universe and to discern in them an homogeneous progression given to them by God, to which they aspire and to which they tend, as a system, in which therefore the systematic comes neither exclusively from them, nor exclusively from God, rather from both; and finally, to perceive this—to be able to think, as well as to feel this—, thereby incorporating oneself as a member in this uniform chain that is the order of the universe: how can one's mind's eye discern and think this divine molding of a natural clay to such purposes, how can one perceive such an apparently invisible connection, prove it and know oneself as part of such a connection? This is at once *the proposition as well as the challenge which Kant offers to consideration*; the proposition of a new perspective on the universe, sustained on the challenge of a new concept of the man who thus contemplates—and knows himself contemplating—on the universe. This Kant will attempt to prove schematically throughout the various chapters of Part Two of *Universal Natural History*¹⁴. We, in turn, will have to browse them only briefly, rather focusing our attention in the last concluding chapters of that Part, namely the chapters on *Creation in the whole extent of its infinity* (Chapter Seven) and *the Proof of the correctness of a mechanical doctrine of the arrangement of the universe* (Chapter Eight).

a) Purposiveness, natural proof of a “supremely wise plan”

In Part Two of *Universal Natural History*, as was said, Kant sets off in search for proofs for a new explanation of the systematicity of the universe,

14. Namely, by proving this in topics such as the mechanical origin of the world (Chapter One), the varying density of the planets and the relationship of their masses (Chapter Two), the eccentricity of the planetary orbits (Chapter Three), the origin of the moons (Chapter Four), the origin of the ring around Saturn (Chapter Five) or the Zodiacal Light (Chapter Six).

as it may be conceived by the human being; indeed, one could add, the whole of this work is an effort aimed at obtaining *proofs* of such a *joint vision* of the general effects of matter (nature) and the action of a divine hand (God) —and, from such a conjugation, ascertaining the true systematicity of the creation and preservation of the universe—. Let us then see the proofs presented by Kant, and the various degrees of confirmation of his convictions —in our view, *two*— and, if possible, let us take them for what they are: arguments in growing favor of a newer affirmation of the systematic of our universe, as well as primordial essays on some of the most archaic devices of Kant’s own thought.

The *first proof*, or, one could say, the first level of comprehension of the purposiveness of nature, is dealt with by Kant still in the Preface to the work, and only then gradually rendered evident in the subsequent chapters.

According to Kant’s Preface, it is an undeniable fact that matter is bound to certain necessary laws (AA 1: 227); that is, there are indeed general laws of the effects of matter, or laws of nature —namely, Newton’s *law of attraction and law of repulsion*— and they are truly grounding and hence model the universe. For, at the commencement of the universe, at the time of the “universal dispersion” (id.: 225) from which the world drew forth, it was through such laws that matter initially came to be (see Part 2, Chapter One); at the time of the first aggregation and dissociation of matter and matter, upon the heterogeneous formation of the sun, of the planets and the fix stars and the attribution of their respective movements, it was through such original laws that these original formations came to be (Part 2, Chapter Two); at the time of the formation of our solar system, its (at the time) six planets and their respective trajectories of an eccentric rotation, it was through such laws that one such perfect mechanism was able to establish itself (Part 2, Chapters Three and Four); at the time of the formation and configuration of the galaxies, of the constellations, of the Milky Way, which illuminate our cosmic map, the latter gained existence precisely through such laws (Part 1); and upon the formation of the Earth in all its variety and multiplicity, the air, the water, the earth and the winds, such

laws were the cause for the latter productions. Kant acknowledges precisely this, section upon section, in *Universal Natural History*. To affirm the non-existence of these general laws of nature, the philosopher says, would be absurd, and they are in themselves worthy of awe and commotion, and already *proof* of a colossal and duly ordered work.

But, Kant adduces, even though these necessary laws bind all matter; and hence, even though, from chaos until its present formation, from the original dissolution and dispersion until the formation of the beautiful whole which we now behold, this has to occur “in a totally natural manner” (id.: 227), however, “this does not happen thanks to contingency and fortuitously” (ibid.) —that is, in such a way that any other laws, or any other application of these laws, would result in the same thing—. For if these laws were different, the world would not be the same; and if they were left to themselves, to their mere effect, which is furthermore mutually contrary, then the result would have to be not a well-ordered whole, but sheer disorder. No. Quite on the contrary, that which distinguishes these laws is not just their founding character, or their perennial nature, or even *their apparent naturalness*, rather and above all *the singular manner how they [these laws] act*. Namely, the fact that each of these forces, or laws, exists on its own, but also *due to, and at the same time regardless of, the other*; that is, the fact that each of these laws has its own validity, but exerts it *only up until* the point where the validity of the other allows, and vice versa, and that as a result between both forms there is not mere union, nor mere opposition, but *progressive resistance* —in a word, a resistance composed of opposing, yet uniting contraries, which necessarily renders uniform, amid the infinite multiplicity, the course of the formation of the universe, and ascribes it rhythm and an uninterrupted march—. Now, according to Kant, this was indeed a noteworthy phenomenon, in so far as it gave regularity and harmony to the edifice of the universe and its productions. But what truly fascinated Kant in the play between forces in question, and what for him is truly *super-human* and duly constitutive of the world, is not the simultaneously individual, or conjoint, opposing or uniting nature of such contrary laws, but pre-

cisely, one could say, the *compensatory or purposive order* of the whole phenomenon; that which, in each of these natural forces and their respective natural creations, despite the “independent nature” (AA 1: 227) of each of them, is *somehow* rendered compatible, or proportional, disposes and aligns itself towards a single, incontrovertible, inevitable point: in a word: that which is necessarily conformed to the end of the perfect constitution of the world. For this convenient disposition of the things of the world, Kant says, “is brought about by natural properties” (id.) themselves: and this not only because these properties should abandon chaos and form themselves, and ultimately attain their full formation and also the full formation of the universe, but especially because, according to Kant, matter “has no freedom to deviate from this plan of perfection” (id.: 228), nor does it “produce consequences just through a mere indetermination, or through mere chance (...), rather is constrained through natural laws not to act otherwise” (id.: 225). And that, Kant concludes, *could not have come to be if the laws, and the respective natural properties of things, acted separately, without a super-natural link —without a “supremely wise plan”* (id.: 222), or a “*supremely wise purpose*” (id.: 228)— *which connected them originally, and always, to an end.*

According to the philosopher, then, such a conformation of the diversity of things to a final common purpose, and this through such a singular and necessary proportion, is “an irrefutable proof of the community (id.: 227) of the first origin” and also of the community of the final end, of all natural phenomena —in Kant’s own words, a proof of the existence “of a supreme and fully self-sufficient understanding, in which the natures of things were etched towards purposes compatible amongst themselves” (id.: 227-228) —, and hence a proof that “God planted a secret art in the forces of nature, so that it would form itself from the chaos until it attained a perfect constitution of the world” (id.: 229). And this, Kant concludes, is not only evident in theory, but also in the application of such a theory in countless examples in nature. One of these, Kant adds, is the example of chaos itself, which according to Kant was not purposeless, rather was already in itself “perfect” (id.: 225, 263), and indeed purposeful, and so, *as if through the hand of God*, prepared the first

formation of matter (see Part Two, Chapter One). Another example is that of the proportion between universal elements, namely, the fact that, upon the formation of the rotation of the planets, the latter, imbued with precisely the same degree of repulsion and attraction, and with a perfect movement thereby acquired, never come to collide, rather describe an infallibly harmonious movement around a nucleus (See Part One). And another, even more palpable example is that of “air, water, heat” (id.: 225); which, were they not seen as mere natural phenomena, and they could be seen in their true purpose, that of “giving origin to winds and clouds, rains, storms which humidify the lands, and all the useful consequences without which nature would be sad, deserted and sterile” (ibid.).

Such examples, we add, could give rise to further, even more specific and concrete ones, not by chance conveyed not only in *Universal Natural History*, but throughout the whole of Kant’s work. Take, for instance, the fact that “in the warmest zone in the Earth, the winds of the sea, as if they were summoned, blow over the earth and refresh it in the very moment when the heated soil most needs its cooling” (id.: 223-224). Take the fact that “the uninhabitable parts of this surface [the surface of the Earth], the sea and the deserts, separate the human community” (AA 8: 358), but “the ship or the camel (the ship of the desert) enable approximation through these ownerless regions and the use of the right to the earth’s surface, which is commonly due to the human species, for a possible commerce” (id.); or the fact that “in the cold deserts of the Arctic still grows the moss which the deer forages under the snow, so that the deer itself may become nourishment or the beast of burden of the Ostiachs or the Samoyeds”, or the “driftwood which (without one knowing exactly whence it comes) nature brings to sterile regions: a material without which they [these inhabitants] could not build neither their vehicles nor their weapons, nor the huts they inhabit” (AA 8: 363).

The list of examples could go on. Yet, all these examples of a compensatory regime only prove what was already proved and further demonstrate Kant’s main proposition. Namely, that natural effects are as such of a teleological, compensatory order, and hence

“could not have (...) other determinations but to fulfil for themselves the plan which the supreme wisdom proposed” (AA 1: 223).

b) Purposiveness and the aesthetic pleasure of systematicity

A *second proof* of the connection between the general effects of matter and the hand of God is once again indicated in the Preface and dealt with in Chapter Seven of *Universal Natural History*. This proof resides not so much in the part of Kant’s theory on the natural properties in particular, on our world, on the Milky Way or the system of the universe—to which the human being and his understanding thereof does not seem to concur—rather in the part that deals with the actual position of the human being in this general framework, and the understanding it might have of the conjoint action of the effects of matter and God, namely, man’s understanding of the purposiveness of creation.

According to Kant, then, everything in the world “derives with eternal and regular order from one single universal rule” (AA 1: 306), the “law of the first formation which rules over all nature” (id.: 308); all the elements in the universe, from the smallest to the greatest, are “directed and preserved in their constitution by one and the same mechanism” (ibid.), and, as such, all the abundance, all the diversity of the worlds tends towards a common purpose, a unique end, which is that of their infinite perfectibility. This, Kant adduces, is visible not only in an ascending order, until the greatest systems of stars and universes, but also in a descending order, until the most undeveloped embryo; and it is precisely due to this abundance of creation that the course of gradual formation of such elements is infinite (see Chapter Seven). Now the only being who is given the capacity to contemplate and understand this “miracle” (id.: 311), is *the human being*: he who, for Kant, is “the masterpiece of creation” (id.: 318), and who, in this condition, and because he himself “is not excluded from this law” (ibid.), assumes here a *central position*. For it is through his eyes, and his understanding, that he may and must discern this purposiveness of creation; and it is through the discernment and comprehension of the purposiveness of creation, of this

connection between God and nature, that he may position himself within his existence and guide himself through his purposes. In a word, Kant would say, *the human being is here the ocular axis, emitter and receptor of this law of formation*; and it is his destination not just to witness it in nature and to know it to be under the command of God, but he himself contribute towards the continuous and healthy progress of such a law —and this, even though he acknowledges this law, and such a progress, as being infinite—.

Now, Kant proceeds, this purposiveness, this singular proportion and systematicity that runs throughout the universe, *is concealed in nature*; but its understanding, or perception, is not at all difficult —for the movement, “which exists separately in the parts, also extends to the whole and engulfs all the universe, the totality of nature, in one system” (id.: 310)—. In truth —Kant stresses— “among all [the procedures] that may be carried through in the science of nature”, this is “the easiest” and “the safest” (id.: 229), in so far as it *actively involves the human being, and integrates it in this unstoppable course of creation*; something which seems to be corroborated by an akin collocation of the problem in the first sentences of the text “Idea for a Universal History with a Cosmopolitan Purpose” (1784). Hence, the important question is: where to discern this purposiveness of nature; where is it concealed, and our can our eyes surprise it? Kant himself answers this decisive question in *Universal Natural History*, as well as in other writings: surely, by gazing in all possible directions and acquiescing how such a purposiveness is everywhere present, and is everywhere in action —and, alongside this, how the human being may contribute towards the realization of such a purpose—. For, upon gazing *upwards*, the apparently unstable, but rather solid position of the universes, of the Milky Way, of our solar system, even our planet, gives us sufficient evidence of one such course of things, and its orientation towards a silent but certain (re-)formation of the latter. Upon gazing *downwards*, embryos themselves show us this, in so far as they are destined to come to its most complete formation and be all that nature initially set for

them¹⁵. Upon gazing *inwards*, all, from our obscure representations, which are the embryo of clear ones¹⁶, to the po(i)etic procedure of the faculties of creation of aesthetic ideas in general¹⁷, to the scruti- nizing nature of the understanding, to the conduct of the supreme reason: we say, all is proportional, and in conformity with such an end. And even upon gazing *backwards*, as is done in the 9th Proposi- tion of the text “Idea for a Universal History with a Cosmopoli- tan Purpose” (1784), it is not hard to see that whole peoples, the Greeks, the Romans, the Barbarians, give shape to this ordered form of progress (see AA 8: 29), and that hence, if the human being, and human beings as a race, wish to rise to this condition through their work, then the purpose of “wishing to write a history according to an idea on how the course of the world would have to run if it were in conformity with certain rational ends” (id.) is not an absurd one.

Now, in *Universal Natural History*, Kant proposes something different: namely, that one looks in all these directions at once, merely by *looking forward*. For, indeed, all is secretly interconnected through this teleological mesh, and all, from planets to germs, obeys this very teleoformity of things—which is why, in *Universal Natural History*, as in the “Idea” text, Kant states that what is perceivable in small scale [*im kleinen*], is just an image of what may be perceived

15. If not Kant’s epigenetic theory itself, then the text *Idea for a Universal History with a Cosmopolitan Purpose* (1784) would prove this. As an example, see the beginning of the First proposition of this text: “All the natural dispositions of a creature are destined to ultimately develop themselves completely and purposively” (AA 8: 18).

16. Kant states this embryonic origin of all human knowledge in obscure representa- tions by stating that “there are many representations of which we would never become conscious in our life, if there was not an occasion which reminded us of that which already was in us, in [the shape of an] embryo” (AA 25.2: 868). For, Kant adds with this regard, “Obscure representations contain the secret spring of that which takes place in clarity” (AA 25.1: 479).

17. As to the production of aesthetic ideas in general, and the necessary proportional or harmonic disposition of the faculties of the spirit towards this end, this too is according to Kant purposive (see AA 5: 313). In short, the whole capacity of human imagination is to be thought in such a purposive disposition, which may indeed hint at the reason why according to Kant the pleasure of discerning the purposiveness of nature through one’s imagination and the understanding, as described in *Universal Natural History* (see AA 1: 306), is also a part of that same destination.

in a greater scale [*im grossen*]¹⁸— . But if, as it seems, man is the axis of this double path, and hence the axis of the different orientations of its own view of this path, and the worlds which unfold from it; if man is himself “the masterpiece” (AA 1: 318) of creation, and hence, though the work of works, also *work among works*: then, Kant suggests, man’s actions and omissions may and must also be searched in such a stage of nature, and these too should always be held as being in conformity to the same end which rules over the greatest planet and the smallest embryo. And hence, just as man gazes behind, upwards, downwards, inwards, and finds one such purposiveness, and in that purposiveness he experiences pleasure, upon gazing forward, that is, upon considering the remaining course in the finite yet long realization of the development of nature, in full awareness that this is an extension of his other perspectives, and in full awareness that he may join forces with this as an integrating and cooperating part in the fulfilment of this end, then, in that moment, man must feel an all the greater pleasure, a unique pleasure, while beholding the systematic nature of the creation of the world and its elements, in the consequent fair (and possible) application and concatenation of all his perspectives and his very centrality amid the latter. Namely, Kant admits, it is with “silent awe” (id.: 306), superior to any other earthly pleasure, that man faces, from the central point of creation, all its events and sees the heterogeneity of matter “scattered according to a certain law” (id.: 312); it is with unparalleled pleasure, which “moves the faculty of imagination” (id.: 306) and “seizes the understanding in an enchantment” (ibid.), that man faces “the perspective of the infinite field of omnipotence (...), which is referred to the successive complete realization of creation” (id.: 312), and even beyond, thereby “drifting with imagination itself in the space of chaos, beyond the limits of the complete creation and seeing nature still half rude, in the vicinity of the sphere of the formed world, gradually lose itself in all formless space, through all degrees and

18. See *Universal Natural History*: “Hence, the shape of the heavens of the fixed stars has no other cause than a similar systematic constitution on a large scale as the planetary system has on a small one, in that all suns compose one system whose universal plane of reference is the Milky Way” (AA 1: 251).

nuances of imperfection” (id.: 315). And hence, it is with singular satisfaction that man knows it is his destination to act in this “infinite space of the divine presence, where the treasure lies to all possible formations of nature” (id.: 313), to deal with the material “which in the future shall serve as matter for worlds to be produced” (ibid.), and set in motion the “impulses” (ibid.) towards that effect, knowing that his contribution, though almost invisible, though it needs “millions and mountains of millions of centuries in order to form itself and attain perfection” (ibid.), will certainly concur with nature in the conquest of chaos and in the fulfilment of the purpose to which both were created.

Now, what this means is something indeed singular, and altogether *unique* not only regarding Kant’s cosmological position, but also Kant’s philosophical position, which is that of a thinker of the human being in the universe: namely, that it is indeed possible for man to acquire a perspective of his omissions and actions, of natural elements and the world, of the whole universe, once man is able to think such a purposiveness of nature: that is, once man is able to distinguish it by his thought, and by his thought to follow its indistinguishable thread. And this is possible, as was shown above. But the decisive nuance in such a thought, Kant adds, is not so much the thought, or the reflexive activity itself; just as what is truly delectable is not the occurrence of purposiveness itself, which is invisible to human eyes, rather the act of linking such an occurrence with the present lack thereof, in the previous absence of rule. That is, it is indeed through reflection that one is to discern the purposiveness of nature; but it is not the existence, rather the discerning itself, which is worthy of Kant’s admiration; and this because such a discernment, inasmuch as it does not deal with a finished product, an *ergon*, rather with the becoming of the product, an *energeia*, is not expressed in the actual thought that may lead to the discernment of the purposiveness of nature, rather in the shape of an after-thought (or should we say pre-thought?), namely, an *aesthetic pleasure*, a feeling of delectability in the (reflexive) discerning of that same purposiveness, which is to be obtained only in the act itself —where man

plays thus plays an active, practical role—and not in its final result.¹⁹ One could even say that, according to Kant, the discernment of the “Zweck” which is “mäßigkeit” is indeed rational, and is the theoretical foundation of Kant’s purposive system of thought; but it is the discerning of the “Mäßigkeit” of the “Zweck” (*Technik der Natur*), that is, that final tension between imperfection and perfection, between incompleteness and completeness, and the final coming to be of the conformity, the regularity, the systematicity of things previously disordered, which is for Kant truly enjoyable and final proof of the interconnected action of God and nature in the disposition of all the worldly things—a joy and proof which Kant would often seek and promote, and which we therefore consider as one of the fundamental vectors of his edifice of thought—.

In a word, then—and to bring the question to a close—the second and last proof of the connection between the general laws of matter and the hand of God in creation is in an intimate connection with the first one—the purposiveness of nature and its elements—and is to be seen in the *aesthetic feeling*, in the *pleasure felt by man* upon perceiving and understanding this purposiveness (in theory) and his own action, and cooperation, towards fulfilling this purpose (in practice). A pleasure which lies not only in the contemplation of what has been done, and how much has been achieved towards completing that end, but *also and above all* in the vision of the secretly

19. Kant says precisely this in the “Short Summary of the most essential basic concepts of Newtonian Science”, as follows: “(...) all the planets and comets which belong to the edifice of our world constitute a system simply in so far as they orbit around a common central body. But I take this designation in a still narrower meaning in that I focus on the more precise relationships that have made their connection to one another regular and uniform” (AA 1: 246). That is, Kant’s concept of system, or systematic constitution, is not one in which the parts refer to an absolute principle, rather one that is based on the reciprocal relations of parts with one another; the systematicity of this system deriving therefore not from a finished, but from a continuous, progressive reference—or resistance—of the parts between themselves. And so, the pleasure in such a system is not so much in the lifeless reference of the parts to a detached entity, rather in the living function of each part in the whole, and one’s perception of that living function amid other living functions, for that is what gives systematicity to the whole. In Kant’s own words: “the stimulating agreeability of the object and the pleasure which one has in seeing the concordance of a theory in its amplest extension” (AA 1: 235-236).

ordered chaos, whose invisible rule one has to discern and cannot but conform to; namely, in short, that which Kant would designate as a *pleasure in imperfection*²⁰, the suppression of which, though distant, though always concealed from the understanding, though it lacks “infallible demonstrations” (id.: 315), is not at all a “chimera” (ibid.), and must come to be²¹.

REFERENCES

- H. BLUMENBERG, *Die Genesis der kopernikanischen Welt* (Suhrkamp, Frankfurt am Main, 1981).
- R. E. BUTTS, *Kant's Philosophy of Physical Science* (Springer, New York, 1986).
- Ch. HUYGENS, *Cosmotheoros* (Adrianum Moetjens, Hague, 1698).
- I. KANT, *Gesammelte Schriften*. Hrsg. Von der Königlich-Preussischen Akademie der Wissenschaften zu Berlin (Akademie-Ausgabe) (Georg Reimer, Berlin, 1901 ff). (AA).
- J. Kepler, *Epitome Astronomiae Copernicanae*, 3 Bde. (Johannes Planicus, 1617-1621).
- P. KERSZBERG, J. SEIDENGART, A.-M. ROVIELLO (eds.), *Histoire générale de la nature et théorie du ciel* (Vrin, Paris, 1984).
- I. NEWTON, *Philosophiae naturalis principia mathematica* (Josephi Streater, Londini, 1687).
- M. SCHÖNFELD, *The Philosophy of the Young Kant: The Precritical Project* (Oxford University Press, Oxford, 2000).
- H.-J. WASCHKIES, *Physik und Physikotheologie des jungen Kant. Die Vorgeschichte seiner Allgemeinen Naturgeschichte und Theorie des Himmels* (Verlag B. R. Grüner, Amsterdam, 1987).

20. Kant's own words in *Universal Natural History*: “Nature, in so far as it encompasses all possible stages of diversity in itself, extends its reach to all sorts of perfection up to nothingness, and the defects themselves are a sign of the abundance in which its sum is inexhaustible” (AA 1: 338). On this see also AA 1: 312-316.

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