

A Theory of the Merging Noospheres: Teilhard and Big History

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As the number of detected Earth-like exoplanets keeps increasing, the prospect of a radio or physical contact with extraterrestrial civilizations becomes day after day more plausible. It has been noticed that the encounter between space civilizations implies a fusion of Big Histories, in the sense of both the flux of cosmic events and its historiographical accounts. By following Teilhard de Chardin, the authors argue that the hypothetical contact with alien intelligent life would also result in a merging of the noospheres. The long-term perspective of this process is the awakening and awareness of the entire universe. This article provides a history of the idea of noosphere and similar concepts, a reconstruction of Teilhard's "sociological theory" and vision of the future, and an exploration of the theological consequences of his theory of the merging noospheres.

Keywords: Big History; Noosphere; World 3; Meme Pool; Infosphere; Teilhard de Chardin; Extraterrestrial Life; Exoplanets; Christianity

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1. Premise

As Ted Peters noticed, "the future of our history may have to include new space neighbors along with their respective pasts and futures." Indeed, "if we have only one universe, the one story of that universe may require a fusion of terrestrial with extraterrestrial horizons of self-understanding."¹

Each civilization would have its own Big History, with a beginning, an evolution, and a destiny. Each Big History will be partly empirically grounded and partly speculative in character and will grant a specific place to the civilization that produces it. However, after the contact, each subjective understanding would have to be rethought and transformed in the light of other subjective understandings.

As our knowledge of the universe expands, and the number of detected Earth-like exoplanets increases, the prospect of a radio or physical contact with extraterrestrial civilizations seems day after day more plausible. The authors of this interdisciplinary research – a sociologist and historian of ideas, an astronomer and Catholic priest, and an anthropologist – aim to show how Pierre Teilhard de Chardin’s notion of “noosphere” can be useful to emphasize the theological meaning that contact with extraterrestrial civilizations may have.²

The main thesis of Ted Peters is that Big History “will have to incorporate—or fuse with—the many histories of other civilizations appearing on extraterrestrial planets.”³ Only in this case, it is to become cosmic history. We subscribe to this idea and add that this process can also be foreseen and understood in the frame of Teilhard’s speculations about the future of humanity, by using his specific vocabulary. Indeed, Teilhard envisions a similar cosmic fate, namely the fusion, merging, synthesizing of a myriad of noospheres, of “thinking planets,” now dispersed in the universe. If this is going to happen, **Big Histories, intended both as actual evolutionary processes and their historiographical accounts**, are going to meet to illuminate the universe.

2. A methodological note

Much of the research here presented could fall under the rubric of the history of ideas. Still, our purpose is not merely historiographical. With this work, we aim to give a contribution to the codification of the *theory of the merging noospheres* and to open a space for discussion around it. As we introduce the discussion by taking the perspective of the history of ideas, we feel it necessary to clarify our methodological position. We know that Quentin Skinner has expressed doubts about the possibility of reconstructing the history of an idea, because passing from one brain to another it also travels through different historical contexts.⁴ Since the communicative intentions of those who

propagate the idea are different, the latter cannot remain unchanged over time. We are not going to repeat the criticisms addressed to Skinner by other historians. If the history of ideas is still around as an academic specialty, it means that it is grounded enough. However, it must be said that the reconstruction of the historical context is itself part of the interpretative challenge, as the latter is not an indisputable a priori fact.

For example, we know how many different ideas or concepts are symbolized by *the term* “God” and how many different terms are used to represent *the idea* of God. We also know that this concept is used with the most diverse intentions. Still, we sense that writing histories of the idea of God is not meaningless. To give another example, this time from mathematics, the Pythagorean theorem can be used with different intentions and can also be understood differently, for example, following an intuitionistic or formalistic interpretation, but the idea the square of the length of the hypotenuse of a right triangle is equal to the sum of the squares of the lengths of the catheti continue to spread. Writing a history of the Pythagorean theorem makes sense. Even terms like religion, philosophy, science, literature, art, and music have changed their meaning over time, but it does not follow that it is meaningless to write histories of religion, philosophy, science, literature, art, and music. After all, a story is written precisely because there is a change to be told. In the real world, each individual is equal only to itself and instantly.

To conclude this methodological note, the noosphere is certainly an abstraction that has been understood in different ways, but historiography – and we would say every discipline – presupposes abstractions, models, ideal types, which are all the more useful in grasping the general picture of a phenomenon, the less realistic they are (Max Weber *docet*). **We need abstractions to make sense of reality, knowing that the latter cannot be replicated in our brains or on paper.**

3. A brief history of the idea of the noosphere and similar concepts

Between 1883 and 1909, Austrian geologist Eduard Suess published a four-volume work entitled *Das Antlitz der Erde* (The Face of the Earth), which was destined to become one of the most widely used geology manuals. Suess presented in detail the geological structure of the entire planet and his theories on the structure and evolution of the lithosphere. The fourth volume included a chapter dedicated to life on Earth, where Suess introduced the concept of “biosphere.” The author acknowledged that Lamarck and Darwin had paved the way for this conception, but he added that a global synthesis was still needed. Precisely, he wrote that the idea of the biosphere assigns life a place above the lithosphere and deals only with life on this planet and all conditions necessary for its existence, such as temperature and chemical composition, leaving aside “all speculative hypotheses as to the possible presence of living beings on other heavenly bodies.”⁵

In short, for a full understanding of the dynamic evolution of the geosphere, it is necessary to keep in mind that, in the intermediate space between the Earth’s crust and the atmosphere, the biosphere has developed from a certain moment, on. The biosphere is not a simple passive presence, because it interacts with matter underlying and above itself. To give only the best-known example, the biosphere radically changes the composition of the gases of the atmosphere. However, just as different forms or layers of the Earth’s crust (lithosphere, hydrosphere, cryosphere) or the atmosphere (troposphere, stratosphere, mesosphere, thermosphere, exosphere) can be distinguished, more than one scholar has found it necessary to distinguish between different layers of the biosphere. The concept of “noosphere” emerged in this context. To put it simply, the planet can be seen as developing through three phases: (1) the *geosphere* or the inanimate planet; (2) the *biosphere* or the living planet; and (3) the *noosphere* or the

thinking planet. Notoriously, the term derives from the Greek words νοῦς, nous, which means, “mind,” and σφαῖρα, sphâira, or sphere, and so, the noosphere was coined.

In the 1920s, three important scholars, namely Pierre Teilhard de Chardin, Vladimir Vernadsky, and Édouard Le Roy, used the term “noosphere” almost simultaneously. It is difficult to be definitive about the exact inventor of the term because, in addition to written documents, there was oral communication. The three scholars knew each other and met several times. Because the term could have been orally presented in lectures and at conferences, the first scholar to put it into writing is not necessarily the one who invented it. We will not reopen the discussion about the invention of this term since other scholars have already addressed the question.⁶

As far as we know, Teilhard used this word for the first time in an article entitled *Hominization*, which bears the date of May 6, 1923, but it remained unpublished for a long time. The text would be included later in the volume, *The Vision of the Past*. In that work, Teilhard clarifies that admitting that psychic energies have a role in transformism through the creation of tools is not equivalent to “anthropomorphically transporting the methods and reflexion characteristic of the Noosphere into the lower spheres of life.”⁷

Before discussing Teilhard’s theory, it is important to underscore that time was ripe in the 20th century for the emergence of this idea and a plurality of minds contributed to it. As sociologist Robert K. Merton noticed, when scientific discoveries are in the air, they “will be made independently more than once and ... singletons can be conceived of as forestalled multiples.”⁸ Merton also pointed out that “too often, a single term has been used to symbolize different concepts, just as the same concept has been symbolized by different terms.”⁹ **On the one hand, Teilhard, Vernadsky, and Le Roy use the same term to symbolize slightly different concepts. On the other**

hand, other scholars independently tried to symbolize the idea of a thinking planet with alternative expressions. Here, we recall three of these attempts. Then, we shall compare Teilhard's noosphere with all of them, and suggest which is best **for our scope.** Finally, we explore Teilhard's eventual theoretical entry into theology.

Example 1. In 1975, biologist Richard Dawkins introduced a very successful term, "meme," which today is used in rather reductive terms (as in social media), but which, in its original formulation, was closely linked to that of the noosphere. To express the latter concept, the expression used was "meme pool." Furthermore, **Dawkins spoke of a primordial soup of self-replicating entities, which resembled what genes are in relation to organisms. These entities are parasitic thoughts that reproduce and spread by using human brains as hosts.** We report in full the passage from *The Selfish Gene*, as it is quite instructive.

I think that a new kind of replicator has recently emerged on this very planet. It is staring us in the face. It is still in its infancy, still drifting clumsily about in its primeval soup, but already it is achieving evolutionary change at a rate that leaves the old gene panting far behind. The new soup is the soup of human culture. [...] Examples of memes are tunes, ideas, catch-phrases, clothes fashions, ways of making pots or of building arches. Just as genes propagate in the gene pool by leaping from body to body via sperm or egg cells, so memes propagate in the meme pool by jumping from brain to brain via a process that, in a broad sense, can be called imitation.¹⁰

As one can see, the examples proposed by Dawkins are cultural products whose meaning and propagation are studied by philologists, anthropologists, and historians of ideas. Those ideas, although not necessarily the unit-ideas theorized by Arthur Lovejoy,¹¹ are among the examples proposed by Dawkins to illustrate the concept of "meme." Since we mentioned the idea of God in our methodological note, we pick the same example in *The Selfish Gene*: "Consider the idea of God. We do not know how it

arose in the meme pool. Probably it originated many times by independent ‘mutation’. In any case, it is very old indeed.”¹² And there is also a mention of the role of the media in what he calls a parasitic replication. “How does it replicate itself? By the spoken and written word, aided by great music and great art.”¹³

If we look at the propagation process of the meme pool from a sociobiological point of view, the speaker’s intention is of secondary importance, if not completely irrelevant (*pace* Skinner). Just as an adult organism can decide to reproduce by mating with another adult organism, perhaps because the latter likes to spend holidays in the same place, or simply because it has not found anyone else and is under social pressure to marry, what matters from the point of view of the gene is that its propagation continues.

Example 2. Another abstraction that approaches the idea of the noosphere is the concept of “World 3” in the theory of the three worlds developed by Karl Popper and John Eccles in 1977. By World 3, the authors mean the complex of products of the human mind, such as explanatory myths, stories, scientific theories, tools, social institutions, scientific problems, and works of art.

They distinguish this world from the physical one, which they call “World 1,” and from the subjective or psychological one, which they name “World 2.” After having clarified that World 3 includes both true and false theories, and therefore is not an equivalent of Plato’s Hyperurantium, they also note that many World 3 objects exist in the form of material bodies and belong both in World 1 and in World 3. This is true, for example, of synthetic medicines, computers, sculptures, paintings, musical scores, gramophone records, poems, and books, regardless of whether they are scientific or literary books, attempts to represent reality or pure fiction. World 3 objects are the products of human thought but they have a certain degree of *autonomy*.¹⁴ Contrary to

what Dawkins assumes, Popper and Eccles maintain that ideas do not exist only encoded in material objects such as computers, books, or brains. They are unembodied objects.¹⁵

At this point, readers thought the authors wanted to revive Plato's theory of the world of ideas. Quite curiously, Popper and Eccles did not admit that their theory of unembodied ideas was inspired by Platonic philosophy. Despite the arrow of time, they just recognize that Plato independently contemplated "something analogous to our Worlds 1, 2, and 3."¹⁶ To be sure, there is a striking difference, between the two conceptions, as World 3 is autonomous but still man-made, while "Plato would never have admitted such entities as problems or conjectures – especially false conjectures – into his world of intelligible objects." This is "a suggestion which would have shocked Plato."¹⁷ Indeed, this suggestion also shocked many readers. Following the Greek philosopher, many of them were ready to accept the hypothesis that the true, beautiful, and just ideas – in a word, the immutable and eternal "Good" – could exist as unembodied forms, literally in the Mind of God. More difficult was believing that errors and conjectures were floating outside any material object.

Example 3. Our last example is the term-and-concept of "infosphere," which currently is one of the most popular words to symbolize the thinking envelop of the planet. The term, merging the words "information" and "sphere," was probably used for the first time back in 1971 by R. Z. Sheppard in a book review appeared on *Time Magazine*. While reviewing the book, *The Sweetmeat Saga: The Epic Story of the Sixties*, by G. F. Gravenson, the journalist wrote the following: "In much the way that fish cannot conceptualize water or birds the air, man barely understands his infosphere, that encircling layer of electronic and typographical smog composed of cliches from journalism, entertainment, advertising and government."¹⁸ It is a statement that

evidently echoes a famous quote from Marshall McLuhan and Quentin Fiore's 1968 book, *War and Peace in the Global Village*: "One thing about which fish know exactly nothing is water."¹⁹ Profound!

In 1981, futurist Alvin Toffler utilizes this term in a systematic way and with major theoretical awareness. He distinguishes three different waves of civilization and clarifies that different layers make the thinking envelope of the planet. Moreover, the info-sphere (with the hyphen) interacts with other layers, such as the techno-sphere, the socio-sphere, and the bio-sphere. In summary, Toffler writes the following.

When industrial civilization moved much of social memory outside the skull, that memory became objectified, embedded in artifacts, books, payroll sheets, newspapers, photographs, and films. But a symbol once inscribed on a page, a photo once captured on film, a newspaper once printed, remained passive or static. Only when these symbols were fed into a human brain again did they come alive, to be manipulated or recombined in fresh ways. While Second Wave civilization radically expanded social memory, it also froze it. What makes the leap to a Third Wave info-sphere so historically unprecedented a situation: it makes social memory both extensive and active.²⁰

Another scholar who contributed to the spread of this concept is Luciano Floridi, who defines the infosphere as the "the whole informational environment constituted by all informational entities, their properties, interactions, processes, and mutual relations."²¹

Enough history of ideas. Let us now move on and explain why, for our purposes, the theory of the noosphere proposed by Teilhard is preferable to Dawkins' idea of the meme pool, Popper and Eccles's idea of the World 3, and Toffler's idea of the infosphere.

4. Teilhard's noosphere as a 'sociological theory'

The fact that Teilhard's idea of the noosphere historically precedes all the rival concepts might already be a good reason to prefer it. However, there is more than this. Contrarily to its rivals, the noosphere as conceived by Teilhard leads the way to an astrotheological conception of the cosmos, by looking beyond planet Earth and keeping the divine plan in the picture.²²

We should note that Dawkins, Popper and Eccles, and Toffler also discuss the issue of extraterrestrial life, but they do not explore this hypothesis from an astrotheological perspective. Dawkins asks if there are principles of biology that are likely to have universal validity in the entire universe. He writes: "When astronauts voyage to distant planets and look for life, they can expect to find creatures too strange and unearthly for us to imagine."²³ Still, he speculates that a universal biological law exists, namely that "all life evolves by the differential survival of replicating entities."²⁴ At this point he introduces the concept of "meme pool" but only as a touchstone, to say that we do not need to go beyond planet Earth to ascertain the universality of this law. Whether he was correct is indeed another analysis.

Popper and Eccles seem to give little credit to the hypothesis of the existence of extraterrestrial life. They say that "even on the assumption that there are many planets in the universe capable of sustaining life, the probability in question must still be immeasurably small," and they quote Jacques Monod to support this statement.²⁵

To the contrary, Toffler considers the existence of extraterrestrial life highly plausible, almost certain. In response to the skeptics, he quotes the following statement by astronomer Otto Struve:

...the vast number of stars that must possess planets, the conclusions of many biologists that life is an inherent property of certain types of complicated molecules

or aggregates of molecules, the uniformity throughout the universe of the chemical elements, the light and heat emitted by solar-type stars, and the occurrence of water not only on the earth but on Mars and Venus, compel us to revise our thinking.²⁶

Teilhard takes a step further. In his work, the idea of noosphere gradually developed into a *theory of the merging noospheres*, becoming a valuable tool for Big History. Besides, he envisions the theological consequences of this hypothesis.

We have already mentioned that the French paleontologist introduced the concept of the noosphere in 1923. A broad definition of the term is also found in a memoir written in 1945 in Beijing and published the following year in the French magazine *Cahiers du monde nouveau*, under the title, *La planétisation humaine*.²⁷

Here, Teilhard notes that the noosphere tightens its net around us, tangibly and materially. Furthermore, its psychic potential continues to increase. It grows both in terms of occupied space and intensity. This means that we are facing a superorganization of matter. Its visible form is the collectivization of human activities, while its effect is a further liberation of consciousness. According to Teilhard, the process will not stop and will not reach a stable equilibrium until the entire globe is enveloped, and that is when our planet becomes a single thinking entity.

The French paleontologist is well aware that many individual points of view are not easy to harmonize, but he is convinced that with time a common worldview will emerge. In other words, collective memory is being formed. The common heritage of humanity, the experience and knowledge accumulated over the course of prehistory and history, is passed on to future generations through education.

Teilhard takes up the subject again in 1947 in an essay entitled, “The Formation of the Noosphere. A Plausible Biological Interpretation of Human History.”²⁸ Quite interestingly, the idea of the noosphere is presented as a sociological concept – not just one concept among many, but as the cornerstone of a general theory of human society.

Already in the *incipit*, the author clarifies that we are talking about a gradual but an irresistible and inevitable process, which Auguste Comte, Cournot, Durkheim, Levy-Bruhl, and many other sociologists have already discussed. For the social philosophers of the past, the legal aspects of society were of fundamental importance. To the contrary, sociologists then began seeing society as a living organism with its own emergent properties. He points out that humanity appears less and less like a casual and extrinsic association of individuals, and increasingly like a biological entity – one in which the processes and needs of the evolving universe are promoted and in which they reach their climax.²⁹

Nonetheless, the French paleontologist notes the existence of a paradox in this sociobiological conception. His theoretical contribution to sociology is precisely intended to dissolve this paradox. Seen from the point of view of biology, humanity is a deeply enigmatic object because, anatomically, the human being differs very little from other higher primates. This was also noted by Linnaeus who came to this conclusion based on a rigorous application of the criteria normally applied in zoological classification. From the zoological point of view, humanity represents only “a very small offshoot, certainly far less than an Order, within the framework of the category as a whole.”³⁰ However, among living creatures, the role played by humanity in the biosphere is clearly predominant if not unique and exclusive.

Humanity has become the mistress of the Earth, domesticating the plant and animal species that seem useful and eliminating those that seem harmful to its existence. Teilhard believes that the paradox will disappear and a “vast field of progress for the new sociology” will be achieved, if we “enlarge our approach to encompass the formation ... of a particular biological entity such as has never before existed on earth.” He means “the growth, outside and above the biosphere, of an added planetary layer, an

envelope of thinking substance, to which, for the sake of convenience and symmetry, I have given the name of the Noosphere.”³¹

As the author explains in a note, the noosphere is the terrestrial sphere of *thinking substance*. Significantly, he uses an expression coined by Descartes, thinking substance, *res cogitans*. Still, Teilhard assigns to it a space-time dimension, which in the Cartesian conception was an exclusive attribute of the *res extensa*. He rearranges aspects of the two, and derives something new.

Speaking of the space-time dimension, Teilhard dedicates a large part of his writing to the anatomy and the main phases of the development of the noosphere. Concerning anatomy, he distinguishes between three different apparatuses of the thinking envelope: the hereditary, the mechanical, and the cerebral ones. Quite interestingly, and contrarily to Popper and Eccles, the French scholar does not classify computers in the mechanical apparatus, but in the cerebral one. Computers are not mere instruments. They are thinking machines. Between human intelligence and artificial intelligence, there is much more than an auxiliary relationship. A synergy, if not a merger, is underway. The relationship between the two forms of intelligence, human and artificial, must be understood by keeping in mind the prospect of “the formation of a collective human organism, a Noosphere, [that] conforms to the general law of recurrence which leads to the heightening of Consciousness in the universe as a function of complexity.”³² This stupendous thinking machine helps to assemble and concentrate all the reflecting elements on the Earth in a single entity with emergent psychic properties. The prospect is a superorganization of matter, a superevolution of humanity, a new sense of collectivity, the pervasion of humanity by the power of sympathy, a higher order of awakening, a new form of intimacy that will charge the entire complex of interhuman and intercosmic relations.

What will be the fate of the noosphere when it will have become charged to the fullest extent with psychic energies? Teilhard excludes as nonsensical the hypothesis that, after millions of years of evolution, after reaching the highest possible level of self-consciousness and reflection, life on Earth could face extinction. In his words, the possibility of the total extinction of humanity “revolts and sickens us.”³³

Notoriously, at this point, Teilhard crosses the border of sociobiology to enter the field of theology. **He speculates that an ultracenter of unification and consistence plays the role of a catalyst, attracting the curve of consciousness. The latter is expected to keep pursuing its course of growing complexity, to the point of breaking through the material framework of Time and Space.** As we know from his other writings, this ultracenter of unification is the cosmic Christ, who calls us from the future, to inspire our evolutionary path from the Alpha of creation to the Omega of the apocalypse, by no way understood in catastrophic terms. Publishing in a scientific journal, Teilhard almost seems to apologize for the undue trespass, by writing: “And it is here, an inevitable intrusion in terms of biology, and in its proper place in terms of science, that we come to the problem of God.”³⁴

5. From sociobiology to astrotheology

So, having reached its maturity, humanity should remain alone, face to face with itself, to “transfigure” into a non-material, purely psychic entity. However, it should not go unnoticed that in his 1947 paper, before reaching this conclusion, Teilhard had contemplated for a moment an alternative destiny for humanity and the universe. He wrote that the terrestrial noosphere would immediately transcend the space-time frame to reach a higher dimension, “unless... we are destined by contact with other thinking planets, across the abysses of space and time, some day to become integrated within an organized complex composed of a number of Noospheres.”³⁵ Nevertheless, after this

hesitation, he moved on to formulate his most famous hypothesis, dismissing this alternative destiny as “infinitely improbable.”

To sum up, we can see that Teilhard formulated three hypotheses about the destiny of humanity: (1) Extinction (impossible); (2) Immediate transcendence (most plausible); and (3) Merging Noospheres (infinitely improbable).

The second scenario resolves many of the conflicts that have arisen in the last two millennia between science and the Christian religion. By attributing a salvific role not only to evolution but to industrial development, itself, the prospect of collective transcendence makes obsolete and counterproductive all the suspicions that have systematically fallen on the most revolutionary scientific discoveries and technological innovations. However, this is a scenario that opens up another fundamental question. What happens to the evolutionary process at the cosmic level when a thinking planet **Earth reaches the critical point of planetary reflection and accesses “to some sort of Trans-Human at the ultimate heart of things”?**³⁶ Does the whole process stop or continue undisturbed?

In the first case, too much importance seems to be attributed to a single tiny planet in the vast universe – Earth. In the second case, we must admit that many processes that develop according to the Alpha-evolution-Omega scheme go on across the universe. Neither of these two answers seems particularly satisfactory if the intent is to harmonize the Christian religion with the impetuous development of science and technology. Christianity is a monotheistic religion. **The unicity of God requires a solution that contemplates a single narrative with three main protagonists: God, the Universe, and its Evolution.** A Big History capable of giving sense to the totality of the Cosmos, and not just to a tiny dot in it, was needed.

That is why the third hypothesis was never really dismissed by the French paleontologist. Six years later, in 1953, he wrote another article in French entitled *Une suite au problème des origines humaines: La multiplicité des mondes habités*.³⁷

Teilhard writes that the new picture of the cosmos produced by 20th-century astronomy naturally leads to the conclusion that there must be other inhabited worlds, other forms of intelligent life, myriads of noospheres that are emerging all around the universe. He does not hide his disappointment at the fact that so many scholars and common people fail to recognize that *this* is the most plausible hypothesis, while the negation of this scenario is just the outcome of an anthropocentric bias. He is amazed by the lack of openness on this issue.

Teilhard speculates based on the available figures. If there are millions of galaxies in the universe, there must be thousands of millions of solar systems and planets where life has equal chances to emerge. If in each celestial body matter has the same general composition and undergoes essentially the same evolution as inside the Milky Way, the evolutionary process will likely lead to ‘anthropogenesis,’ that is to the emergence of thinking beings similar to *Homo sapiens*. On potentially inhabitable planets, human-like beings would certainly evolve to the point of being able to build machinery and communication technologies. A thinking envelope, a noosphere, would cover the biosphere of inhabited exoplanets exactly as it is covering the Earth now.

In this article, he clearly states that the whole dogmatic structure of Catholicism, and in particular the notions of original sin and redemption, must be re-discussed and reinterpreted in the light of the new image of life, humanity, and the cosmos produced by biologists, anthropologists, and astronomers.³⁸ He also criticizes these three categories of scientists for their disciplinary sectarianism and inability to link together the discoveries that have been made in the three fields of inquiry. Only an

interdisciplinary perspective can show how disruptive the discoveries on the evolution of life, humanity, and the universe indeed are. This interdisciplinary attitude should also transcend science, as the combination of the discoveries in these three fields is “explosive” in a religious perspective as well.

Let us see how Teilhard puts the pieces of the puzzle together. First of all, he clarifies that the term “human” and its derivatives (“humanity”, “hominized”, etc.) must be understood as synonymous with “psychically *reflected* life.” This means that hypothetical aliens are “humans” as far as they are conscious, intelligent, and capable to reflect on their own existence.³⁹

After admitting the plausibility of extraterrestrial intelligent life, Toffler immediately specified that “this doesn’t mean little green humanoids. And it doesn’t mean (or not mean) UFOs.”⁴⁰ According to Teilhard, even if they were little and green, as science fiction writers imagined aliens back in the 1950s, they would be humans and not humanoids. This because he gives priority to the psychic element rather than phenotype.

If they are similar to us, the idea that the original sin took place only on planet Earth, as a literal interpretation of the Bible would suggest, is untenable. According to tradition, our mortality is a consequence of the original sin. This interpretation would imply that extra-terrestrials are immortal. As we assume that the whole universe is subjected to the same physic-chemical laws, this theological solution is scientifically “absurd.”⁴¹

A second ad-hoc hypothesis to save the theory would be that extra-terrestrials all around the universe have been informed of what Adam and Eve did in the Garden of Eden, and therefore they know they all need to be redeemed. Teilhard says that this theological solution is just “ridiculous.”

The third theological escape from the problem would be hoping that no radio or physical contact between terrestrial and extraterrestrial beings would ever happen. This way, theologians could keep asserting, against all probability, that the Earth is the only inhabited planet in the universe. This is equivalent to denying the problem. The Jesuit father defines this solution as “humiliating.”⁴²

In Teilhard’s view, the fundamental dogma of Christianity, the one which sums up all dogmas, is “*In Eo Omnia constant*” - “In him, all things hold together” (Col. 1:17). What would be the scenario consistent both with this dogma and with current science? And here we get to the point: according to the French scholar, “there is every reason to believe that should material contact be effected between two ‘hominized’ planets, they would be able, at least through their Noospheres, to understand one another, combine and be synthesized with one another.”⁴³

A superior synthesis, on a universal scale, is what should be envisioned as the horizon of Big History. Despite all the failed attempts, lost civilizations, and inhabited planets that have died out prematurely, the most plausible prospect is a universal synthesis capable of waking up and bringing the light of consciousness to the whole universe.

6. The plausibility of Teilhard’s theory given recent astronomical discoveries

Support of Teilhard’s speculations on the possibility of other hominized life has grown considerably in the meantime through astronomical and biological research. His “millions of galaxies in the universe” first soared to finding the galaxies totaled the number of stars in our own Milky Way galaxy, that is some 100 billion. However, in recent years the estimate has now multiplied over twentyfold to there being around 2,000 billion galaxies in the universe.⁴⁴ Similarly, Teilhard’s estimate of each galaxy having some thousand “solar systems and planets where life has equal chances to

emerge” has grown to between 300 million and six billion rocky planets in habitable zones per galaxy.⁴⁵ While this shows that the actual number of habitable planets remains highly uncertain at this time, it is enormous on any estimate and each month the tally of known planets increases.⁴⁶

To pass from the number of habitable planets to those with intelligent life is far more problematic. So far, we have assurance of life on only one habitable planet, the Earth. Still, such probes as the lander Perseverance are pursuing the quest to find any signs of life on Mars or elsewhere in our Solar System. This is worthwhile since, as Grace Wolf-Chase writes, “Presently, over 200 molecules have been catalogued in space, including many complex organic molecules that are essential to life on Earth.”⁴⁷ Life’s building blocks are out there, and Teilhard would have had confidence that the huge gap in understanding between organic chemistry and the onset of life will be bridged. That gap lessens when we realize that our understanding of life is prejudiced and that even intelligent life may take quite different forms. Since the 1980s biologists have been discovering life thriving in extreme conditions on our very Earth, the “extremophiles.”⁴⁸ Teilhard’s speculations seem even more grounded now than when they were first elaborated.

7. Conclusions

Once we accept the idea that the noosphere (or the meme pool, the World 3, the infosphere) is a byproduct of the biosphere, it becomes clear that the organismic analogy should be applied also to its constituents. As there are genes that seem to be “ancestral” and shared by most (if not all) living things, while other pieces of genetic code are rare, there are also more or less universal pieces of culture. For sure, local histories are less likely to be understood on the other side of the galaxy than Big Histories. The latter can be seen as ancestral memes, gradually taking form in the

primordial soup of the noosphere.

The fundamental message that Teilhard wanted to pass on to his contemporaries and posterity is that Christians should not fear scientific discoveries nor the hypothesis that the universe is inhabited by other intelligent species.⁴⁹ This seems to be also Ted Peters' conclusion when he states that "the good of the galaxy, not just our planet, will then guide our moral vision of a flourishing future."⁵⁰

We know that there is still much resistance to these ideas both inside and outside Christianity. The idea that our existence only makes sense against the background of Big History is difficult to accept by pragmatic minds focused on the problems of everyday life. The idea that the entire process of cosmic evolution can become fully meaningful in thousands if not millions of years seems hardly consoling for those who yearn for an immediate response to their existential problems. Still, for philosophical minds, the speculative anticipation of this scenario can already constitute a moment of spiritual ascent, of mystical communion with the whole, and produce the feeling that one is always and in any case in the right place at the right time.

¹ Ted Peters, "The Future Fusion of Terrestrial and Extraterrestrial Big Histories," *Theology and Science* (2021): 1. <https://doi.org/10.1080/14746700.2020.1869674>

² Indeed, one could argue that the concept prepares humanity for an eventual meeting, and perhaps a more peaceful encounter. Still, even without ever having that contact, the noosphere will remain a helpful notion. Cf. Riccardo Campa, Christopher Corbally, Margaret Boone Rappaport, "Electronic persons. It is premature to grant personhood to machines but never say never," *Gregorianum* 101, no. 4 (2020): 793-812.

<https://doi.org/10.32060/Gregorianum.101/4.2020.793-812>

³ Peters, "The Future Fusion," 10.

⁴ Quentin Skinner, "Meaning and Understanding in the History of Ideas," *History and Theory* 8, no. 1 (1969): 3-53.

⁵ Eduard Suess. *The Face of the Earth* (Oxford: Clarendon Press, 1909), 637.

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- ⁶ In an annotation by Mark McMenamín to the English edition of Vernadsky's *The Biosphere*, we read the following: "1924. Many discussions with Pierre Teilhard de Chardin (1881-1955) and Edouard Le Roy (1870-1954). The trio invents the concept of 'the noosphere'." Vladimir Verdnasky, *The Biosphere*, edited and annotated by M.A.S. McMenamín (New York: Springer Science+Business Media, 1998), 155.
- ⁷ Pierre Teilhard de Chardin, *The Vision of the Past* (New York and Evanston: Harper & Row, 1966), 71.
- ⁸ Robert K. Merton, *The Sociology of Science. Theoretical and Empirical Investigations* (Chicago and London: Chicago University Press, 1973), 364.
- ⁹ Robert K. Merton, *Social Theory and Social Structure* (New York: The Free Press, 1968), 74.
- ¹⁰ Richard Dawkins, *The Selfish Gene* (Oxford University Press, 2006), 192.
- ¹¹ Arthur O. Lovejoy, *The Great Chain of Being. A Study of the History of an Idea* (Cambridge Massachusetts: Harvard University Press, 1936).
- ¹² Dawkins, *The Selfish Gene*, 192.
- ¹³ Ibid., 192-3.
- ¹⁴ "Once theories exist, they begin to have a life of their own: they produce previously invisible consequences, they produce new problems." Karl Popper, and John Eccles, *The Self and Its Brain* (Berlin: Springer International, 1985), 40.
- ¹⁵ "Some World 3 objects exist only in encoded form... Others – poems, perhaps, and theories – may also exist as World 2 objects, as memories, presumably also encoded as memory traces in certain human brains (World 1) and perishing with them. Are there unembodied World 3 objects? I think that this question is important, and that the answer to it is 'yes.'" Popper and Eccles, *The Self and Its Brain*, 41.
- ¹⁶ Ibid., 44.
- ¹⁷ Ibid.
- ¹⁸ R. Z. Sheppard, "Books: Rock Candy," *Time Magazine*, April 12th (1971), <http://content.time.com/time/subscriber/article/0,33009,905004,00.html>
- ¹⁹ Marshall McLuhan, and Quentin Fiore, *War and Peace in the Global Village. An Inventory of Some of the Current Spastic Situations that Could be Eliminated by More Feedforward* (New York: McGraw-Hill, 1968).
- ²⁰ Alvin Toffler, *The Third Wave* (New York: Bantam Books, 1981), 177.
- ²¹ Luciano Floridi, *The Fourth Revolution: How the infosphere is reshaping human reality* (Oxford University Press, 2014), 41.
- ²² Ted Peters, et al. (eds.), *Astrotheology: Science and Theology Meet Extraterrestrial Life* (Eugene, OR: Cascade Books, 2018).
- ²³ Dawkins, *The Selfish Gene*, 191-2.
- ²⁴ Ibid., 192.

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- ²⁵ Popper and Eccles, *The Self and Its Brain*, 28.
- ²⁶ Toffler, *The Third Wave*, 291.
- ²⁷ The English translation of this article, “A Great Event Foreshadowed: The Planetization of Mankind,” would be included in the following volume: Pierre Teilhard de Chardin, *The Future of Man* (New York: Image Books Doubleday, 1964).
- ²⁸ The paper was originally published in the *Revue Des Questions Scientifiques*. Its English translation would be afterwards included in the book *The Future of Man*.
- ²⁹ Teilhard states the progression clearly: “We feel that the relation between Society and Social Organism is no longer a matter of symbolism but must be treated in realistic terms.” *The Future of Man*, 150.
- ³⁰ Ibid.
- ³¹ Ibid., 151.
- ³² Ibid., 169.
- ³³ Ibid., 175.
- ³⁴ Ibid.
- ³⁵ Ibid., 174.
- ³⁶ Ibid., 298.
- ³⁷ This work was later translated into English under the title, “A Sequel to the Problem of Human Origins: The Multiplicity of Inhabited Worlds,” and included in the following collection of essays: Pierre Teilhard de Chardin, *Christianity and Evolution: Reflections on Science and Religion* (San Diego: Harvest, 1969).
- ³⁸ It has been noted that Teilhard wrote this article, which remained unpublished, in reaction to the encyclical *Humani generis*. Cf. Johannes Seidel, “Teilhard’s Concept of Evolution,” *Metanexus*, May 28th (2008), <https://metanexus.net/teilhards-concept-evolution>. Indeed, in 1950, the Catholic Church was very critical of new scientific theories and philosophical doctrines. Famously, Pope Pius XII wrote the following: “Some imprudently and indiscreetly hold that evolution, which has not been fully proved even in the domain of natural sciences, explains the origin of all things, and audaciously support the monistic and pantheistic opinion that the world is in continual evolution.” According to the Roman Pontiff, the “fictitious tenets of evolution ... repudiate all that is absolute, firm and immutable...” Pius XII, *Encyclical Humani Generis*, Rome, 12 August 1950, www.vatican.va/content/pius-xii/en/encyclicals/documents/hf_p-xii_enc_12081950_humani-generis.html. Given his role in the attempt to harmonize science and religion, Teilhard could not help but feel called into question.
- ³⁹ This, although we have “no idea either of the chemistry or the morphology peculiar to the various extra-terrestrial forms of life.” Teilhard, *Christianity and Evolution*, 231.
- ⁴⁰ Toffler, *The Third Wave*, 291.

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- ⁴¹ Teilhard finds “embarrassing (unless it was meant as a joke) to read in *Time* (15 September 1952) the advice given by a teacher of theology (Fr. Francis T. Connell, Dean of Theology) to be wary of pilots of ‘flying saucers’: if they landed from a planet not affected by original sin, they would be *unkillable*.” Teilhard, *Christianity and Evolution*, 233 (footnote 7).
- ⁴² Following this path, the Church would once again take “refuge in the unverifiable to protect the dogma.” *Ibid.*, 233.
- ⁴³ *Ibid.*, 231.
- ⁴⁴ NASA, “Hubble Reveals Observable Universe Contains 10 Times More Galaxies Than Previously Thought,” *heic1620 — Science Release* (2016), <http://www.spacetelescope.org/news/heic1620>
- ⁴⁵ Steve Bryson, *et al.*, “The Occurrence of Rocky Habitable-zone Planets around Solar-like Stars from Kepler Data,” *The Astronomical Journal* 161, no. 1 (2021): 36-67. <https://doi.org/10.3847/1538-3881/abc418>; Michelle Kunimoto, and Jaymie M. Matthews, “Searching the Entirety of Kepler Data. II. Occurrence Rate Estimates for FGK Stars,” *The Astronomical Journal* 159, no. 6 (2020): 248. DOI: 10.3847/1538-3881/ab88b0; University of British Columbia, “As many as six billion Earth-like planets in our galaxy, according to new estimates,” *ScienceDaily*, June 16th (2020), <https://www.sciencedaily.com/releases/2020/06/200616100831.htm>
- ⁴⁶ IPAC, “NASA Exoplanet Archive,” (2021), <https://exoplanetarchive.ipac.caltech.edu/>
- ⁴⁷ Grace Wolf-Chase, “Astrobiology, Astroethics, and Astrotheology in Conversation,” in *Intersections of Religion and Astronomy*, ed. A. Ricker, C. J. Corbally, and D. Dinnell (Oxon, UK: Routledge, 2021), 198.
- ⁴⁸ Amber Dance, “Studying Life at the Extremes,” *Nature* 587, (2020): 165-166. <https://doi.org/10.1038/d41586-020-03055-0>
- ⁴⁹ “For, *even* if there are actually (as is now *more probable*) millions of ‘inhabited worlds’ in the firmament, the fundamental situation is still unchanged for the Christian (or, rather, it becomes enormously more important) in as much as he can regard these millions as reinforcing and glorifying the same unity as before.” Teilhard, *Christianity and Evolution*, 234.
- ⁵⁰ Peters, “The Future Fusion,” 10.