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The symbolic order and the noosphere: Pierre Teilhard de Chardin and Jacques Lacan on technoscience and the future of the planet

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ABSTRACT

This paper presents a mutual confrontation of the oeuvres of Pierre Teilhard de Chardin (1881–1955) and Jacques Lacan (1901–1980), highlighting their relevance for the planetary challenges we are facing today. I will present their views on technoscience, environmental pollution and religious faith, focussing on human genomics as a case study. Both authors claim that technoscience reflects a tendency towards symbolisation: incorporating the biosphere (living nature) into the ‘symbolic order’ (Lacan) or ‘noosphere’ (Teilhard). On various occasions, Lacan refers to Teilhard’s concept of the hominization of the planet and their dialogue culminates in a ‘final conversation’ between Teilhard and Lacan in 1954, during a reception organised by the journal *Psyché*. I will conclude that the Teilhard-Lacan dialogue is highly relevant for current debates concerning the Anthropocene, as a moment of global awakening and global crisis. Processes of hominization allowed humans to become *literate* beings, littering the planet as well: humans as *literate litterers*. Whereas Teilhard argues that technoscience and self-directed evolution are about to culminate in what he refers to as point Omega, Lacan rather stresses the hazards involved in this optimistic desire towards all-encompassing synthesis, unification and fulfilment.

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Introduction: the oeuvres of Teilhard and Lacan as complementary endeavours

At first glance, Pierre Teilhard de Chardin (1881–1955) and Jacques Lacan (1901–1980) seem to represent juxtaposed positions in the intellectual spectrum of twentieth-century French philosophy. On closer inspection, however, their oeuvres share important questions, insights and concerns. As parallel trajectories, a mutual confrontation (a comparative anatomy) between their oeuvres proves mutually revealing, as the views of the one can help to analyse and assess those of the other. More importantly, however, such an exercise emphasises the relevance of both oeuvres for the planetary challenges we are facing today. A rereading of their

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work reveals how their views on technoscience, evolution and the disruptive impact of human beings as a global species amount to a philosophical diagnostic of human responsibility during the Anthropocene.

Let me first of all introduce both oeuvres in outline. While Teilhard and Lacan developed wide-ranging interests in science, technology, history and culture, their professional vocations seem fairly dissimilar. Besides being theologian and philosopher, Teilhard (the senior of the two) was primarily a paleoanthropologist, directly involved in the discovery of *Sinanthropus* (*Homo erectus*) in China in the 1920s. While conducting palaeontological research in the Ordos Desert (resulting in a series of scientific papers), he conceived a ‘Christic-evolutive’, cosmic mystical vision¹, like a ‘desert Father of old’². For Teilhard, scientific research was a *religious* activity: a priestly practice, a spiritual exercise, an *Opus Dei*³. Books such as *The Human Phenomenon* and *The Divine Milieu* reflect this convergence of evolutionary research, spirituality and mysticism.

Lacan (twenty years his junior) was a prominent French psychoanalyst and psychiatrist, combining a position at the psychiatric hospital Sainte-Anne in Paris with a private practice as a training analyst at his home address (Rue de Lille). Thus, professionally, Teilhard and Lacan seem to represent two completely different worlds, but on closer inspection their pathways considerably overlap. A basic affinity can be discerned, for instance, between human palaeontology and psychoanalysis. Freud himself had a keen interest in anthropology and early human history to elucidate contemporary psychic existence. In *Totem and Taboo*, he interpreted contemporary neuroses against the backdrop of events which supposedly occurred during a primordial, paleoanthropological past. Lacan was likewise highly interested in palaeoanthropology and anthropogenesis (in his terms: the emergence of the symbolic order). Yet, whereas Teilhard focussed on early human skulls and brain size (cephalisation) in hominid evolution⁴, Lacan pointed out that, whereas skulls are scarce, the most abundant source of paleo-archaeological information are human waste products, notably heaps of shells and other forms of debris known as ‘middens’⁵, which are more than simply heaps of shells. They probably served as markers in early human landscapes, therefore providing a window into early human existence. Whereas Teilhard focussed on human self-consciousness (the ‘ego’), Lacan paid more attention to the ‘anal’ dimension of paleo-anthropological research.

Like Teilhard, – who joined the Jesuit order, was ordained a priest in 1911 and published several religious works –, Lacan came from an erudite Catholic background⁶. He grew up in a middle-class family with an ardently Catholic mother and a younger brother who became a Benedict monk. Lacan himself attended a Catholic high school (the Marianist Stanislas College), married in church and baptised his first three children, while in later years he was in the habit of wearing an ‘almost clerical-looking’ white shirt-collar⁷. Although he formally deflected to atheism (to stress his allegiance with Freudianism), Catholicism is ubiquitously present in his work, which is replete with references to Catholic mystics (Eckhart, Hadewijch, Teresa, Angelus Silesius) and Catholic authors (from Saint Augustine and Blaise Pascal up to the Catholic mathematician Georges Guilbaud, who familiarised him with cybernetics and the topology of the Moebius ring). Also, Lacan’s oeuvre contains many reflections on Mannerist and Baroque religious art, in accordance with the dictum that the repressed returns, albeit

on a different scene⁸. While Freud's writings reflect his Jewish background and Jung's oeuvre echoes his Swiss Protestant roots, combined with Gnosticism, Lacan's discourse is 'deeply immersed' in (Francophone) Catholicism⁹.

While Lacan spent most of his life in Paris (seeing analysands and conducting weekly seminars), Teilhard spent many years abroad, in Egypt, China and the United States, because of his paleoanthropological activities, but also because his Jesuit superiors (who refused him permission to publish his writings) tragically forced him into exile¹⁰. Something similar can be said of Lacan, however, who never held a position as a university professor (his hope of being appointed at the prestigious *Collège de France* never materialised). Although he was an internationally prominent psychoanalyst, he was banned from membership of several psychoanalytic organisations.

In the following sections I will present both oeuvres as complementary endeavours. After outlining some points of convergence, I will discuss the fractious dialogue that actually unfolded between both authors, culminating in a 'final conversation' in 1954. Subsequently, to highlight the relevance of both thinkers for contemporary debate, I will present their views on technoscience, environmental pollution and religious faith. To do so, I will focus on human genetics and genomics, culminating in the *Human Genome Project* (HGP, 1990–2003). Like other scientific breakthroughs, the HGP entailed a 'narcissistic offence' because, scientifically speaking (and contrary to initial expectations), there is nothing special about the human genome compared to genomes of other species. All genomes are written in the same 4-letter nucleotide script. And yet, only humans are able to sequence their genomes and reflect on their evolutionary history and future. Only humans can be 'offended' by the outcomes of genomics research. Moreover, the HGP has been framed as a revelatory truth event and Francis Collins, director of the HGP, considered DNA as the language of God¹¹. Therefore, human genomics offers a case study for analysing and assessing Teilhard's and Lacan's views on science and faith. Finally, I will zoom in on their converging/diverging understanding of the role and responsibility of humans as 'literate litterers' and as a planetary species.

Conceptual backdrop: some points of convergence

To being with, both authors were deeply fascinated by Cro-Magnon parietal art. For Teilhard, cave art represents a turning point in the process of noogenesis (the birth of thinking, the emergence of self-consciousness). He was a close friend of French archaeologist Abbé Henri Breuil (1877–1961), professor at the *Collège de France* from 1929 to 1947, with whom he visited parietal sites at Lascaux and Mas d'Azil¹². Besides being astonishing works of art, these cave paintings entail a symbolic dimension. Drawings of animals are accompanied by signs, dots and pairs of lines and often seem superimposed on one another. All this suggests that, rather than being mere representations, these paintings functioned as symbols or pictograms in shamanistic rituals, to examine, probe or affect the movements of herds. Lacan's ideas about Cro-Magnon art were influenced by archaeologist André Leroi-Gourhan (1911–1986), likewise professor at the *Collège de France* (from 1969 until 1982), who studied parietal drawings from a structuralist perspective, analysing the distribution of images in terms of patterns and binary oppositions. For Lacan, parietal art reflects the shift from the 'imaginary' to the 'symbolic'¹³, i.e.,

from parietal art as a product of fascination (triggered by the amazing *Gestalt* of the depicted animal) towards parietal images as pictograms, functioning as key symbolic elements or ‘signifiers’.

Both authors emphasise how modern technoscience, as a decisive turning point in the history of the symbolic, opens up the intimate circle of everyday phenomenological experience, revealing a dynamic universe of immense proportions and complexity. For Lacan, the Aristotelian-medieval cosmos was basically a ‘phantasy’¹⁴, revolving around the idea of a pre-established harmony between *world* (macro-cosmos) and *soul* (micro-cosmos). Via quantification and formalisation, technoscience discloses a universe in which human existence is radically de-centred. This ‘narcissistic offence’¹⁵ gave rise to a split and marginalised subject. And yet, there is something special about humans because, rather than in a natural Umwelt, they dwell in a symbolic order: an artificial environment consisting of networks of signifiers (prohibitions, regulations, written and verbal instructions, textual messages, quantitative information, and so on).

Teilhard likewise sees the ancient, Alexandrian Cosmos as an ‘imaginary world’¹⁶ and modern science as a moment of awakening. Technophobic resistance against technological progress reflects the extent to which technoscience unleashes a rupture with the ‘poetry’ of traditional, agricultural enclaves. Technoscience invokes unease because it entails a diminution of humankind. The narcissistic ego is dethroned¹⁷. The techno-scientific world is so large that humans become trivialised¹⁸. At the same time, there is something unique about humans, because the noosphere (the evolving layer of language and communication, science and technology) emerges and proliferates *via us*. Humans should not consider themselves the centre of the universe, but by modifying life and creating neo-life, they are uniquely positioned along the axis of evolution, envisioned by Teilhard as an increasingly self-conscious and self-directing process¹⁹.

Compared to the notorious opaqueness of Lacan’s style, Teilhard seems a wholly different type of author, more accessible to readers, – although he too delighted in coining neologisms. His main problem was the censorship imposed on him by the Jesuit Order, preventing him from publishing his major writings during his lifetime (and from accepting a professorship at the *Collège de France* offered to him). After copies of manuscripts had been circulating for years, books such as *The Human Phenomenon* and *The Divine Milieu* were published immediately after his death in 1955, leading to world-wide fame. Again, something similar can be said of Lacan. Copies of his works circulated among followers before they were edited and published by others. Both Teilhard and Lacan encountered serious difficulties in establishing themselves as authors, first of all because they combined a life-long fidelity to a truth event (Christian revelation and Freudian psychoanalysis respectively) with chronic difficulties and conflicts with official custodians of those truths. Although Lacan in the 1950s and 1960s established his intellectual reputation via his seminars (conducted from 1953 onwards), he found it difficult to entrust his ideas to paper in an accessible and publishable way, due to his allusive and idiosyncratic style of writing: a surrealistic version of *gongorismo*²⁰. Yet, in 1966, with the publication of his *Écrits* (over 900 pages in small type, edited by François Wahl), he acquired a tremendous readership overnight. Due to these publications, both Teilhard and Lacan became intellectual celebrities during the 1960s and 1970s.

Their writings were highly influential during the post–War period, albeit representing fairly different intellectual approaches. The rapid spread and reception of their ideas from the 1950s onwards concurred with the rise of molecular biology, eventually culminating in the sequencing of the human genome. Both authors argued that scientific technologies not only allow us to reconstruct, but also to redirect and redesign the course of (human) evolution. And both authors claim that science and technology reflect a tendency towards symbolisation, towards incorporation of the biosphere (living nature) into the ‘symbolic order’ (Lacan), the ‘noosphere’ (Teilhard), thereby progressing towards what Teilhard thematised as point *Omega*, – although it is precisely here that the divergence between Teilhard and Lacan becomes most noticeable. In fact, Lacan accuses Teilhard of ‘optimism’ because he seems to ignore the disconcerting by–products of human progress (e.g., global pollution).

Teilhard versus Lacan: a fractious dialogue

Teilhard never mentions Lacan in his writings, but in Lacan’s oeuvre there are several references to Teilhard, listed in Table 1. Most of them refer to a ‘final conversation’ with ‘Reverend Father’ Teilhard de Chardin, which took place on 10 July 1954. Teilhard and Lacan met during a reception organised by the journal *Psyché* in preparation of a special issue that would appear in 1955, shortly after Teilhard’s death. According to Lacan, they discussed the existence of angels as well as Teilhard’s ideas regarding the hominization of the planet.

An important link between Teilhard and Lacan was a mutual friend, Maryse Choisy (1903–1979), novelist and author of a number of remarkable books such as *Yoga et Psychanalyse* and *La guerre des sexes*. After meeting Teilhard in 1936 she converted to Catholicism²¹ and in 1946 she founded the journal *Psyché: revue internationale de psychanalyse et de sciences de l’homme*, dedicated to furthering the dialogue between

Table 1. Overview of Lacan’s references to Teilhard de Chardin.

Source	Theme	Quote
<i>Écrits</i> , p. 684	Hominization of the planet	‘We have begun dumping our garbage into [space, making] it into one of the landfills that have been the very hallmark of our “hominization” of the planet since prehistoric times – oh palaeontologist Teilhard, had you forgotten this?’
<i>Les noms du père</i> (‘The names of the father’)	Final conversation: existence of angels	‘What is an angel? [You may] laugh at my last dialogue with Father Teilhard de Chardin. Father, concerning those angels, how do you arrange to remove them from the Bible, what with your ascent of consciousness, and all that follows from it? I thought it would make him cry.’
<i>Problèmes Cruciaux de la psychanalyse</i> (Seminar XII, 7 April 1965).	Final conversation: existence of angels	‘I believe in [angels] because they cannot be eliminated from the scriptures. I remarked this one day to Père Teilhard de Chardin who almost broke into tears’
<i>Encore</i> (Seminar XX)	Existence of angels	‘I believe in angels – as everyone known, I believe in them inextricably and even inextricably’
<i>L’insu</i> (Seminar XXIV, unpublished: 15 March 1977)	Final conversation; hominization of the planet; existence of angels	‘I teased the Reverend Father Teilhard de Chardin by pointing out to him that . . . he should recognise that angels existed. Paradoxically [he] did not believe in them, he believed in man, hence his story about the hominization of the planet.’

psychoanalysis and Catholicism. Lacan was affiliated with her movement for some time. In 1953, Choisy and Lacan visited Castel Gandolfo together to participate in a public audience by Pius XII²². And in 1954, Choisy and Lacan attended the reception mentioned above, organised in honour of Teilhard by the journal *Psyché*²³. During this meeting, a group picture was taken (with a crucifixion serving as backdrop), including Françoise Dolto, Jacques Lacan, Maryse Choisy, Rhoda de Terra, Louise Weiss, Pierre Teilhard de Chardin and Jean Hippolyte.

Another personal link is Michel de Certeau (1925–1986) who joined the Jesuit Order in 1953 and became intrigued by Teilhard's work in the 1960s, publishing some of his texts and letters, but he also joined the Lacanian movement as one of the first members of the *École Freudienne de Paris* (EFP) in 1964. He co-directed the journal *Christus*, in which due attention was given to psychoanalysis, and was appointed as professor at the 'psychoanalytic enclave'²⁴ within the philosophy department at Paris-VIII Vincennes²⁵.

I will now briefly summarise the content of their dialogue. Basically, in his statements about Teilhard, Lacan agrees that, from the very beginning, we humans have 'hominized' the planet, but first and foremost by *polluting* it, leaving behind a vast trail of garbage and waste everywhere we went. Is this something which Teilhard, a palaeontologist, in his 'optimism'²⁶ had overlooked? The table below provides an overview of Lacan's references to Teilhard:

These references will be discussed in the upcoming sections, starting with *Écrits*, while one of them will be analysed in depth in the final section of this paper, namely Lacan's reference to their final dialogue in a relatively unknown document entitled *Introduction to Names of the Father*²⁷.

The name of 'Father Teilhard' in *écrits*: from trinil middens to noosphere

In *Écrits*, Lacan refers to Teilhard on the final page of an essay which discusses the relationship between two key Lacanian concepts: 'structure' and 'subject'²⁸. Lacan uses 'structure' not in a morphological, but in a topological sense: as an effect produced by combinations of signifiers²⁹. From the very beginning, Lacan argues, human subjects enter a scene which is pre-structured by the desire of others, by parents for instance, who give their (wanted or unwanted) child a name and may cherish certain desires, revolving around gender, for instance. Modern society is a scene where a plethora of machines operate to produce chains of signifiers, thereby giving rise to symbolic environments of bewildering complexity, bombarding us with messages, prohibitions and incentives. Through technoscientific symbolisation, the world of substances and organisms becomes incorporated into a symbolic system. The Real is 'obliterated' (literally: replaced by letters and other symbols) through the intervention of the symbolic³⁰, the advent of numbers, for instance in the form of probabilistic thinking, re-ordering the world in terms of the digital logic of presence or absence, affirmation or negation, thoroughly restructuring the Real³¹.

Thus, already as a new-born child, the subject is inscribed in the discourse of others, which is there from the very beginning. Etymologically speaking, 'digit' is derived from *digitus* ('finger'): the *index* ('forefinger') indicating presence or absence, – so that the birth of a hermaphrodite, as Lacan phrases it, will prove a challenge when it comes to

determining the civil status of the child who was meant to incarnate the parents' desires, revolving around the presence or absence of bodily appendages, as 'partial objects'³². While the real is transformed (obliterated) and incorporated into the symbolic³³, this is not at all a seamless process.

The unconscious refers to that which is forgotten, repressed or obfuscated. According to Lacan, the unconscious is not a reservoir of animalistic instincts. He rather compares it to a letter box where others have left their messages: e.g., all the wishes, expectations, grievances and accusations that were voiced concerning a subject, although the subject in question may not be aware of them. Lacan specifically refers to statues of idols such as Baal or the *Bocca di Leone* in Venice, with a dark and hollow space inside, which functioned as a letter box where such messages were once dropped and collected. Lacan's linguistic reframing of the unconscious is closely connected with the topological structure of the symbolic, notably the relationship between *subject* and *Other*, which entails an *intersubjective* dimension, e.g., the more or less symmetrical interactions between subjects as equals, but also a *vertical* dimensions, e.g., the Law, the moral Imperative, the voice of conscience, as an intervention coming from within, but at the same time coming from above, issued by the Other, with a capital O, – by Baal or the Venetian Doge for instance. In a symbolic ambiance, the Other (*l'Autre*, with a capital A) will always be present, *latently* at least, 'consecrating' the relationship between subject and others³⁴.

Psychoanalysis aims to reveal how a symbolic environment is *created* by contrivances (such as letter boxes), while psychoanalysis itself likewise 'operates in the symbolic'³⁵. The famous Freudian couch, for instance, is a discourse-producing machine. As Lacan phrases it, psychoanalysis is inevitably 'creationist'³⁶, because the subject is created by the symbolic order, by the discourse of the Other. Initially, the psyche is nothingness: a void, an orifice, waiting to be filled with the language of others. The subject is *called* into existence, is *addressed* by the voice of the Other. A *person* is created *per sonum*, – called into being by a voice³⁷. Science as a symbolisation of the real likewise relies on contrivances, on sophisticated machines producing scientific signifiers, e.g., numbers, measurements, equations, mathematical, physical and chemical symbols, and the like. Therefore, modern science, inaugurated by Galileo, is 'creationist' as well, since it actively creates a symbolic order³⁸. Therefore, it is appropriate, rather than ironic, that the name Galileo literally means *Galilean*, a man from Galilea (a synonym for Christian). Lacan emphasises, however, that this does not necessarily imply the existence of a supreme being. The symbolic order will function even if God is pronounced dead.

In the final section of his essay, Lacan focusses his attention on ethics, quoting Kant's famous words concerning the two experiences which fill the human subject with admiration and awe, namely the *starry skies* above and the *moral law* within. For Lacan, this is a topological assertion, distinguishing an *above* and a *within*, as basic topological coordinates structuring human subjectivity. The 'moral law within' refers to the 'voice of conscience' – the voice of the Other (A), paradoxically coming from *within*, – both intimate and external –, which still operates even if most humans no longer believe that the Ten Commandments capture its message. In fact, these laws already operate as the laws of the languages we speak. In addition, the topology of the 'starry skies' has been dramatically affected by the emergence of modern technoscience. Indeed, Lacan emphasises that the topological 'conditions' under which Kant's famous contemplation

occurred, have dramatically changed since then. The starry skies and spatial infinities of Pascal and Kant are opened-up by technoscientific contrivances: by symbols, by 'little letters' and 'equations' produced by technoscience³⁹. The symbolic order is propagating into the universe. Signifiers are transmitted from Earth ('Houston') into space, but also (by astronauts and cosmonauts) from space to Earth. 'Signs of intelligence' similar to the ones which scientists are now sending out into space may in principle also come from other inhabitants elsewhere, who may be sending us decipherable messages, signifiers from outer space.

That we are no longer intimidated by the starry skies above is also clear, Lacan hastens to add, because, as a by-product of our astrophysical exercises, we have begun to dump our garbage there as well, emptying our waste bins into the starry skies, turning these pristine spaces into garbage pits, similar to the ones that have been the very hallmark, the stigmata of the 'hominization' of the planet since prehistoric times. For indeed, garbage pits, technically known as 'middens'⁴⁰ are primordial traces which pre-historic humans left behind for palaeontologists to discover, as 'indexes' indicating human presence. These heaps of shells were more than mere debris. They were actively and consciously accumulated by prehistoric shellfish consumers and assembled into piles, sometimes of quite significant size: a symbol or index of human dwelling sites. They are the footsteps, marks or traces of humanity's passage through the world⁴¹. Precisely as symbolic items, they constitute markers for archaeological research. They are more than just waste: they were construed on purpose, as primordial pyramids, functioning as markers in early human landscapes (indicating that this was *their* place, *their* site), perhaps also as tokens of Palaeolithic affluence, or as symptoms of early human boredom. For paleoanthropologists, they are time capsules, constituting valuable archives for research⁴².

These middens are signifiers, carriers of a message, also in the *literal* sense of the term. Decades before Teilhard and his colleagues unearthed *Homo erectus* skulls in China, the Dutch paleoanthropologist Eugène Dubois discovered the first *Homo erectus* skull near Trinil on Java, in the beds of the Solo River. The fossil collection (now at Naturalis, Leiden) assembled by Dubois (or rather: by his team of convict excavators) also contained numerous shells. Recently, it was discovered that *Homo erectus* made miniature engravings in Solo River shells: tiny geometric strokes, suggesting symbolic patterns⁴³, although their meaning and function remain unclear: calendars, symbols, number counts, decorations, doodles? This discovery was quite astonishing, because the earliest previously known geometrical engravings were at least 300,000 years younger⁴⁴. In other words, Dubois' fossils not only present case material for studying the progression of self-consciousness via cephalisation, but also reflect the dawn of the symbolic (of the signifier) *as such*⁴⁵. According to Lacan, a signifier is basically an incision, a stroke, a marker, quite like the markings on Trinil shells. Maybe these strokes signified days or months, but in any case, they opened up a new dimension of experience, a symbolic clearing, through practices of symbolisation. At a certain point, these shells, these carriers of letter-like engravings, became litter. Again, for Lacan, humans are first and foremost *litterers*, polluters, literate litterers, causing *le monde* to become *immonde*.

Lacan argues that technoscience represents a dramatic restructuring and symbolisation of the Real, so that the organic, the biosphere (e.g., edible shellfish) becomes incorporated into a symbolic order. Teilhard thematises this as 'hominization' of the planet, resulting in a planetary symbolic system, a noosphere. What seems obfuscated by

Teilhard and emphasised by Lacan, however, is pollution as a by-product of human progress. Humans are literate litterers. Insofar as human progress exemplifies 'negative entropy' (i.e., the tendency of life in general and human history in particular towards increased complexity and literacy), entropy will inevitably be produced elsewhere, in the form of accumulated litter. Future palaeontologists (or visitors from outer space) will discover the excessive extent to which the advance of human technoscience has polluted the global environment.

The name of Father Teilhard in the *seminars*: on the existence of angels in the era of space travel

How do angels fit into this scheme, the other topic of their final conversation? Literally, an angel (ἄγγελος) is a messenger from outer space, a carrier of signifiers, transmitting the Word of the Other. As Lacan phrases it, angels are carriers of the (oral) object of desire (the object *a*), the breath (*spiritus*) which inspires and impregnates (cf. Baroque and Mannerist paintings of the Annunciation). *The ecstasy of Saint Teresa*, the famous sculpture by Baroque artist Bernini, is discussed by Lacan in Seminar XX⁴⁶. An angel is holding a golden spear whose point (as 'object *a*', prime object of desire) seems about to pierce the entrails of the swooning saint. For Lacan this artwork exemplifies the 'matheme of desire' ($\$ \diamond a$), indicating how the craving subject ($\$$) is both drawn towards and kept at a distance from the enigmatic object of desire (*a*).

Thus, the Teilhard-Lacan dialogue revolved around the question of the existence of angels, but in close connection with other dimensions of human desire. The existence of angels is indispensable for the Scriptures, and for Lacan, they should not be taken 'figuratively', but *to the letter*. While Teilhard (the priest) was sceptical, the psychoanalyst believed in them, as carriers of the signifier, the gift from the Other (the object *a*), while consecrating the distance between subject and Other. Lacan's references to Teilhard therefore revolve around a network of signifiers: *angels, space travel, messages from outer space* and *global pollution*.

In a Seminar entitled *Crucial Problems of Psychoanalysis*, Lacan refers to Teilhard while discussing space travel⁴⁷. The extra-terrestrial journey by Russian cosmonaut Gagarin represented a biological-evolutionary novelty, Lacan argues⁴⁸. As a technoscientific research subject, he enveloped himself in a machine producing signifiers (messages and measurements): a capsule, an artificial lung, and he even urinated inside this pulmonary womb. That all humans are *litterers* also applies to space travellers. Strictly speaking, Lacan argues, Gagarin was not a 'cosmonaut'. Cosmonauts cannot exist because the cosmos (i.e., the spherical universe of ancient and medieval thinking) no longer exist. Gagarin was able to travel through space precisely *because* the ancient cosmos was *obliterated* by technoscience. Technoscience was able to calculate (with the help of mathematical symbols) Gagarin's trajectory precisely because technoscience is decidedly *a-cosmic*. Ergo, Gagarin is *not* a cosmonaut. Cosmonauts cannot exist. What should we call human space travellers then? Why not call these 'messengers' from outer space *angels*?⁴⁹ We hesitate because, allegedly, we no longer believe in them. Lacan, however, stresses that they cannot be eliminated from the Scriptures. He confessed his belief in them to Father Teilhard de Chardin, he tells his audience, who 'almost broke into tears'⁵⁰.

Lacan endorses a *literal* interpretation, of signifiers in general, of Biblical signifiers in particular. Space travellers could not have been successfully launched into a spherical *cosmos*. Precisely because they are messengers, sending us messages from outer space, they are literally speaking angels. *Ergo*, angels exist, while cosmonauts do not. Why did this bring Teilhard on the verge of tears? Because Lacan acted as a kind of Socrates, allegedly forcing Teilhard into making a confession. The latter had missed an important link between Catholic Revelation and scientific knowledge: a remarkable *Fehlleistung* for someone who devoted his intellectual career to bridging the two. To be ‘progressive’, he discarded (sacrificed) angels as conceptual refuse: a crucial mistake, Lacan claims, caused by the fact that Teilhard did not take the Scriptures *literally*.

Along similar lines, another (at first glance rather weird) reference to Teilhard now makes sense, namely in *Encore*⁵¹. Here again, Lacan discusses the role of signifiers, focussing on ‘substantive adjectives’, using *roundness* as an example, produced on the basis of the adjective *round*. The word *justice* is another example, produced on the basis of *just*, while *stupidity* is based on *stupid*, as in ‘stupid smile’. ‘Stupid’ comes from the Latin verb *stupere*: to be amazed or stunned. This serves as a bridge to angels for, according to Lacan, angels (as depicted on Mannerist and Baroque artworks in churches and cathedrals) have ‘stupid’ smiles because they are chronically stunned. Again, the signifier should be taken quite literally here. Whereas a human smile conveys desire, or functions as an object of desire (as object *a*, cf. *La Gioconda*’s enigmatic smile), angels have nothing to desire, – they dwell in perfect bliss. Angels have stupid smiles because they dwell in the proximity of the Other, the Supreme Signifier (i.e., God). This discussion is (again) followed by the confession that, yes, Lacan believes in angels. He believes in them ‘inextricably and even inextheihardly’⁵². From the perspective of true faith (i.e., Catholicism), the concept of the angel cannot be separated from the function of the signifier. They play an indispensable role in the Scriptures. Without them, there would be a gap in the transmission of signifiers between subject and Other. By transmitting a message, angels *maintain* the distance between subject and Other. Again, Lacan seems to ask: how could Teilhard, a theologian, have missed this? As a twentieth-century Socrates, he aims or claims to beat the Reverend Father on his own ground.

This theme is taken up again in Seminar XXIV. Lacan sees geometry as one of the most powerful contrivances for symbolising (hominizing) the Real, and he refers to Euclidean geometry as the ‘symbolically imaginary’, because it captures ‘imaginary’ geometrical perfection (spheres, cubes, pyramids, etc.) by mathematical means (‘symbolically’). The pyramid, for instance, is both an idealised mathematical concept and a *Gestalt*. In early modern times, the geometrical method (*mos geometricus*) served as a model for philosophers. Lacan identifies it with ‘angelic’ (*pure, prefect*) geometry and for Lacan the signifier ‘angel’ inevitably leads to his final conversation with Teilhard who, according to Lacan, did not believe in angels, but rather in humans and the ‘hominization of the planet’⁵³.

Subsequently, Lacan explains that mathematics is under the sway of *inhibition*. Mathematicians are expected to *refrain* from connecting mathematical equations with messy reality, with visible, tangible things. Mathematics should remain abstract, ‘with-drawn’. Euclidean mathematics was ‘angelical’ because it was ‘pure’. Angelic mathematics

is a practice of inhibition and refraining. And angels perform an inhibitory function: these angelic messengers are sent to convince us that we should *refrain* from messy actions. The intervention of the signifier calls upon us to withdraw, to *abstract*.

This is precisely what is at stake during Lacan's 'final dialogue' with Teilhard, discussed in *Introduction to Names of the Father*, the 'missing' or 'inexistent' Seminar, dating from 1963 and published posthumously in 2005. It is here that their final conversation (mentioned in passing in other references) is elaborated most extensively. As indicated earlier, however, to be able to adequately interpret and contextualise this reference, a detour is required. In the next sections, I will discuss the views of Teilhard and Lacan on technoscience more in detail, zooming in on human genomics as a case study. In the final section, I will return to Lacan's reference to Teilhard in 1963.

Teilhard's views on science, technology and evolution

Teilhard's magnum opus *The Human Phenomenon* was completed in China in 1940 and published posthumously. According to Teilhard, an axis of progress is discernible in evolution, towards increasing complexity, self-consciousness and self-directedness⁵⁴. Teilhard sees life as a process of becoming or 'sublimation'⁵⁵, while humankind represents the moment when evolution becomes conscious of itself. What is disconcerting about the human phenomenon is that scientific portrayals (anatomical, physiological, neurological, genetic, etc.) consistently fall short. They lack a key dimension. Humans are animals, but they also represent a leap, a discontinuity, a metamorphosis, a crisis, an awakening. Via humans, the *noosphere* (the 'layer of thinking', i.e., the global network of science, technology and information) increasingly absorbs and transforms the geosphere and the biosphere. A turn of profound importance is taking place in the world as we are entering a new era. Via us, evolution has begun to actively redirect itself. Through humans, a techno-cultural world is born, an altogether different form of life. Contrary to anthropocentrism, however, Teilhard emphasises that this is not brought about *by* human beings. Rather, Teilhard points to the presence of something greater than ourselves, moving forward *within* us, *drawing* us towards this future, via culture and technology as augmented forms of consciousness and transmissible reflection.

The Human Phenomenon depicts a dramatic, panoramic vision of the evolving cosmos as a process of cosmogenesis, beginning at the atomic and molecular levels, where the stuff of the universe continuously degrades and pulverises (under the sway of entropy), while at the same time giving rise to more and more organised forms of matter, via synthesis and complexification. Stars and planets are basically laboratories for producing atoms and molecules, where matter evolves in the direction of larger molecules⁵⁶. On planet Earth, geological research reveals the formation of larger crystal molecules and polymers. In the course of evolution, Teilhard argues, an interior, psychic dimension of things increasingly manifests itself. Planet Earth is a polymerising world⁵⁷, giving rise to phenomena of life, to increased interiority and cellular awakening, culminating in the dawn of consciousness (psychogenesis). A new topological dimension is opened up: a 'within', separating 'inside' from 'outside'. The mega-molecules of life gradually assembled and converged into complex cellular structures. Life began to spread, and the nascent cellular world evolved into a global super-organism, a living 'film'⁵⁸, bent on propagation and complexification from the very outset, giving rise to a crisis by

drastically transforming geosphere and atmosphere, producing oxygen on a massive scale. The boundary zone between pre-life and life teemed with proliferating minuscule beings: the biosphere appearing. The advent of life can no longer occur spontaneously on Earth. Spontaneous generation now paradoxically requires an abiotic environment: the absence of life. The primordial chemistry of life is reproduced artificially in laboratories, where the creation and propagation of neo-life is already underway.

Life is an incessant arena of experimentation⁵⁹, passing over myriads of corpses, while the branches of the tree of life actually indicate the gaps left behind by vanished life forms (previous waves of natural experiments). But an axis of development can be discerned towards interiority and consciousness, culminating in the 'plastic brains of primates'⁶⁰. Evolution does not proceed randomly but moves in the direction of orthogenesis⁶¹.

The emergence of mammals (with voluminous, convoluted brains) represents a decisive intensification of this tendency, as biogenesis gives rise to psychogenesis. Although the behaviour of insects is quite complicated and remarkable, their consciousness seems 'frozen' into limited sets of functions. In mammals, consciousness becomes more flexible, although even here, development often becomes arrested as animals become prisoners of their external organs. In humans, evolution works more directly on the brain itself, via tool use and the emergence of language, eventually giving rise to a new geological and evolutionary era. The accelerated hominization of humans represents a leap-like mutation, superimposing itself on evolutionary continuity. For Teilhard, the scientific picture of human existence fails to capture the human phenomenon convincingly. Hominization is a decisive rupture, a moment of discontinuity, when consciousness begins to work upon itself⁶². Another world is born⁶³. Life entails a psychic transformation, from the obscure psyche of the first cells up to mammalian consciousness, and the human phenomenon represents a final leap, the awakening of intelligence: a hominizing metamorphosis⁶⁴.

Self-consciousness is not a result of brain morphology alone, but a multi-factorial process. The freeing of the hands allowed early humans to gaze on what their hands took hold of: a new beginning, crossing the threshold of thought, giving rise to 'another kind of life'⁶⁵. The spark of reflection eventually affected the whole planet via the emergence and dramatic expansion of the noosphere: the thinking layer, the evolving global network of intelligent beings and their contrivances, over and above the biosphere⁶⁶. A new type of being, a thinking animal invades the planet, gradually eliminating or subjugating other life forms, creating an irresistible tide of fields and factories, resulting in planetary change: the advent of the 'psychozoic' era⁶⁷. Along the evolutionary curve there are particular points of dense creative activity (the appearance of life, of thought, of globalisation) and we are currently experiencing such a curvature⁶⁸. Seen from a distance, planet Earth becomes 'phosphorescent' with thought.

Initially the development and spread of fire, stone tools and pottery evolved quietly, but in the course of time, it resulted in a planetary wave of experimentation. We still recognise ourselves in the language of Cro-Magnon art, spiritually close to us⁶⁹. Although the discovery of human fossils is one of the most illuminating and critical lines of modern research, the true meaning and impact of the human phenomenon can only be grasped in the course of its unfolding. At this very moment, we are casting off the last moorings

tying us to the Neolithic, agricultural era⁷⁰. Via astrophysics and space travel, the human phenomenon is acquiring a cosmic scope. We became a planetary being, while the noosphere evolved into a new milieu, an intelligent ecosystem⁷¹. We have been thrown out of the natural world into a neo-world of spiritualisation and civilisation. Comparable to the first experimentations of the first living cells, we now see the advent of waves of neo-life in laboratories⁷².

This triggers a sense of disquiet, a 'crisis' of reflection⁷³. Now that neo-life can be built up chemically⁷⁴, we experience disorientation and malaise. Our sense of anguish, Teilhard argues, stems from the awareness that, as life has entered its thinking stage, evolution will from now on develop *via us*. As Teilhard points out, scepticism and pessimism towards humanity is notably fashionable among intellectuals, the 'luminaries' of his time, eloquently voicing a denial of progress and stressing the absurdity of human existence. What we are actually facing, Teilhard argues, is a contemporary version of Pascal's wager. We have to choose, between pessimism and optimism⁷⁵. According to Teilhard, we *must* assume responsibility for the undeniable fact that we are about to create new life-forms experimentally. Slow, Darwinian mechanisms (selection, random variation, struggle for life) become secondary functions⁷⁶. Artificial neo-life is already emerging as a new phylum. A new realm of technology and reflection (and their material products) unfolds: a new 'milieu', increasingly affecting the biosphere, similar to how life once significantly transformed the global geosphere and atmosphere. Heredity is increasingly becoming a revisable and transmissible legacy, is becoming thoroughly 'hominized', and this inevitably gives rise to disquiet, for we seem unable to live up to the daunting challenges and responsibilities entailed in this. In the present situation, without precedent in the history of life, we suffer from collective psychic disorientation. More than at any other moment of history, Teilhard argues, we experience a fundamental anguish of being. Something threatening is opening up in front of us, and something seems more than ever lacking. Somehow, however, uneasiness must be transformed into foresight. We must learn to think and act collectively, assuming a planetary perspective.

Teilhard's 'optimism'⁷⁷ stems from his conviction that reflection is likewise advancing towards a higher level. Via emerging means of interaction and communication, all human beings are now simultaneously present, and their deliberations are brought together on global podiums. We witness the emergence of pan-human efforts of investigation and reflection⁷⁸. Self-consciousness is evolving into hyper-consciousness, via the noosphere as a planetary network of systematic perception, collective intelligence and global deliberation: a psychic expansion, a decisive new leap in the development of the spirit. A turn of profound importance is taking place, right before our eyes. Due to this explosive acceleration of noogenesis, intelligence becomes 'distributed', becomes 'hyper-intelligence', and the human spirit evolves into a comprehensive, supra-individual 'super-soul', an ultra-complex, ultra-conscious system, a synthetic confluence of thinking⁷⁹.

We are actively redirecting the course of natural history but strictly speaking this is not due to us, humans. Something has come *over* us, realising itself *through* us. Humankind is a carrier or vector, pointing towards a future that is predictable in outline, oriented towards re-synthesis and recreation. We will not only redirect evolution by producing new types of organisms, but also re-sculpt *ourselves*, our own heredity and brains. The artificial will accelerate and redirect the natural, notably because the techniques of

transmission of written culture will increasingly be superimposed on genetic forms of heredity, while the organisation of research will increasingly fall under industrial control, resulting in a dramatic increase of pace and scale.

Something enormous was already introduced by industrial production and modern scientific technology, Teilhard argues, from giant telescopes down to atom smashers, but now the knowing subject itself will become the target of technological intervention, so that the natural and the human sciences converge into a transdisciplinary science of hominization, bent on optimising human bodies and brains, with ethics and foresight replacing natural selection. This may even include ‘noble forms of eugenics’⁸⁰, alongside a ‘reorganisation of the earth’. After centuries of analysis, modern thought is now endorsing the creative evolutionary function of synthesis, producing astonishing creatures, beautiful yet fragile experimental entities⁸¹. The conscious pole of the world is drawing the biosphere towards ultra-synthetic super-life, as the artificial is taking over from the natural⁸². Change is brought under active control and the techniques of scriptural transmission are superposed on genetic, chromosomal heredity. Evolution gave rise to the noosphere, enabling a global, noospheric organisation of research and the assemblage of ‘thinking beings’⁸³.

Thus, egocentric contemplation is replaced by technification, collectivisation and industrialisation on a planetary scale, but we receive something in return: the invitation to participate in research and reflection as a collaborative techno-scientific project⁸⁴, a genuine *opus humanum*, conducted by global research networks, giving rise to an excess of consciousness, a golden age of knowledge production⁸⁵. The world has acquired a new dimension: spatially, temporally and psychologically⁸⁶. We are witnessing a period of profound transformation, a restructuring of the spirit, resulting in a cybernetic mind, enhanced and interconnected by computer technology. Humankind is evolving into a global research team, a world-spanning laboratory, as the spirit of technoscientific experimentation spreads. We are heading towards a new chapter in the evolution of life and human consciousness, a redefinition of being as such. This inevitably causes anxiety and malaise⁸⁷ and will even disrupt laboratory life in the traditional, artisanal sense (p. 170). We are dissatisfied because something seems absent or missing: a sense of direction, an ultimate collective target, something like a Holy Grail⁸⁸. As a final step, therefore, what is required is a conjunction of science and religion. Point Omega, the pole of consolidation, attraction and completion⁸⁹, is coming to our rescue, drawing us in its direction as a hyper-personal Other ‘who is even more I than I myself’⁹⁰.

Precisely here, Teilhard’s approach displays its religious, Christian fervour, equating creative evolution with evolutive (on-going) creation. We are taken aback by the prospect of psychic hyper-expansion, intellectual superabundance and hyper-personal totalisation, by the explosive acceleration of noogenesis, but we are nonetheless inevitably culminating towards point Omega⁹¹. At the decisive moment, *Someone* will stretch out His hands to us, from ahead, allowing us to make the final leap. Some impulse must intervene to overcome inertia⁹². Before long, our narcissistic ego will be definitely eliminated (as a prison from which to escape) and our egos will dissolve into a higher, collective, hyper-reflective form of self-consciousness. At the summit of the world, when the evolutive moment of fulfilment (pleroma) and ‘excessive reflection’⁹³ has been reached, absorption by a supra-personal Other awaits us⁹⁴, so that we may

enter a new universe of self-consciousness and witness a conjunction of religion and science. The noosphere will synthesise and sublimate into a planetary layer of thought, eventually giving rise to intellectual ecstasy, but there are no summits without abysses, and therefore a supreme Other must guide us toward Omega, the transcendent pole of universal convergence, which is already drawing us through our current moment of crisis.

A Teilhardian assessment of human genomics

For Teilhard, the cosmos is an evolving process and humans emerged along the evolutionary axis, representing a leap into self-consciousness. Millions of years ago, life began as a process of experimental sublimation, via permutations and combinations of genetic ‘characters’⁹⁵. And now, evolution is becoming self-conscious and self-directed. In the recent past, human thinking already became increasingly mathematical and symbolical, allowing humans to modify their world by recombining algebraic numbers, chemical symbols and other ‘characters’⁹⁶. And now heredity itself, until recently part of the biosphere, is transposed into the noosphere, allowing us to consciously recombine and adjust the biomolecular ‘characters’ of chromosomal life⁹⁷.

From a Teilhardian perspective, the HGP represents a decisive milestone along this axis. Modern science entails a process of progressive disenchantment, as the ‘imaginary’ spherical cosmos⁹⁸ gave way to the evolving universe of modern research, resulting in a decentralisation of humankind (disrupting worldviews of the past). But there is something special about life in general and human existence in particular. Whereas the general movement in the universe is towards entropy and dissipation, life evolves in a juxtaposed direction, ascending towards complexity: life as ‘negative entropy’⁹⁹. Human technology intensifies this negative entropic trend. Via biotechnology as a collective project, an *opus humanum*, we self-consciously redirect the course of evolution. This places us, not in a position of anthropocentric centrality, but of *eccentricity*¹⁰⁰, occupying a tilted, oblique position near the frontline of evolutionary progress.

Genomics as a research arena concurs with this scenario, sequencing and modifying the molecular *characters* of life, enabling us to read, but increasingly also to recombine and ‘rewrite’ genotypes, in the literal sense of ‘type’¹⁰¹. Via the human sequence, we ourselves become the prime target of research and intervention. As Teilhard phrases it, human genomics reflects a concentration of contemporary research on ourselves¹⁰², anticipating gene editing and genetic self-modification, transposing human genetics from the biosphere towards active noospheric reconstruction and evidence-based decision-making, informed by research conducted by large-scale research consortia, employing automated high-throughput sequencing machines, replacing individual forms of inquiry by coordinated collective action.

The HGP represents convergence and culmination in molecular genetics towards a thoroughly humanised landscape, whose contours are explored by a ‘palaeontology of the future’¹⁰³. The absorption of heredity into the noosphere inevitably produces anxiety, Teilhard argues, for it is far from clear whether humans can be entrusted with this type of techno-scientific power, this ability to influence the future of (human) evolution. The only solution, as Teilhard sees it, is a collective, supra-personal system of foresight and reflection, steering away from the abyss of anxiety, heading towards collective

deliberation. According to Teilhard, this objective is already discernible on the horizon as Omega. The ascent towards hyper-reflection is facilitated by a supra-personal Other, drawing us towards this future.

Lacan's vision on science and technology

To provide a concise introduction into the labyrinthine intellectual universe of Jacques Lacan seems an impossible task, but fortunately Lacan himself gave a lecture, – published as *The Triumph of Religion* and preceded by a *Discourse to Catholics* –, which proves particularly helpful for our purposes. For besides explaining some key ideas in shorthand, his views on science and Catholicism are outlined here as well. Although Lacan presents himself as unreligious¹⁰⁴, his final conclusion is that, notwithstanding the modernistic conviction that God is irrevocably dead¹⁰⁵, the 'true religion' (and for Lacan this means: Catholicism) will prove indestructible and even 'triumph' in the end¹⁰⁶. Therefore, although he does not mention Teilhard explicitly, Lacan's lecture provides a starting point for presenting his views on technoscience and faith.

Lacan emphasises that Catholicism and psychoanalysis have something in common: the phrase *In the beginning was the Word* constitutes the starting point for both¹⁰⁷. Humans are speaking beings, called upon by language, by the commanding word, the discourse of the Other: the symbolic order which, for humans, is always already there. What is unique about humans is neither their intelligence, nor their convoluted brains, Lacan argues, but first and foremost their openness to language. If brains would be the decisive issue, human intelligence (as the outcome of Darwinian evolution) would have been up to its tasks, allowing us to smoothly adapt ourselves to our environment¹⁰⁸. But in humans we see a chronic *failure* to adapt, a disparity between desire and environment¹⁰⁹. It is precisely here, in human discontent (in nature and civilisation) that language intervenes. Language has a disruptive impact on human existence. We are *speaking* animals, liberated from nature, but burdened by language, even sick with language¹¹⁰.

Due to language and other dimensions of human culture building on it (including techno-science), a decisive rupture separates human existence from the natural (pre-symbolic) mammalian world. According to Lacan, without language humans would be happy animals thriving in a natural Umwelt, where visual cues (described by ethologists as *stimulus* or *Gestalt*) would unleash pre-established physiological mechanisms and pre-programmed behavioural responses (fight, flight, freeze, arousal, etc.)¹¹¹. As animals, humans would dwell in an ambiance of visual gestalt-like stimuli, referred to by Lacan as 'the imaginary': basic sets of images, and the repertoire of typical responses triggered by them. But the human world is replete with and disrupted by 'the symbolic': by norms and expectations, numerical and linguistic information, giving rise to a supra-personal 'symbolic order'. And because of the symbolic order science exists, allowing us to come to terms with the Real with the help of a terminological grid of technical terms and other symbolic ingredients (numbers, formulae, measurements, mathematical and chemical symbols, equations, computer programs and the like).

For Lacan, scientific research tends towards 'symbolisation', transforming geosphere and biosphere with the help of 'characters'. In ancient Greek, στοιχεῖα (elements) refers to elementary building blocks (of reality or knowledge), but also to characters of the alphabet (letters and numbers), and this applies to modern science as well. According to

Lacan, science is the systematic effort to disclose the basic constituents of nature with the help of symbols: Arabic numbers, alphabetic letters, mathematical symbols, chemical formulae, and so on. These numerical or letter-like (typographical) symbols are the ‘elements’, the symbolic ‘atoms’ by means of which science operates¹¹². Thus, whereas the pre-scientific world of everyday experience continues to rely to a significant extent on images (visible entities, world views, body images, self-images, metaphors, anthropomorphic interpretations, and the like), science develops contrivances (measuring instruments, experimental equipment, etc.) which replace these imaginary, gestalt-like items with standardised terms, numbers, digital data and equations. Molecular genetics, for instance, aims to *see through* the living organism (the visible Gestalt) in order to *read* the symbols (the ‘characters’) within, the genotype in the literal sense of ‘type’¹¹³. Insofar as science produces images, they are highly technological, such as crystallographic X-ray pictures of DNA: visualised quantifications¹¹⁴. The symbolisation process gives rise to a terminological grid of signifiers and quantitative numerical data. This means that the scientific universe is a radically ‘inhuman’ world¹¹⁵. Science abstains from anthropomorphism (the tendency to interpret the world from a decidedly *human* viewpoint¹¹⁶).

Lacan’s views concur with Teilhard’s account of the stepwise incorporation of the biosphere into the noosphere (the symbolical order as a layer of terms, contrivances, machines, networks and the like). Ultimately, the tendency towards symbolisation results in a ‘literation’ (or even *obliteration*) of life¹¹⁷. Rather than observing and interacting with (fleshy, messy) *living* beings, molecular biologists prefer to view life as something symbolic: nucleotide code. Although this process may seem to proceed in a smooth and automated manner, it is hampered or disrupted by the recalcitrance of the Real, so that symbolisation often falters and fails to work¹¹⁸. The symbolisation or ‘literation’ of the Real gives rise to various by-products in the form of *litter* (including data litter), as technoscience allows humans not only to hominize but also to dramatically *pollute* the world. Think of plastic litter that is currently littering not only terrestrial environments but also littoral areas and oceans: plastic packaging, carrying letters – the logos of their producers, left-overs of human λόγος¹¹⁹.

Lacan sees humans not as privileged beings (who *have* something which other animals *lack*, e.g., big brains, self-consciousness, intelligence, etc.), but as stunted and frustrated subjects, discontent in their socio-technological environment, unable to live up to what is expected of them. Lured and fascinated by the imaginary (erratic longings, erotic phantasies, political utopias, etc.) they are at the same time tormented by norms, commandments and injunctions (e.g., the impossible but highly persuasive injunction of neo-liberal culture to *enjoy* life to the full while at the same time being hyper-performative). Similar to Teilhard, who describes the present in terms of psychic disorientation and disquiet, Lacan connects contemporary discontent with technological advances and the unstoppable explosion of knowledge production, providing us with a disquieting power over the elementary particles of life and nature¹²⁰. While we finally seem able to gratify our desires, we are paralysed by uneasiness and technophobia.

One noteworthy symptom, Lacan argues – speaking during the heydays of recombinant DNA research, when Nobel Prize laureate Paul Berg published his famous letter in *Science* on ‘biohazards’¹²¹ –, is that scientific research itself becomes an ‘impossible profession’¹²². Researchers face a paralysing ‘crisis of anxiety’¹²³. While scientists tamper with potentially dangerous bacterial strains in their laboratories, lay audiences are

alarmed by the idea that these microbes may one day escape from the laboratory, causing pandemics in the outside world¹²⁴, perhaps even cleansing the world from human beings; – these unflagging polluters, who caused *le monde* to become *immonde* (‘filthy’), as Lacan phrases it¹²⁵.

Precisely this is the thematic core of Lacan’s reference to Teilhard in *Écrits* as we have seen. From the very beginning, Lacan argues¹²⁶, humankind has ‘hominized’ the planet first and foremost by *polluting* it. We humans left behind a vast trail of waste and garbage, everywhere we went; how could Teilhard, a palaeontologist, forget this? For Lacan, palaeoanthropology is ‘garbage science’ and a palaeoanthropology of the future will likewise unearth huge amounts of industrial and plastic litter left behind by current and future generations. Moreover, now that the tiny symbols, the little characters and equations of physics allow us to enter the infinite immensities of the universe via spacecraft, their Pascal-like silence no longer *frightens us*, seeing that we have begun to drop our garbage there as well. Indeed, the ability to ruin the earth, up to destroying all life forms, including human life itself, would be a real ‘triumph’, a real testimony of human superiority over other life forms¹²⁷. But even among researchers, such a prospect invokes a ‘crisis of responsibility’¹²⁸. As indicated, Lacan is referring here to Paul Berg and others who advocated a self-imposed moratorium on hazardous forms of recombinant DNA research. This crisis of anxiety is hampering scientific progress¹²⁹.

The response of Catholicism in such situations, Lacan argues, is to continue to think in terms of finality and the gradual increase of conscience¹³⁰, – as in Teilhard’s case, one could add. Lacan himself rather stresses that, the closer this final culmination point comes within reach, not only the researchers involved but also their audiences will be alarmed by the prospect, will become paralysed by anxiety. Thus, rather than plunging towards a sublime inviting future in order to realise the dangerous, imaginary fiction of total human control over life, – to which we are (consciously or subconsciously) ‘attracted’, as Teilhard phrases it¹³¹ –, a moment of inhibition and ambivalence inevitably sets in. It is precisely here that Teilhard and Lacan follow diverging tracks, as the latter refuses to endorse the former’s ‘overly optimistic faith in science and technology’¹³². This issue will be addressed in the final sections of this paper. First, however, I will briefly outline a Lacanian perspective on human genomics.

A Lacanian diagnostic of human genomics

From a Lacanian viewpoint, the HGP is a culmination of the ongoing ‘symbolisation’ and ‘literation’ of life, reducing living organisms to ‘characters’, manipulatable *in silico*, via computer screens, giving rise to synthetic biology (the ambition to refurbish and resynthesize life). Life seems lost (obliterated) in an avalanche of data (of terabyte ‘litter’), as the genomes of thousands of species are being accumulated. The HGP gave rise to a narcissistic offense, as was to be expected, psychoanalytically speaking. Initially, the human sequence was expected to reveal the ‘factor X’¹³³, the genetic basis of our uniqueness as a species (our intelligence, creativity, innovativeness), but this never came true¹³⁴. Our genome is remarkably similar to the genomes of other species: an ‘insult to human complexity’ as Francis Collins, scientific director of the HGP phrased it¹³⁵.

In June 2000, during a widely publicised press conference, coloured letters on a large LCD-screen proudly announced that the ‘decoding of the book of life’ represented a ‘milestone for Humanity’¹³⁶. Psychoanalytically speaking, however, this screen was an electronic fig leaf, obfuscating the absence of any convincing evidence of human uniqueness, an electronic mechanism of defence to safeguard the anthropocentric prejudice that had fuelled this costly project. Our narcissistic self was lost in data. Yet, paradoxically, our uniqueness was also confirmed. For indeed: ‘no other organism has sequenced its own genome’¹³⁷. It is *through us*, through our technoscientific contrivances, that the symbolisation of the Real (the incorporation of the biosphere into the noosphere) progresses. Life has entered the symbolic order *via us*.

Ten years after the event, Francis Collins confessed that the mood of celebration and euphoria had given way to disenchantment¹³⁸. Although genomics changed the way in which biological research is conducted, the actual impact on human existence remained limited¹³⁹. From a Lacanian perspective, HGP’s failure to realise a techno-scientific utopia of drastically optimised well-being was actually a relief¹⁴⁰. Psychoanalytically speaking, technophobia is not only fuelled by the idea that something may go terribly wrong, but also by the idea that technoscience may actually work, so that, by re-engineering evolution, scientists will effectively overcome the recalcitrance and messiness of real life. In other words, anxiety surfaces when that which we desire (health, longevity, cognitive enhancement, etc.) seems suddenly disconcertingly nearby. At that point, we sense the paralysing proximity of the Other, not as a visual, iconic figure, but as a voice of conscience: the experience of being summoned, monitored and assessed, – not by God, Lacan would argue, but by panoptic ICT surveillance systems, ethics boards and future generations.

As indicated, human desire is captured by the so-called *matheme of desire*: $\$ \diamond a$, where $\$$ represents the divided, craving subject (fuelled by the *cupido sciendi*, the will to know) and a represents the allusive object-cause of desire, while the lozenge symbol (\diamond) indicates that the *rapport* between $\$$ and a works in both directions. As craving subjects, we *long for* and actively *seek* the encounter, but are also *drawn towards* it by the alluring object. And the lozenge supports desire, but also functions as a barrier, maintaining the distance.

Lacan’s conviction that we should keep our distance echoes *Civilisation and its discontents* where Freud problematises what he refers to as the ‘oceanic feeling’, a longing for fusion and wholeness which he associates with religiousness¹⁴¹. Such a fusion or ‘dissolution’ of the subject would place the Big, ultra-personal Other (A) at the opposite pole, indicating a lethal moment of encounter in which the subject would be consumed and lost. Similar formula can be encountered in the writings of Teilhard¹⁴², who refers to the omnipotent, supra-personal Other as Omega (Ω), and to the human subject as i , – a letter chosen because of its obliterated human shape: a single vertical stroke and a dot, an algebraic atom. So, we end up with two formulas, representing the position of the human subject drawn towards Omega (Teilhard) or the Big Other (Lacan): $\$ \rightarrow A$ (Lacan) versus $i \rightarrow \Omega$ (Teilhard). Yet, precisely here, the divergence between Teilhard and Lacan becomes manifest. Teilhard implores human subjects to embrace this encounter, to ‘plunge’ towards the Other, – to find our life with the Other¹⁴³, while Lacan rather urges the subject to shy away from such a lethal moment of *jouissance*, or divine madness, as Plato once phrased it¹⁴⁴, and to keep the gap in place. Precisely this divergence was the focus of their ‘final conversation’.

Lacan's 'final dialogue' with Father Teilhard

In his discussion of his 'final dialogue with Father Teilhard de Chardin,' Lacan again explains that human subjectivity represents a leap away from the mammalian world¹⁴⁵. What is unique about humans is their openness to language. A Darwinian view entails a technocratic, bio-political understanding of human existence, Lacan argues, urging the ego to adapt to societal standards and expectations by repressing 'animalistic' instincts¹⁴⁶. Psychoanalysis reveals that human subjectivity is something radically different. Experiences such as anxiety, nausea and revolt are typically human moods without precedent in the animal world. They are symptomatic of the rupture which separates human existence from mammalian evolution.

And here, Lacan argues, notwithstanding Freud's staunch atheism, we may still learn from the 'Fathers of the Church'¹⁴⁷. In the current situation, humankind seems about to realise its desires. The world increasingly becomes a spectacle we may safely enjoy¹⁴⁸. Precisely at this moment, a paralysing sense of anxiety befalls us. Now that the world becomes 'a lust for the eye', we sense the voice, the gaze, the proximity of the Other. The prospect of an encounter unleashes distress. The Other's commanding proximity gives rise to a collective neurotic paralysis: a sudden pandemic of inhibition, or even masochism, i.e., the desire to transform one's body into an item ready to be sacrificed, hoping thereby to curb the Other's anger, aroused by our boisterous presence. To come to terms with the forbidding presence of the Other, three options are available: *phobia* (paralysis and inhibition), *masochism* (self-sacrifice) and *mysticism*. The third option entails an affirmative, plunging movement *towards* the commanding Other.

In this context, Lacan discusses the *Sacrifice of Isaac*. Abraham ascends the mountain to reach a zone (beyond the socio-cultural realm) where God can be encountered, for Gods can be encountered in the Real¹⁴⁹. As Kierkegaard explained, the Other's proximity produces anxiety: the signal that God is near. To escape the suffocating, commanding proximity of His gaze and voice, something of significance must be sacrificed (the object *a*, a precious, irreplaceable gift). In the case of masochism, the subject's own body is offered as an item of sacrifice, but in Abraham's case, the object *a* is a young boy. Lacan elucidates this with the help of a famous painting by Baroque artist Caravaggio. Catholicism is a culture where such iconic images are not forbidden. Isaac is masochistically tied up, his hands tied to his ankles, like a sacrificial animal, while Abraham is holding a sharp knife, ready to slit the boy's throat. Precisely at this point, a dramatic intervention occurs: a moment of inhibition, represented by the angel, holding Abraham's arm and transmitting a message of restraint.

It is the role of the angel which Lacan allegedly discussed with the 'Reverend Father' during their final dialogue¹⁵⁰, revealing a basic difference between them¹⁵¹. What Lacan is suggesting is that, whereas Teilhard 'sacrificed' the theological concept of the angel to the relentless ascent of self-consciousness, Lacan holds on to a literal reading of the Scriptures. Without the angel's message, Isaac would have been sacrificed, but Abraham gives in to restraint and curbs his desire. Instead of slitting Isaac's throat, he circumcises him.

This reveals a fundamental difference between Teilhard and Lacan. Whereas Teilhard indulges in the prospect of fulfilment (the ultimate unity with the Other), Lacan urges us to keep the gap intact. For Teilhard, it is precisely in this moment of self-sacrifice, of celebration and communion, of euphoric bliss, that humans may reach the summit of existence¹⁵². For Lacan, precisely this desire drives religious fervour, including Christian mysticism. Totemistic taboos were once installed to curb desire and bar the final step, when the encounter seems imminent. The angel signifies the presence of the Other who nonetheless remains barred (\bar{A}). This difference can be expressed in short-hand formula ('mathemes'):

$i \rightarrow \Omega$ (Teilhard) versus $\$ \diamond \bar{A}$ (Lacan)

For Lacan, the morale of the story is that, rather than allowing ourselves to be drawn towards the 'mystic annihilation' of the individual¹⁵³ at point Omega (the encounter with the imposing figure of the incarnated Other: Ω), such a fateful event should be kept at bay. Like archaic totems, religious icons serve as screens, covering a disconcerting void, so that point Omega will never be reached. For Teilhard, however, we inevitably follow the trajectory of ascent via points of higher density towards fulfilment¹⁵⁴.

Lacan's criticism concurs with his understanding of Christian mysticism as such¹⁵⁵. For the Christian mystic, God is *summum bonum*, the ultimate object of desire. In the moment of jouissance, when we are about to reach the telos of desire, the subject will fade and vanish, consumed by this experience. The moment of bliss proves lethal. Therefore, De Kesel argues, the phantasm not only fills the void (thereby supporting desire), but also functions as a barrier, keeping the subject at a safe distance, so that enjoyment is experienced in a fake way, keeping desire going (for instance via iconic images). In technoscientific terms: precisely because the Holy Grail of life sciences research is never reached, the production of ever more data (digital 'litter') may continue.

Although the oeuvres of Teilhard and Lacan constitute parallel endeavours, there is divergence towards the end. Both stress the iconoclastic tendency of technoscience, both see human beings as helpless creatures in chronic need of support from a supra-individual, noospheric/symbolic order, but whereas Lacan decidedly discourages the ecstatic final plunge of the subject in the direction of Omega, Teilhard optimistically envisions a neo-world of global industrial planning and 'benign' (genome-based) eugenics.

Conclusion: global mysticism and technoscience

Lacan's concerns vis-à-vis Teilhard's ecstatic optimism echo Freud's suspicion regarding religious craving for fusion and unification. Teilhard's 'cosmic sense'¹⁵⁶, the sense of becoming encompassed in a planetary and cosmic whole, would be discarded by Freud as a variety of the 'oceanic feeling', the source of all religion.¹⁵⁷ For Lacan, the envisioned fusion with an iconic, all-encompassing Other represents a (dangerous) illusion¹⁵⁸, building on an archetypal *imago* in the gnostic, Jungian sense¹⁵⁹, which should be sacrificed to iconoclasm. Rather than giving in to this longing for fusion, we should follow Odysseus' example, who exposed himself to the enchanting chorus of the Sirens, but safely tied to the mast, keeping his distance, denying himself the opportunity of plunging into the deep towards them¹⁶⁰. From such a position, we may witness the panoramic drama of evolution, comparable to how moviegoers watch movies: enthralled

by what they see, but safely seated in their chairs. Towards the end of *The Human Phenomenon*, Teilhard succumbs to what Lacan would regard as ‘cosmic mysticism’¹⁶¹. Teilhard himself insists, however, that the cosmic sense is not directed towards annihilation or entropic dissipation into Nirvana, but rather entails an anti-entropic drift in the opposite direction: into hyper-arrangement, where egos will be transfigured and encompassed into an ultra-personal hyper-spirit¹⁶².

From a Lacanian viewpoint, we should remain suspicious of the desire to see planet Earth as a whole. Lacan keeps ‘pointing to the hole in every whole’¹⁶³. In *Seminar VIII*, dating from the same period as *Discourse to Catholics*, Lacan explains that the idea of the world as a *whole* is grounded in the ancient geometric idea of the spherical cosmos where human existence (as microcosm) is oriented towards an ecstatic experience of fusion. In Teilhard’s vision of planetary convergence and communion, Lacan discerns the return of a pre-modern, gnostic, archetypal idea: the planet as a living being, a super-organism – a contested notion which re-asserted itself as Gaia theory¹⁶⁴ and is explicitly compared to Teilhard’s worldview¹⁶⁵. For Lacan, the desire to become ‘one with the whole’ usually results in catastrophes. Psychic disorientation is endemic in humankind, Lacan argues, as we are flawed in a very profound way. It is questionable whether humankind can be entrusted with the technological powers entailed in nuclear energy, genomics and directed evolution. It is no coincidence, from a Lacanian viewpoint, that the sequencing of the Human Reference Genome (the *We*-genome as a collective endeavour, an *opus humanum*) is now scattered into the countless *Me*-genomes of personalised genomics¹⁶⁶, representing a shift towards *me*-hilism, as Lacan phrases it¹⁶⁷.

This contrasts with the position endorsed by Teilhard, who urges readiness for the final leap, as self-transcending participants in a noospheric reorganisation of the planet. As techno-science evolves, we are drawn towards global convergence, as participants in a universe which relentlessly strives towards Omega: the summit and fulfilment of planetary and cosmic evolution. Although we evidently experience hesitance and anxiety, there is no turning back, now that we have become a truly planetary species¹⁶⁸. From Teilhard’s perspective, the Real itself is charged with Divine Presence and the whole world is about to emerge as one great ‘Thing’ in the sense of ‘gathering’¹⁶⁹. Teilhard’s thinking remains decidedly oriented towards readiness and communion, celebration, and participation.

For Teilhard, we are already *in* the wager and have to make a choice¹⁷⁰ in favour of optimism. We *have to* accept our responsibility (readiness is all), trusting that, if we reach point Omega, the Other comes to our rescue. An important aspect of Teilhard’s planetary spirituality is his optimistic embracement of technological achievements as vehicles of progressive evolution, including the ‘marvels’ of nuclear power and molecular biology, apparently ignoring how technoscience enabled the exploitation of the planet, subjecting nature to economic interests and consumer needs on a global scale.¹⁷¹

Thus, although the Teilhard-Lacan dialogue at first glance may seem a mere footnote in the history of Francophone thinking, on closer inspection their confrontation proves highly relevant for current debates concerning the place of human beings in the Anthropocene. It entails a philosophical diagnostic concerning global progress, global pollution and human awakening (as a planetary species) in an era of global crisis. The process of hominization allowed humans to become *literate* beings, dwelling in a noosphere (a global web of information and deliberation), but littering the planet as well: humans as *literate litterers*.

For a palaeontology of the future, the *inverse* of the noosphere, its global footprint, consists of litter. Are humans (as divided subjects, and as a fractious species) up to the task of sublating a long history of disruption, redirecting it towards global responsibility? Whereas Lacan italicises the insatiable nature of human desire and the fractious nature of the symbolic order, Teilhard (in response to Pascal's wager) emphasises humankind's irrevocable dependence on an ultimate intervention from the Other.

Notes

1. Skehan, *Exploring Teilhard's 'New mysticism'*, 23.
2. Delio, *From Teilhard to Omega*, 2.
3. Udias, *Christogenesis*.
4. Aczel, *The Jesuit and the skull*.
5. Lacan, *Le Séminaire XIII*.
6. In *The Heart of Matter*, Teilhard sees Catholicism as a privileged cultural "phylum", an ascending cosmic force, an "evolutive faith".
7. Roazen, *Lacan's first disciple*, 335.
8. Certeau, *Heterologies*, 3.
9. Roazen *Lacan's first disciple*; Gale, *Lacan and the Benedictines*.
10. Popes Benedict XVI and Francis referred to Teilhard's work in a positive vein: a signal perhaps that the "monitum" (formal warning) concerning his work will be withdrawn.
11. Collins, *The language of God*.
12. Aczel, *The Jesuit and the skull*, 51.
13. Lacan, *Le Séminaire XIII*, 503.
14. Fink, *Lacan to the letter*, 148.
15. Freud, *Eine Schwierigkeit der Psychoanalyse*.
16. Teilhard de Chardin, *L'avenir de l'homme*, 25; Teilhard de Chardin, *Science et Christ*, 238.
17. Teilhard de Chardin, *L'avenir de l'homme*, 245
18. Teilhard de Chardin, *Le Milieu Divin*.
19. Teilhard de Chardin *The Human Phenomenon*, 3.
20. Assoun, *Lacan*, 4.
21. Roudinesco, *La bataille de cent ans*, 206.
22. Roudinesco, *Jacques Lacan*, 275.
23. Bousseyroux, *De l'inhibition comme suppléance*.
24. Highmore, *Michel de Certeau*, 52.
25. In *Heterologies*, Michel de Certeau explores the catholic (Benedictine monastic) "archaeology" of Lacan's work. Like Lacan's *École*, a Benedictine monastery is a "school", established by a monk, after a retreat "in the desert", where a Master provides spiritual guidance by conducting a seminar (*lectio*) for his disciples, working through a text as a spiritual exercise, an ascetic practice, to recover an initial truth, resulting in the production of a new body of texts, allowing the word to re-incarnate. See also Roazen, *Lacan's first disciple*, and Gale, *Lacan and the Benedictines*.
26. Lacan, *Écrits*, 684.
27. Lacan, "Introduction aux noms-du-Père".
28. Lacan, "Remarque sur le rapport de Daniel Lagache", 647
29. *Ibid.*, 649.
30. *Ibid.*, 654.
31. *Ibid.*, 655, 682.
32. *Ibid.*, 653.
33. *Ibid.*, 654.
34. *Ibid.*, 678.
35. *Ibid.*, 677.

36. Ibid., 667.
37. Ibid., 684.
38. Ibid., 667.
39. Ibid., 684.
40. See note above 5.
41. In *Toilet humour and ecology*, Bristow suggests that Lacan's reference to the "fond dreamer" – in a discussion of the humanisation of the planet in Seminar VII – is actually a reference to Teilhard.
42. These shells are empty (emptied) things, natural jars, apparently useless objects, incorporating a void, assembled into an (apparently pointless) prehistoric artefact, comparable perhaps to modernistic artworks, such as Jacques Prévert's collection of empty matchboxes, discussed by Lacan in *Seminar VII* (136). These shells "create" a symbolic order *ex nihilo*, out of emptiness and eliminated waste: apparently useless objects (lifeless refuse) transfigured into signifiers.
43. Joordens et al, *Homo erectus at Trinil*.
44. Henshilwood et al, *Engraved ochres*.
45. Zwart, *Psychoanalysis of technoscience*.
46. Lacan, *Le Séminaire XX*.
47. Lacan, *Le Séminaire XII*, 16 December 1964; 7 April 1965.
48. Ibid., 78.
49. Ibid., 478.
50. Ibid., 478.
51. See note above 46.
52. Ibid., 30.
53. Lacan, *Le Séminaire XXIV*, 66.
54. Zwart, *Continental philosophy of technoscience*.
55. Teilhard de Chardin, *The Human Phenomenon*, 120.
56. Ibid., 19.
57. Ibid., 36.
58. Ibid., 54.
59. Ibid., 72.
60. Ibid., 105.
61. Procacci and Galleni, *Science, theology and the dialogue among cultures*.
62. Teilhard de Chardin, *The Human Phenomenon*, 110.
63. Ibid., 111.
64. Ibid., 114.
65. Ibid., 116.
66. Ibid., 124.
67. Ibid., 124.
68. Teilhard de Chardin, *Christianity and evolution*, 23
69. Teilhard de Chardin, *The Human Phenomenon*, 139
70. Ibid., 149.
71. "The future will decide on the best name for this new era we are entering", Teilhard de Chardin argues (Ibid., 149). In current discourse, the name Anthropocene has been adopted
72. Teilhard de Chardin, *The Human Phenomenon*, 156.
73. Ibid., 158.
74. Ibid., 159.
75. Ibid., 163.
76. Ibid., 171.
77. Grim and Tucker, *An overview of Teilhard's commitment*, 70; Grey, *Cosmic communion*, 109
78. Teilhard de Chardin, *The Human Phenomenon*, 176.

79. According to Garreau (*Radical evolution*, 256), Greenfield (*Mind change*, 9), King (*One Planet, One Spirit*) and others, Teilhard predicted Internet and WWW as global forms of consciousness, planetary webs of thought, linking humankind, giving rise to a “second axial period” (Delio, *From Teilhard to Omega*, 1). Teilhard anticipated what is currently discussed as “singularity” and the “explosion of intelligence” (Kurzweil, *The Singularity is Near*).
80. Teilhard de Chardin, *The Human Phenomenon*, 202.
81. *Ibid.*, 191.
82. *Ibid.*, 198.
83. *Ibid.*, 201.
84. Teilhard de Chardin, *L’avenir de l’homme*, 246.
85. *Ibid.*, 350.
86. Teilhard de Chardin, *Science et Christ*, 165.
87. *Ibid.*, 171
88. *Ibid.*, 187.
89. Teilhard de Chardin, *The heart of matter*, 38
90. *Ibid.*, 82. For Teilhard, Christianity is a “religion of evolution” (Delio, *From Teilhard to Omega*, 1), devoted to an evolutive God: Christ the evolver, and drawing us towards fulfilment, towards Omega.
91. Teilhard de Chardin, *The Human Phenomenon*, p. 257
92. Teilhard de Chardin, *Christianity and evolution*, p. 90.
93. Teilhard de Chardin, *L’avenir de l’homme*, p. 357.
94. *Ibid.*, p. 356.
95. Teilhard de Chardin, *The Human Phenomenon*, 63
96. See note above 54.
97. Cf. Galleni and Scalfari, Teilhard de Chardin’s engagement with science, 167.
98. Teilhard de Chardin, *L’avenir de l’homme*, 25
99. Schrödinger, *What is life?*
100. Teilhard de Chardin, *L’avenir de l’homme*, 30
101. Doudna and Sternberg, *A crack in creation*; Zwart, *On decoding and rewriting genomes*; and Zwart, *Psychoanalysis of technoscience*.
102. Teilhard de Chardin, *The Human Phenomenon*, 110, 201.
103. Teilhard de Chardin, *L’avenir de l’homme*, 11.
104. Lacan, *Discours aux Catholiques*, 28.
105. *Ibid.*, 36.
106. Lacan, *Triomphe de la religion*, 79, 81, 92.
107. *Ibid.*, 89; cf. Lacan, *Le Séminaire VIII*, 12.
108. Lacan, “Introduction aux noms-du-Père”, 72.
109. cf. Chiesa, *The world of desire*.
110. Lacan, *Triomphe de la religion*, 90, 93; Cf. *Le Séminaire IX*, 42.
111. Lacan, *Le symbolique, l’imaginaire et le réel*, 20.
112. Lacan, *Discours aux Catholiques*, 23, 50.
113. Zwart, *The obliteration of life*.
114. Lacan, *Le Séminaire IX*, 42.
115. Lacan, *Discours aux Catholiques*, 49
116. *Ibid.*, 50.
117. See note above 113.
118. Lacan, *Le triomphe de la religion*, 76.
119. Zwart, *Tainted food and the Icarus complex*.
120. Lacan, *Le séminaire XVII*, 120.
121. Berg et al, *Potential biohazards of recombinant DNA*.
122. Lacan, *Triomphe de la religion*, 73; cf. Freud, Geleitwort zu *Verwahrloste Jugend*; Freud, and *Die endliche und die unendliche Analyse*.
123. Lacan, *Triomphe de la religion*, 74.
124. *Ibid.*, 74.

125. Ibid., 76.
126. See note above 26.
127. Lacan, *Triomphe de la religion*, 75.
128. Ibid., 74.
129. See note above 121.
130. Lacan, *Discours aux Catholiques*, 20.
131. Teilhard de Chardin, *L'avenir de l'homme*, 90.
132. Grim and Tucker, *An overview of Teilhard's commitment*.
133. Fukuyama, *Our posthuman future*.
134. Zwart, *Genomics and self-knowledge*; Zwart, *Genomics and identity*.
135. Collins, *The language of God*, 125.
136. Zwart, *The adoration of a map*.
137. See note above 135.
138. Collins, *The Language of Life*.
139. See note above 136.
140. Zwart, *From utopia to science*.
141. Freud, *Das Unbehagen in der Kultur*.
142. Teilhard, *L'avenir de l'homme*, 83.
143. Ibid., 66.
144. Plato, *Phaedrus*, 244–256.
145. Lacan, *Introduction aux noms-du-Père*, 95.
146. Ibid., 73
147. Ibid., 76.
148. Ibid., 81.
149. Ibid., 92.
150. Bousseyroux, *Noms et renoms du Père; De l'inhibition comme suppléance*.
151. See note above 145.
152. Teilhard de Chardin, *L'avenir de l'homme*, 69.
153. Ibid., 70.
154. Ibid., 91.
155. De Kesel, *Misers or lovers?*
156. Teilhard de Chardin, *Christianity and evolution*, 102, 103
157. See note above 141.
158. Lacan, *Le Séminaire XI*, 39.
159. Lacan, *Discours aux Catholiques*, 41.
160. Lacan, *Le Séminaire XIX*, 18.
161. Skehan, *Exploring Teilhard's "New mysticism"*.
162. Teilhard de Chardin, *Christianity and evolution*, 87, 114; cf. King, and *One Planet, One Spirit*, 183.
163. See note above 14.
164. Lovelock, *Gaia*; Harding, *Animate earth*.
165. King, *One Planet, One Spirit*.
166. Zwart, *The Molecularised Me*.
167. See note above 114., 4
168. Grim and Tucker, *An overview of Teilhard's commitment*, 64
169. King, *One Planet, One Spirit*, 82
170. Cf. Hoens, *You never know your luck*.
171. See note above 132.

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Bibliography

- Acel, A. *The Jesuit and the Skull. Teilhard de Chardin, Evolution and the Search for Peking Man*. New York: Penguin, 2007.
- Assoun, P.-L. *Lacan. Que sais-je?* Paris: PUF, 2003.
- Berg, P., D. Baltimore, H. W. Boyer, S. N. Cohen, R. W. Davis, D. S. Hogness, D. Nathans, et al. "Potential Biohazards of Recombinant DNA Molecules." *Science* 185, no. 4148 (1974): 303. doi:10.1126/science.185.4148.303.
- Bousseyrroux, M. "Noms et renoms du Père. Contribution à une théorie borroméenne de la nomination." *L'en-je lacanien* 12, no. 1 (2009): 21–38. doi:10.3917/enje.012.0021.
- Bousseyrroux, M. "De l'inhibition comme suppléance: Artaud et Gödel." *L'en-je lacanien* 20, no. 1 (2013): 9–32. doi:10.3917/enje.020.0009.
- Bristow, D., and M. DiBattista. "Toilet Humour and Ecology on the First Page of Finnegans Wake : Žižek's Call of Nature, Answered by Joyce." *Cogent Arts & Humanities* 4, no. 1 (2017): 1383651. doi:10.1080/23311983.2017.1383651.
- Certeau, M. D. *Heterologies: Discourse on the Other*. Minneapolis/London: University of Minnesota Press, 2006.
- Chiesa, L. "The World of Desire: Lacan between Evolutionary Biology and Psychoanalytic Theory." *Filozofski vestnik* 30 (2009): 83–112.
- Collins, F. *The Language of God: A Scientists Presents Evidence for Belief*. New York etc.: Free Press, 2006.
- Collins, F. *The Language of Life. DNA and the Revolution in Personalised Medicine*. New York etc: Harper, 2011.
- Crutzen, P. "Geology of Mankind." *Nature* 415, no. 6867 (2002): 23. doi:10.1038/415023a.
- Das, F. S. *Unbehagen in der Kultur. Gesammelte Werke XIV*, 419–513. London: Imago, 1930/1948.
- Deane-Drummond, C., ed. *Pierre Teilhard de Chardin on People and Planet*. London: Equinox, 2006.
- Delio, I., ed. *From Teilhard to Omega: Co-creating an Unfinished Universe*. Maryknoll: Orbis, 2014.
- Doudna, J. Sternberg S. *A Crack in Creation: Gene Editing and the Unthinkable Power to Control Evolution*. Boston/New York: Houghton Mifflin Harcourt, 2017.
- Exploring Teilhard's, S. J. "New Mysticism': 'Building the Cosmos.'" In *Pierre Teilhard de Chardin on People and Planet*, edited by C. Deane-Drummond, 13–54. London: Equinox, 2006.
- Fink, B. *Lacan to the Letter: Reading Ecrits Closely*. Minneapolis / London: University of Minnesota Press, 2004.
- Freud, S. *Totem und Tabu. Gesammelte Werke IX*. London: Imago, 1913/1940.
- Freud, S. "Eine Schwierigkeit der Psychoanalyse." In *Gesammelte Werke XII*, 3–12. London: Imago, 1917/1947.
- Freud, S. "Geleitwort zu *Verwahrloste Jugend* von August Aichhorn." In *Gesammelte Werke XIV*, 565–567. London: Imago, 1925/1948.
- Freud, S. "Die endliche und die unendliche Analyse." In *Gesammelte Werke XVI*, 59–99. London: Imago, 1937/1950.

- Fukuyama, F. *Our Posthuman Future. Consequences of the Biotechnology Revolution*. New York: Farrar, Straus & Giroux, 2002.
- Gale, J. *Lacan and the Benedictines*. *European Journal of Psychoanalysis*. 2016. <https://www.journal-psychoanalysis.eu/lacan-and-the-benedictines/>.
- Galleni, L., and F. Scafari. "Teilhard de Chardin's Engagement with Science, Technology and Environmental Ethics." In *Pierre Teilhard de Chardin on People and Planet*, Deane-Drummond (ed.), 160–178. London: Equinox, 2006.
- Garreau, J. *Radical Evolution: The Promise and Peril of Enhancing Our Minds, Our Bodies – And What It Means to Be Human*. New York: Broadway Books, 2005.
- Greenfield, S. *Mind Change: How Digital Technologies are Leaving Their Mark on Our Brains*. New York: Random House, 2015.
- Grey, M. "Cosmic Communion: A Contemporary Reflection on the Eucharistic Vision of Teilhard de Chardin." In *Deane-Drummond (Ed.) Pierre Teilhard de Chardin on People and Planet*. London: Equinox, 107–122. 2006.
- Grim, J. A., and M. E. Tucker. "An Overview of Teilhard's Commitment to Seeing as Expressed in His Phenomenology, Metaphysics and Mysticism." In *Pierre Teilhard de Chardin on People and Planet*, Deane-Drummond (ed.), 55–73. London: Equinox, 2006.
- Harding, S. *Animate Earth: Science, Intuition and Gaia*. Foxhole: Green Books, 2006.
- Henshilwood, C. S., F. d'Errico, and I. Watts. "Engraved Ochres from the Middle Stone Age Levels at Blombos Cave, South Africa." *Journal of Human Evolution* 57, no. 1 (2009): 27–47. doi:10.1016/j.jhevol.2009.01.005.
- Highmore, B. *Michel de Certeau: Analysing Culture*. London / New York: Continuum, 2006.
- Hoens, D. "You Never Know Your Luck: Lacan Reads Pascal." *Continental Philosophy Review* 46, no. 2 (2013): 241–249. doi:10.1007/s11007-013-9255-z.
- Jordens, J., F. d'Errico, F. P. Wesselingh, S. Munro, J. de Vos, J. Wallinga, C. Ankjærgaard, et al. "Homo Erectus at Trinil on Java Used Shells for Tool Production and Engraving." *Nature* 518, no. 7538 (2015): 228–231. doi:10.1038/nature13962.
- Kesel, M. D. "Misers or Lovers? How a Reflection on Christian Mysticism Caused a Shift in Jacques Lacan's Object Theory." *Continental Philosophy Review* 46, no. 2 (2013): 189–208. doi:10.1007/s11007-013-9258-9.
- Kurzweil, R. *The Singularity Is Near*. New York: Viking Books, 2005.
- Lacan, J. *Le séminaire VII: L'éthique de la psychanalyse*. Paris: Éditions du Seuil, 1959-1960/1986.
- Lacan, J. *Le Séminaire VIII: Le Transfert*. Paris: Éditions du Seuil. 1960-1961/1991.
- Lacan, J. *Remarque sur le rapport de Daniel Lagache: « Psychanalyse et structure de la personnalité*, 647–684. Écrits. Paris: Éditions du Seuil, 1960/1966.
- Lacan, J. "Discours aux Catholiques." In *Le triomphe de la religion. Précédé de discours aux catholiques*, edited by J. Lacan, 9–65. Paris: Éditions du Seuil, 1960/2005.
- Lacan, J. "Introduction Aux noms-du-Père." In *Des Noms-du-Père*, 65–104. Paris: Éditions du Seuil, 1963/2005.
- Lacan, J. *Le Séminaire XI: Les quatre concepts fondamentaux de la psychanalyse*. Paris: Éditions du Seuil, 1964/1973.
- Lacan, J. *Le Séminaire XIII: L'objet de la psychanalyse*. 1965/1966. unpublished <http://www.valas.fr> Accessed 15 March 2022
- Lacan, J. *Écrits*. Paris: Éditions du Seuil, 1966.
- Lacan, J. *Le séminaire XVII: L'envers de la psychanalyse*. Paris: Éditions du Seuil, 1969-1970/1991.
- Lacan, J. *Le Séminaire XIX: . . . Ou pire*. Paris: Éditions du Seuil, 1971-1972/2011.
- Lacan, J. *Le Séminaire XX: Encore*. Paris: Éditions du Seuil, 1972/1973/1975.
- Lacan, J. "Le triomphe de la religion." In *Le triomphe de la religion. Précédé de discours aux catholiques*, edited by J. Lacan, 67–102. Paris: Éditions du Seuil, 1974/2005.
- Lacan, J. *Le Séminaire XXIV: L'insu*. 1976/1977. unpublished] Accessed 15 March 2022. <http://www.valas.fr/>
- Lacan, J. "Le symbolique, l'imaginaire et le réel." 1953/2005. *Des Noms-du-Père*. edited by J. Lacan. Paris: Éditions du Seuil, 2005. 9–63.

- Lacan, J. *Le Séminaire IX: L'identification*. unpublished). [unpublished <http://www.valas.fr> 1961–1962. Accessed 15 March 2022.
- Le Séminaire, L. J. “XII: Problèmes cruciaux de la psychanalyse.” unpublished. <http://www.valas.fr>, 1964/1965. Accessed 15 March 2022.
- Lovelock, J. E. *Gaia: A New Look at Life on Earth*. Oxford: Oxford University Press, 1979.
- One Planet, K. U. “One Spirit: Searching for an Ecologically Balanced Spirituality.” In *Pierre Teilhard de Chardin on People and Planet*, edited by C. Deane-Drummond, 74–95. London: Equinox, 2006.
- Plato. *Euthyphro, Apology, Crito, Phaedo, Phaedrus*. (Loeb series). Cambridge: Harvard University Press, 1914/1995.
- Procacci, S., and L. Galleni. “Science, Theology and the Dialogue among Cultures.” *European Journal of Science and Theology* 3 (2007): 5–515.
- Roazen, P. “Lacan’s First Disciple.” *Journal of Religion and Health* 35, no. 4 (1996): 321–336. doi:10.1007/BF02354924.
- Roudinesco, E. *La bataille de cent ans. Histoire de la psychanalyse en France 2 (1925-1985)*. Paris: Éditions du Seuil, 1986.
- Roudinesco, E. *Jacques Lacan: Esquisse d'une vie, histoire d'un système de pensée*. Paris: Fayard, 1993.
- Schrödinger, E. *What Is Life? the Physical Aspect of the Living Cell*. London: Cambridge University Press, 1944/1967.
- Teilhard de Chardin, P. *The Human Phenomenon (Translation: Sarah Appleton-Weber)*. Brighton/Chicago/Toronto: Sussex Academic Press, 1955/2015.
- Teilhard de Chardin, P. *Le Milieu Divin: Essai de vie intérieure*. Paris: Éditions du Seuil, 1957. Œuvres 4.
- Teilhard de Chardin, P. *L'avenir de l'homme*. Paris: Éditions du Seuil, 1959. Œuvres 5.
- Teilhard de Chardin, P. *Science Et Christ*. Paris: Éditions du Seuil, 1965. Œuvres 9.
- Teilhard de Chardin, P. *Christianity and Evolution*. Orlando etc: Harcourt, 1969/1971.
- Teilhard de Chardin, P. *The Heart of Matter*. San Diego etc: Harcourt, 1976/1978.
- The Molecularised, Z. H. “Me: Psychoanalysing Personalised Medicine and self-tracking.” In *Personalized Medicine, Individual Choice and the Common Good*, edited by B. B. Van, Dickenson and D. Sterckx S, 245–260. Cambridge: Cambridge University Press, 2018. doi:10.1017/9781108590600.012.
- Udías, A. *Christogenesis: The Development of Teilhard’s Cosmic Christology*. Woodbridge: American Teilhard Association, 2009.
- Zwart, H. “Genomics and self-knowledge. Implications for Societal Research and Debate.” *New Genetics and Society* 26 (2007): 181–202.
- Zwart, H. “Genomics and Identity: The bio-informatisation of Human Life.” *Medicine, Health Care and Philosophy: a European Journal* 12 (2009a): 125–136.
- Zwart, H. “From Utopia to Science: Challenges of Personalised Genomics Information for Health Management and Health Enhancement.” *Medicine Studies* 1, no. 2 (2009b): 155–166. doi:10.1007/s12376-009-0013-9.
- Zwart, H. “The Adoration of a Map: Reflections on a Genome Metaphor.” *Genomics, Society & Policy* 5 (2010): 29–43.
- Zwart, H. “On Decoding and Rewriting Genomes: A Psychoanalytical Reading of A Scientific Revolution.” *Medicine, Healthcare and Philosophy* 15, (2012): 337–346 a European Journal.
- Zwart, H. “The Genome as the Biological Unconscious – And the Unconscious as the Psychic ‘Genome’. A Psychoanalytical Rereading of Molecular Genetics.” *Cosmos and History: Journal of Natural and Social Philosophy* 9 (2013): 198–222.
- Zwart, H. “Tainted Food and the Icarus Complex: Psychoanalysing Consumer Discontent from Oyster Middens to Oryx and Crake.” *Journal of Agricultural & Environmental Ethics* 28 (2015): 255–275. doi:10.1007/s10806-015-9530-6.
- Zwart, H. “The Obliteration of Life: Depersonalisation and Disembodiment in the Terabyte Age.” *New Genetics and Society* 35 (2016): 69–89. doi:10.1080/14636778.2016.1143770.
- Zwart, H. *Psychoanalysis of Technoscience: Symbolisation and Imagination. Series: Philosophy and Psychology in Dialogue*. Berlin/Münster/Zürich: LIT Verlag, 2019.
- Zwart, H. *Continental Philosophy of Technoscience. Series: Philosophy of Engineering and Technology*. Dordrecht: Springer, 2022.