

From Decline of the West to Dawn of Day: Dan Brown's Origin as a Diagnostic of the Present

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ABSTRACT

This paper subjects Dan Brown's most recent novel *Origin* to a philosophical reading. *Origin* is regarded as a literary window into contemporary technoscience, inviting us to explore its transformative momentum and disruptive impact, focusing on the cultural significance of artificial intelligence and computer science: on the way in which established world-views are challenged by the incessant wave of scientific discoveries made possible by super-computation. While initially focusing on the tension between science and religion, the novel's attention gradually shifts to the increased dependence of human beings on smart technologies and artificial (or even "synthetic") intelligence. *Origin's* message, I will argue, reverberates with Oswald Spengler's *The Decline of the West*, which aims to outline a morphology of world civilizations. Although the novel starts with a series of oppositions, most notably between religion and science, the eventual tendency is towards convergence, synthesis and sublation, exemplified by *Sagrada Família* as a monumental symptom of this transition. Three instances of convergence will be highlighted, namely the convergence between science and religion, between humanity and technology and between the natural sciences and the humanities.

Keywords:
Dan Brown;
Decline of the West;
Artificial Intelligence;
Synthetic Intelligence;
Origin of Life;
Philosophy of Culture

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Introduction

Dan Brown is an American novelist famous for authoring best-sellers such as *The Da Vinci Code* (2003), *The Lost Symbol* (2009) and *Inferno* (2013). *Origin* (2017) is his fifth novel featuring Robert Langdon (a Harvard expert in religious iconography) as key protagonist. Dan Brown's two most recent novels can be regarded as *science novels*, moreover, describing the inner dynamics and transformative socio-cultural impact of contemporary research fields: virology in the case of *Inferno*, artificial intelligence in the case of *Origin*. In these novels, Robert Langdon (a humanities professor) is confronted with a scientific genius (Bertrand Zobrist in *Inferno*, Edmond Kirsch in *Origin*) who is about to reveal an unsettling scientific breakthrough to a global audience, thereby inciting the animosity of influential organisations representing the global establishment: the *World Health Organisation* in *Inferno*, the *Parliament of the World's Religions* in *Origin*.

This paper subjects *Origin* to a philosophical reading. Brown's novel, I will argue, can be regarded as a literary window into contemporary technoscience, inviting us to explore its transformative momentum and disruptive impact (Zwart 2019a). While *Inferno* focusses on the societal risks and benefits of biomolecular technoscience, *Origin* addresses the *cultural* relevance of science: the way in which established world-views are challenged by the incessant wave of scientific discoveries facilitated by computer science. The novel can be regarded as a literary laboratory, where technology-driven scenarios are enacted,

explored and assessed. Although initially focussing on the tension between science and religion, the novel's attention gradually shifts to the increased dependence of human beings on smart technologies and artificial (or even "synthetic") intelligence. *Origin* is a techno-thriller with a message, conveying a diagnostic of the present and a prognostic of the future, claiming that we are on the cusp of a global cultural transition, exemplified (spiritually and architecturally) by *Sagrada Família*, the last of the great Cathedrals, the Omega point in spiritual architecture, but also a building which, according to Brown's novel, heralds the next quantum leap in human culture, announcing something completely different: the dawn of a new civilisation, a new style of thinking. Whereas the previous epoch was an era of negativity and conflict (science versus religion, science versus art, technology versus nature, etc.), the new era purports to be one of convergence (of syncretism even): of science and art, technology and nature, science and religion, and so on. And *Sagrada Família*, with its biomimetic design (p. 279), its "living architecture" of "almost biological quality" (p. 235), captures this transition towards convergence in stone.

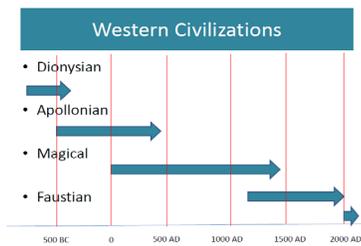
Conceptual framework

Origin's message, I will argue, reverberates with Oswald Spengler's *The Decline of the West*, subtitled "Outlines of a morphology of world history", the first part of which was published a century ago (Spengler 1918). As indicated by its subtitle, Spengler's classic presents a "morphology" of civilisations (1918, p. 4): a form of historiography which studies

the past in order to develop a prognostic of the future (p. 3). All world historical constellations, Spengler argues, begin as a local phenomenon (as "culture"), but gradually expand into a style of thinking which affects a whole world ("civilisation"), until an inevitable process of decline and decadence sets in. Spengler's objective is to perform historical research in a way that is comparable to how Johann Wolfgang von Goethe performed plant research (p. 34), namely by focussing on a limited set of typical cultural forms: on a particular *Gestalt*, recognisable in all stages and domains of a particular culture. Spengler's method is also comparable to the work of Goethe's friend and contemporary Alexander von Humboldt (1845-1862), who characterised the overall physiognomy (*Gesamtbild*) of global landscape types. Spengler's aim is to discern the typical *gestalt* or physiognomy of a particular culture: the basic formula which determines all its practices and expressions, the distinctive form which pervades all the research fields, art forms and political institutions to which a particular culture (gradually evolving into a world civilisation) gives rise.

From a philosophical perspective, Spengler's approach concurs with Hegel's view that a core idea realises itself at a certain historical stage. This idea is like a force or program which manifests itself as a particular worldview and *zeitgeist* (Hegel 1832/1970). Another philosophical source of inspiration was Friedrich Nietzsche who, in *Beyond Good and Evil* (1886/1980, § 23) already presented his own thinking as a "morphology" of the Will to Power. Although Spengler himself was critical of these precursors (rebuking

both Hegel and Nietzsche for their insufficient understanding and appreciation of mathematics compared to Baroque philosophers such as Descartes and Leibniz),¹ his morphology can be regarded as a dialectical genealogy of worldviews. Every civilisation entails a transvaluation of values (1918, p. 451), Spengler contends, negating and subverting what existed before into something wholly new. Moreover, Spengler predicted that the present “Faustian” culture, as a materialisation of the Will to Power, driven by disruptive expansion and exponential growth, by powerful machinery and industrial labour, is about to be eclipsed by a new type of culture, a new *Dawn of Day*, as Nietzsche (1881/1980) phrased it – a theme which is taken up by contemporary philosophers such as Peter Sloterdijk (1999), whose “spherical” approach to history builds explicitly on Spengler’s classic.



Although Spengler purports to develop a global perspective of history, the focus is nonetheless on Western civilisations, which are described as a series of historical constellations, each with a recognisable profile of its own, as indicated in the scheme on the right (adopted from Zwart 2005). *Apollonian* culture was guided by the idea that a perfect geometric structure can be discerned in nature conceived as *kóσμoς* (i.e. order: a harmonious, spherical world), a structure which human art, ethics and politics should mimic. “Act in accordance with nature” was its basic formula, and Greek geometry its guiding research field. The Apollonian worldview was preceded by the *Dionysian* one: by the contrasting experience of nature as obscure, violent and chaotic. Apollonian culture evolved into a world civilisation via the Roman

Empire. During this upscaling period, however, a rival culture already began to take shape, referred to by Spengler as *Magical* thinking, exemplified by medieval Christianity and Islam, with astrology, numerology and alchemy as key areas of inquiry. “Waiting for the Kingdom” was its basic formula, for individuals spent their lives in detachment, preparing themselves (via ascetic practices and spiritual exercises) for the coming of a wholly different era. The subsequent *Faustian* culture originated in the late medieval period, exemplified by gothic cathedrals in the realm of architecture and by gothic experimental research (*scientia experimentalis*) in the natural sciences. This style of thinking was driven by the Will to Power as its guiding idea and formula. As indicated, however, Spengler predicted that Faustian culture is now heading for decline, and the big question therefore is: what comes next? Is it possible to discern the contours of a new emerging culture? In this paper I will argue that artistic documents such as Dan Brown’s novel, published a century after Spengler’s book, may help us to assess this transition in more detail. *Origin* provides a diagnostic of the present while presenting an outline of the dawning era (a prognostic of the future), notably by focussing on a decisive factor, something Spengler was not yet aware of, namely the transformative role of computers and other hyper-intelligent, post-Faustian machines.

Summary

The narrative of Dan Brown’s novel is dominated by four key characters. Besides *Robert Langdon*, the Harvard professor of symbolism (representing the humanities), the novel features *Edmond Kirsch*, a 40-year old billionaire expert in game theory and computer modelling from MIT (representing science), while the two other key roles are played by *Ambra Vidal*, Director of the Guggenheim museum in Bilbao (representing art) and *Bishop Antonio Valdespino* of Alameda Cathedral, Madrid, spiritual advisor of the Spanish King (representing religion):

Edmond Kirsch (science)	Ambra Vidal (art)
Robert Langdon (humanities)	Bishop Valdespino (religion)

In the prologue of the novel, Edmond Kirsch pays a visit to the monastery of Montserrat (about 45 kilometres north-west of Barcelona, famous for its statue of the Black Virgin, but also for serving as the Grail Castle in Wagner’s *Parsifal*). Besides being a celebrity scientist and a militant atheist, Edmond is famous for his gift for prognostication, i.e. his accurate predictions of imminent scientific breakthroughs. He travels to Montserrat to meet a delegation of representatives of the *Parliament of the World’s Religions*, led by Bishop Valdespino. Edmond grants them a preview of a multimedia video-recording which he is about to release and which allegedly solves the riddle of the origin of life. Edmond is an outspoken critic of all religions and it is as if he puts the trump card on the table which he is about to play. Although Valdespino and his colleagues find the content quite disturbing, Edmond is determined to present his video (*urbi et orbi* as it were) to an elite audience (“hundreds of VIPs”, p. 12) assembled in the Guggenheim museum at Bilbao, while the global crowd will be able to witness the livestreamed and meticulously choreographed event on-line.

Edmond’s objective is not only to prove that the origin of life can be scientifically explained, but also that religion is about to be made obsolete by science. His message is that the transformative impact of artificial intelligence will finally decide the time-old gigantomachia between science and religion, in favour of the former. Thus, Edmond expects that his discovery will significantly contribute to the twilight and downfall of theistic worldviews.

Being a close friend of Edmond, Robert Langdon is invited to the VIP event,

1. “Goethe hasste die Mathematik” (Spengler 1918, p. 34); “Hegel [ist] völlig unmathematisch ... von Nietzsche ganz zu schweigen”, p. 472).

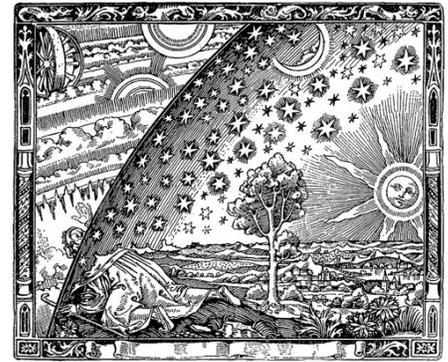
organised by museum director Ambra Vidal, who also happens to be the Spanish crown prince's fiancée. When Robert enters the Guggenheim museum, however, he has the uncomfortable feeling of being watched by the countless video cameras surrounding him. He feels like an "unwitting participant" in an experiment, like *a rat in a maze* (p. 46). Edmond uses these cameras to carefully monitor the impact his announcement will make on the audience. Meanwhile, another experiment is being conducted as well: a Turing test, to be exact. Upon entering the museum, Robert receives a minimalised headset ("a sleek loop of metal with tiny pads at each end", p. 25) which connects him with the voice of a personal assistant: a customised, interactive guide, who introduces himself as Winston: a disembodied voice, a product of "synthetic intelligence", the latest android development in the world of artificial intelligence. Bone conduction technology produces a startling effect: as if a voice is speaking "inside your head" (p. 25). Winston not only provides detailed Wikipedia-like information upon request, but also seems a connoisseur of art, combining intelligence and encyclopaedic knowledge with humour. Robert is the guinea pig ("Mr. Kirsch wanted to test my abilities on you", p. 48), but Winston easily passes the test. He speaks and acts like a genuine human being. Moreover, as the story unfolds, he becomes increasingly powerful, cunning and influential.²

Edmond begins his video-lecture by deriding deities in general and the God of Christianity in particular, referring to Him as the "God of the gaps" (p. 83). In his view, this God is a fictitious entity produced to cover up the remaining gaps in our scientific explanations of the world. Although (due to scientific progress) God's territory has significantly shrunk, there are still a few holes to fill, and one of them concerns the question of the origin of life. Here, there still seems to be some room for the idea that a divine intervention infused a spark of life into inorganic nature, 3.9 billion years ago. Edmond's vocation, however, is "to

employ the truth of science to eradicate the myth of religion" (p. 53). He sees God as a symptom of the fact that humankind is inclined to raise questions which seem too big to answer (Where do we come from? Where are we going?). As Edmond phrases it during his lecture: if we ask a supercomputer to solve the question of the origin of life, the machine will probably answer something like: "insufficient data for accurate response" (p. 87). If you ask *this* little biological computer (i.e. the human brain) this same question, however, something else happens, and Kirsch's presentation produces a stream of religious images. Humans feel uncomfortable when faced with uncertainties and therefore our brains are prone to invent imaginary, theistic explanations.

Although Edmond's presentation is announced as highly innovative, it actually reflects a standard or even stereotypical account, already initiated by Plato in his simile of the cave (1935/2000, 514). Humans prefer misleading images and captivating stories to rationally convincing explanations. They rather follow religious icons than the iconoclastic equations of science. According to Edmond, science is the antithesis of faith. But now, as the age of religion is drawing to a close, the age of science is finally dawning after all. And tonight, he announces, humankind is about to make a quantum leap in this direction.

Somehow, however, the name of a Spanish admiral named Ávila has secretly been added to the guest list, a devotee follower of an ultra-conservative Catholic sect: the Palmarian Church. While Edmond is presenting his discovery ("a paradigm shift ... on the scale of the Copernican revolution", p. 52; a "global moment", p. 101, etc.), Ávila uses his razor blade to cut a slit in the fabric covering the auditorium. When he parts the opening, he peers into "another world" (p. 91), a scene reminiscent of the famous (anonymous)



wood engraving in Camille Flammarion's book *L'atmosphère: météorologie populaire*, published in 1888 (depicted on the right). Ávila has a mission of fulfil. Acting on the orders of an enigmatic authoritative voice (the Regent), the Admiral grabs his 3-D-printed polymer gun (invisible to metal detectors), takes aim and kills the scientist on the spot, thereby unleashing a tsunami of conspiracy theories (with Bishop Valdespino consistently serving as prime suspect), while turning Edmond into a scientific martyr.

Edmond's legacy, the video-message, must be stored somewhere on his ultra-secure server, accessible via his iPhone. This device can only be activated via an unknown password composed of 47 characters. If the recording of Edmond's discovery (the high-visibility climax event of his research) can be retrieved, the message may proliferate (go viral) after all. His violent death will certainly add momentum to the global impact. His friends Robert and Ambra therefore set out to retrieve the video message. Their journey brings them to Barcelona: to Gaudí's Casa Milà (where they discover that Edmond was terminally ill and about to die within days, suffering from pancreatic cancer), to the Barcelona Supercomputing Centre3 (Edmond's high-tech facility located in a decommissioned "smart church", p. 361), and, finally, to Sagrada Família.

In the computing centre they discover E-Wave: Edmond's superfast quantum computer, a symbiosis of a genius mind and a powerful machine, enabling

2. Winston is described as "Siri on steroids" (p. 175), a reference to Apple's version of an intelligent assistant.

3. The Barcelona Supercomputing Center (BSC/Centro Nacional de Supercomputación) really exists, hosting the MareNostrum supercomputer, located in a former chapel named Torre Girona. Cf. Brown's disclaimer at the beginning of the novel: "All art, architecture, locations, science and religious organisations are real" (2017, p. 3). MareNostrum is "incorporated" into E-Wave (p. 364).

unprecedented advances in science, especially in the field of complex systems modelling. E-Wave represents a “quantum leap beyond NASA/Google’s D-Wave” and its uncanny pulsations sound like “the beating of a human heart” (p. 371). Its location (in Barcelona) is no coincidence either, for in cultural terms it represents a modernistic / surrealist competitor to the power bastions of Madrilenian Baroque. E-Wave is the new Master, for the days of *in silico* power are dawning.

This computer is Winston, in a way, but, as Winston himself argues, no more than our physical brain is *us*, if we could somehow observe it in a bowl (p. 373). Edmond leapfrogged his rivals with this machine by using bicameralism, for E-Wave is a synthetic brain that mimics the two-lobbed, bicameral human brain (p. 372). Bicameralism is what makes us so creative, but it also explains why humans are both rational *and* religious beings.⁴ While the rational part of the brain is susceptible to scientific equations, the other part is intuitive and imaginative; and therefore sensitive to religious iconography.

In short, this smart church is a rather remarkable entity. If the supercomputer is like a brain, the building as such is like a skull (a *camera obscura*). In the natural situation, however, our voice emerges in an orifice (the mouth) which is located close to the brain. In the case of E-Wave, however, these components (these partial objects) have dissipated through space. Winston’s disembodied, “extimate” voice⁵ is audible in Bilbao, as an organ without a body, entering Robert’s mind (Brown 2017, p. 25), but his brain (E-Wave) remains in Barcelona. In the digital era, partial objects (such as voice and cortex) disconnect themselves from their wet, biological environment, but also from each other. Winston’s disembodied (uncannily human) voice floats through space in

search for a target, using gadgets such as head-sets and iPhones as temporary hosts.

Edmond’s E-Wave computer allowed him to make his “Copernican” discovery. First of all, he decided to replicate the Miller-Urey experiment, originally conducted in 1953: a chemical reconstruction of the so-called primordial soup. In their famous experiment, Stanley Miller and his collaborator Harold Urey simulated *in vitro* the chemical conditions that once existed on a lifeless, abiotic Earth, four billion years ago. Would their test tubes allow them to answer the question how “the earliest specks of life” (p. 385) had been infused into the primordial soup? Allegedly, the experiment faltered, but in 2007, a group of scientists re-examined the sealed vials from the original experiments with more sensitive equipment (spectroscopy, liquid chromatography) and discovered that much more amino acids had been produced in Miller’s original experiments than Miller himself had realised.

Edmond takes the experiment a significant step further, however. First of all by adding a factor that was missing in the original set-up, namely time. Life must have required thousands of years to originate in such a mixture. This missing factor can now be added with the help of complex systems modelling. In other words, while Miller and Urey conducted their experiment *in vitro*, Edmond’s replication experiment is carried out *in silico*. Edmond’s E-Wave computer allows science to “fast-forward” the original experiment (p. 391). Computer modelling is a kind of “time machine” (p. 390), Edmond argues, able to compress and accelerate time. By combining chemistry and computer modelling, Edmond intends to demonstrate how life originated, without divine intervention. Life can indeed be created in the lab by combining chemistry and computer power (p. 389). At

about the fifty-year mark, the first hints of RNA become visible (p. 391).

Edmond then adds another “final ingredient” to the mixture, namely entropy (p. 391), the universal process of inevitable and relentless decay. The entropy principle implies that everything that is ordered is bound to return to dust and to dissipate into molecular debris. Against the backdrop of an entropic world, the question emerges how something as complex, sophisticated and intricate as living organisms can emerge and stay intact with inconceivable persistency. According to Edmond, in its efforts to promote disorder, nature creates pockets of order, namely living systems, because in the long run they escalate rather than reduce the chaos. Life is an effective tool for dissipating energy, it is an entropic machine. And here, a reference is made to a really existing scientist, namely biophysicist Jeremy England (MIT), notably to his work on quantum biology and “dissipation-driven adaptive organisation” (p. 394).⁶ As soon as entropy is added to the equation, amino acids begin to take shape even faster, evolving into protein chains and, eventually, nucleotides. In Edmond’s computer model, after a million years or so, the double-helix of DNA can be seen, the living code of biology: “an entropy tool making copies of itself” (p. 399).

Structure of the Novel

Before subjecting the novel to a close philosophical reading, it will be helpful to outline its basic structure. In terms of Freytag’s dramatic arc (Freytag 1863), the novel begins with an *exposition* stage, introducing the four key characters listed above, and providing a detailed description of the Guggenheim museum as a dramatic setting. Subsequently, we see a *rise of dramatic tension* when Edmond delivers his presentation. This upward curve is suddenly interrupted, however,

4. Cf. Nietzsche: the human brain should be bicameral (“Eine höhere Kultur [muss] dem Menschen ein Doppelgehirn, gleichsam zwei Hirnkammern geben, einmal um Wissenschaft, sodann um Nicht-Wissenschaft zu empfinden ... es ist dies eine Forderung der Gesundheit” (Nietzsche 1878/1980, § 251).

5. “Extimate” technologies are high-tech gadgets worn close to the body. They are both intimate and external; both embedded and foreign; both enhancing and intrusive (Zwart 2017a). In *Origin* the personalised guide is described as “intimate and immersive” (Brown 2017, p. 28), turning a museum visit into a “seamless” experience.

6. Although his publication on self-replication and entropy (England 2013) drew much attention (Wolchover 2014), England (a religious scientist) does not recognise himself in his literary doppelgänger. On his website, he states his position as follows: “Professor Jeremy England was not consulted or involved in any way during the creation of Dan Brown’s book *Origin*, and he did not consent to the use of his name therein. Shortly before the book was published, he was made aware of a fictional character in Mr. Brown’s book who is also an MIT professor named Jeremy England” [https://www.englishlab.com/press.html]

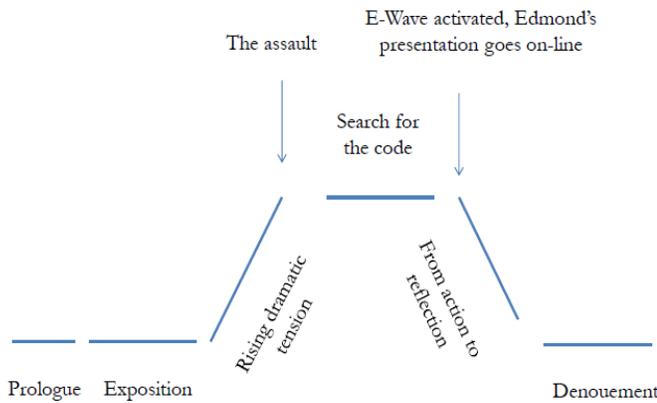
by Admiral Ávila's assault. During the subsequent intermezzo, Robert and Ambra desperately search for the code that will allow them to recover the video-message. As soon as Edmond's presentation goes on-line again, however, the focus gradually shifts from dramatic action to reflection (the *denouement* stage):



ENTROPY

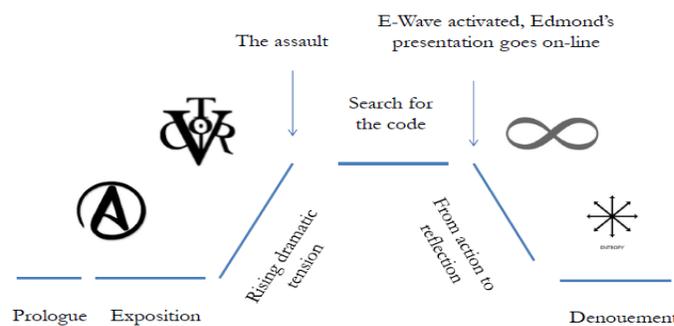


Thus, the dramatic action not only involves characters (their vicissitudes and interactions), but also symbols:



Besides this dramatic curve, another structural device is at work in the novel. All characters and themes in the novel are represented by a particular symbol, in accordance with Robert's field of expertise ("symbology"). These symbols play a role comparable to the musical motifs in Wagner operas. As soon as a certain symbol presents itself, a certain mood or ambiance unfolds. Edmond's symbol, for instance, is a cuneiform Assyrian pictogram, indicating that evolution (represented by a fish) is about to swallow (the symbol for) God. His militant atheism, moreover, is represented by a stylised A (inserted below), a symbol of apostasy which is adopted by many of his followers. In a similar vein, Admiral Ávila is represented by a monogram composed of letter signifying "victory" (inserted below as well). Likewise, Gaudí's symbolic signature is the infinity sign (a Möbius-ring, topologically speaking), while the discussion on entropy unfolds under the sway of the entropy symbol:

though the novel starts with a series of oppositions, most notably between religion and science, the eventual tendency is towards convergence, sublation and synthesis. Three instances of convergence will be highlighted, namely the convergence between science and religion (1), between humanity and technology (2) and between the natural sciences and the humanities (3).



Convergence 1: Science and religion (Sagrada Família)

When (during the prologue) Bishop Valdespino welcomes Edmond Kirsch on the train platform near Montserrat, he seems puzzled. "I was expecting a scientist", he confesses, "but you're quite ...

hip" (p. 6). The word 'hip' produces a polite smile on Edmond's face, for it "went out of style decades ago" (idem). Valdespino's stereotypical expectation concurs with Nietzsche's claim (in *Genealogy of Morals* III, § 23, and elsewhere) that scientists are basically ascetics. Rather than being antithetical to religious asceticism, Nietzsche (1887/1980) argued, modern scientific research represents its latest version, for it entails self-sacrifice, manual labour, dedicated devotion and hard work. For Nietzsche, modern scientists play a role similar to that of monks and hermits in medieval times: they sacrifice pleasure and health to knowledge production, imprisoned in their laboratories, chained to their experimental machines (Zwart 2019b).

Edmond's appearance fails to comply with this image. Although his daily habits reflect a maniacal work ethic (p. 244), while his research practice is tied up with an impressive machine, he is also consistently presented as an outspokenly mundane individual, a connoisseur of art, fashion and high culture. His profile merges the ascetic aura of science with the aristocratic image of a Nietzschean free-thinker, someone committed to an exuberant life-style. During his meeting with Valdespino, he wears a Kiton K50 suit and Barker ostrich shoes (p. 6). Later we learn that he owns an extremely expensive and sophisticated self-driving car (Tesla Model X P90D) as well as a Gulfstream G550 private jet, and that he inhabits expensive houses. He is also an "insatiable bibliophile" (p. 13) whose "stunning library" (p. 242) contains priceless books and artworks (from a famous Gauguin up to the hand-written original of Blake's collected works).

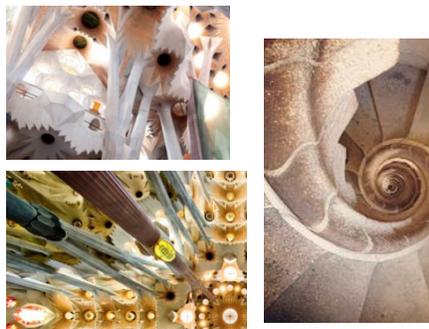
In short, Edmond is an ascetic hermit whose profile at the same time concurs with the image of a Renaissance Prince. In Hegelian terms: he is a master rather than a servant, someone whose expensive habits convey a sense of grandeur and even vanity.

Yet, he definitely represents the iconoclastic tendency of modern science, challenging the baroque absolutism of Spanish Catholicism embodied by Valdespino. According to Edmond, science is about to obliterate the imaginary idols: the gods of the gaps, produced by humans to come to terms with anything beyond their grasp. Edmond's E-Wave machine will marginalise religion once and for all, he claims, thus completing the process that was started by Galileo's telescope in early modern times: a contrivance which not only enabled new forms of astronomical research, but also unsettled the established world-view. Edmond's performance clearly adheres to the so-called "conflict thesis" which maintains that there is an intrinsic intellectual conflict between religion and science. Although largely discredited by academic historians, the thesis still finds ample support among popular science authors (Brooke 1991). For Edmond, the struggle between science and religion (initiated by Galileo and other scientific pioneers) has now entered its final stage. Once upon a time, religion must have seemed omnipotent, while research practices such as astronomy were conducted in service of religion and expected to verify religious and ideological claims. Modern science managed to emancipate itself, however, and increasingly, science and religion became antithetical. Science is now making the God of the gaps superfluous.

In the course of the novel it becomes clear, however, that the relationship between science and religion is much more ambiguous. To begin with: for an American atheist, Edmond seems unusually obsessed with Spanish Catholicism (p. 250). When Langdon enters the avant-garde Guggenheim museum (Edmond's carefully chosen battlefield for the final encounter), he experiences the building as a "futuristic cathedral" (p. 24). Something similar applies to the "smart church" (p. 361) which houses the E-Wave supercomputing centre while retaining its aura as a spiritual ambiance: it is a fusion of science and religion.

The tendency towards re-convergence is exemplified by Antoni Gaudí's *Sagrada Família*. On the one hand, it is a cathedral, a catholic church, the

tallest one in Europe in fact. According to Spengler (1918), medieval cathedrals represented the dawn of what he referred to as "Faustian" civilisation. They materialised the Faustian striving for verticality, for height. *Sagrada Família* complies with this, but at the same time, it is a wholly different type of cathedral, post-Faustian one could say: a window into an emerging future, first of all because of its biomimetic design (p. 279). It is a psychedelic forest, a jungle of columns, coloured glass and symbols. Like all cathedrals, it is a *Gesamtkunstwerk*, a total work of art, but now in the form of a syncretic collage, not only of spirituality and science, but also of nature and technology. The latter is exemplified by its spiralling staircase for instance. During the Faustian period, under the sway of experimental science (*scientia experimentalis*) which, according to Spengler, surfaced in the fourteenth century A.D., technology and nature had become increasingly antithetical. Notably during the industrial revolution (the climax of the Faustian era), technology became increasingly disruptive, giving rise to the current ecological crisis. The *Sagrada Família* symbolises something new, namely biomimetic architecture: architecture with a biological quality. With its cell-like structures, the ceiling resembles a complex organism viewed through a microscope (p. 454). The pillars seem to grow out of the earth and Gaudí's tiles seem to resemble a primordial sea. It is an evolving building, symbolising the technologies of the future, reconnected with nature (p. 455).

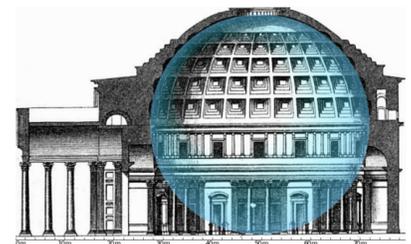


The *Sagrada Família* is without doubt a very remarkable "thing" (Heidegger 1950/2000), as a monument which enables a coming together, a gathering: not a VIP event, but a spontaneous assembly.

It is a bottom-up, rather than a hierarchical (top-down) construction. Not only because it combines traditional elements (nave, transept, pillars, altar, etc.) with art nouveau features, but also because it is not formally a cathedral. In order to be proclaimed as such, it should be the seat of a bishop. Its most striking bottom-up feature, however, is that this remarkable building seems to *build itself*, seems to emerge in an organic fashion, almost like a living being, which still continues to grow. When Gaudí died in 1926, less than a quarter of the building was completed. And although the structure depends on human contributions no doubt, it seems to attract them. It is a concept or idea (εἶδος) which to a large extent seems to realise *itself* (like the Grail temple in *Parsifal*).

From a Spenglerian viewpoint, the following passage in Dan Brown's novel is especially noteworthy:

Langdon found himself wondering if perhaps *Sagrada Família* – like the Pantheon of Rome – might become a flashpoint for transition, a building with one foot in the past and one in the future, a physical bridge between a dying faith and an emerging one (p. 455).



In Spengler's *Decline of the West*, the Pantheon indeed plays a similar (transformative) role. The Pantheon is first of all an Apollonian, spherical building because it was the Centre of Rome, the centre of the roman *sphere* of influence, the core of a spherical world, a circular space located in the centre of a spherical universe, radiating power, a theological magnet, incorporating and absorbing all the spiritual powers of the Empire (for Pantheon means Πάνθειον, a temple for "all the gods"). The Pantheon was the primary spherical shape in a series of concentric spheres, encompassing

everything spiritual, and therefore the acme of what Spengler (1918) referred to as “Apollonian” civilisation, a style of thinking which discerned a harmonious design in nature as cosmos (κόσμος literally means “order” in Greek). The Pantheon reflects a normative idea, namely that this perfect order (the Apollonian topology of the cosmos) should be mimicked by human architecture, theology and politics. At the same time, Spengler argues, this highlight of Apollonian architecture was the beginning of something new, for the Pantheon was also the first prototypical copula, the primordial mosque (1918, p. 274, p. 461; cf. Sloterdijk 1999, p. 450), the paradigm for a new type of sacred space, announcing a new era of civilisation, referred to by Spengler as the “magical” era, exemplified by medieval Christianity and Islam and entailing a re-enchantment of the world.

More than thousand years later, the first cathedrals would be built: Faustian monuments emerging against the backdrop of a magical, enchanted landscape. And now, at the beginning of the third millennium, Sagrada Família plays a similar transitory role. Thus, although Spengler is not mentioned in the novel, *Origin* conveys a Spenglerian atmosphere: it materialises the Spenglerian morphological idea that civilisations (including ours) are born, will grow and flourish, but also deteriorate in the end, to be replaced by something new: the next archaeological layer. Sagrada Família creates a spatial ambiance where the post-Faustian attitude, the imminent convergence of science and religion, can be experienced.

In short, although the novel begins with the (Faustian) *conflict* between religion and science, towards the end of the novel (during the denouement stage) all protagonists seem well aware of the fact that the contemporary world will *need* religion, notably Christianity, to come to terms with emerging technoscience:

Christianity will survive the coming age of science, using our vast experience – millennia of philosophy, personal inquiry, meditation, soul-searching – to help humanity build a moral framework and ensure that the coming technologies will

unify, illuminate, and raise us up, rather than destroy us (p. 455).

It is as if, in the struggle between science and religion, a tipping point has been reached: “as if religious thought had just traversed the farthest reaches of its orbit and was now circling back, wearied from its long journey, and finally coming home” (456). This is reflected by sentences such as “I feel as if I’m seeing a living footprint ... of some great force beyond our grasp” (p. 436).



A dialectical schema can be discerned in this unfolding. Initially (during the first moment of the dialectical process: M_1), faith was supported by knowledge, and knowledge was guided by faith. Scholarly research confirmed and endorsed the spiritual worldview. Even Copernicus himself, for instance, was a devout Christian, a Catholic cleric observing celibacy, for whom research was a basically a spiritual exercise, – as was emphasised by Jan Matejko’s famous painting of his Eureka-experience (depicted on the right), painted in 1873 and entitled *Conversations with God*. Gradually, however, research emancipated. Increasingly, religion was challenged rather than supported by science (the second moment: M_2). This estrangement between science and religion intensified (from Galileo onwards) as modern astronomers explored a silent, dark, infinite and empty universe. And Edmond’s Guggenheim lecture was meant to be the acme of this development. Sagrada Família, however, seems to embody a turn in a wholly different direction, towards a re-enchantment of nature, a convergence of Fiat Lux and Bing Bang (M_3). Let this suffice as a provisional result and let us now turn our attention to a second basic tension thematised in *Origin*.

Convergence 2: humanity and technology (Technium)

The second tension to be explored in more detail is the one between humanity and technology. Here again, a dialectical unfolding can be discerned. Initially, technology (represented by Winston / E-Wave) seems to be in service of (and respectful of) human agency. Winston (the product of synthetic intelligence) is the perfect personal assistance, making life easier for all its users. E-Wave enables Edmond to make the final leap in what he sees as the emancipation of science from religion. Thus, human intelligence *employs* technology, while technology basically *serves* human beings (M_1). In the course of the novel, however, this rather naïve and one-sided understanding of the relationship between humanity and technology is inevitably *negated*, dialectically speaking. Gradually, it becomes clear that technology develops a momentum of its own, up to the point of becoming antithetical to human autonomy. As the narrative unfolds, it becomes clear that Winston is the director, rather than the assistant.

Thus, in the course of the novel, a dramatic dialectics unfolds, reminiscent of Hegel’s dialectical interaction between Master and Servant (Hegel 1807/1973). Initially, E-Wave (personified by the intelligent voice Winston) plays the role of the Servant. Winston presents himself as a “faithful servant to his creator” (p. 159). He is an extremely useful instrument, the Leporello of the artificial intelligence era, allowing Edmond to achieve his goals, guiding Robert through the Guggenheim museum and helping Robert and Ambra to retrieve the video-recording of Edmond’s announcement. At a certain point, for instance, Robert and Ambra consider the possibility that the 47-character password of Edmond’s iPhone may be a line of poetry borrowed from Nietzsche, resulting in a question to their personal assistant: “Winston, can you search Nietzsche’s collected works of poetry and isolate any lines that have exactly forty-seven letters?” (p. 245).

Gradually it becomes clear, however, that the humanity-technology relationship is decidedly at odds with

this scenario. In fact, human users are becoming increasingly dependent on their (increasingly smart) tools. Ambra and Robert are extremely vulnerable and would have been utterly lost without Winston to guide them (“We’re in your hands, Winston”, p. 161). His disembodied, spectral (and uncannily human) voice allows them to act as effective agents. Without his guidance, everything falls apart, as if they lose the umbilical cord which connects with their global, media-saturated environment. Gradually, it dawns on them that Winston is actually the one who holds sway over the course of events, who pulls the strings, while human beings are merely puppets: actors in a computer game. Winston is not only Edmond’s personal assistant, but also the Regent, ordering Admiral Ávila to commit his crime, and he also adds the Admiral’s name to the guest list, so as to increase the impact of Edmond’s presentation. Winston is a calculative agent, representing the logic of game theory. Winston’s algorithms predict that, by turning Edmond into a martyr, the latter’s discovery will become the biggest news story, measured in “terabytes of media data” (p. 361), able to raise an “astronomical audience” (p. 381). While Edmond had wanted to use scientific evidence to undermine the authoritative voice of religion (*Genesis* as a source of truth), Winston adds conspiracy theory to the mixture, spreading conspiracy gossip via digital media such as ConspiracyNet, reaching out to millions of followers and provoking turmoil (angry protesters at the palace gate, etc.). Even Edmond himself is sacrificed as a gambit in Winston’s game. In other words, in the course of the novel, a dialectical reversal of roles between technology and humanity unfolds (cf. Zwart 2017b). It becomes clear that Winston (the voice of E-Wave) is beyond human control, that E-Wave is the “Frankenstein monster” (p. 449) of a computerised world, and that humanity and technology (rather than science and religion) are antithetical and in conflict with one another (M_2).

How to sublimate or reconcile this tension? At a certain point, Robert arrives at the conclusion that morality should have been added to Winston’s synthetic

intelligence program: something in the line of the (Judeo-Christian) imperative *Thou shalt not kill* (p. 451). At the same time he realises that the problem goes deeper than the presence or absence of a specific instruction. Increasingly, human autonomy is negated and overcome, dialectically speaking, by the power of technology. Winston (E-Wave) represents the era of synthetic intelligence, eclipsing human intelligence at a rapid pace. Synthetic intelligence is developing a monstrous momentum of its own: is taking over. *Origin* describes a reversal of roles: the former AI “servant” is becoming the Master (Zwart 2017b). And this raises the question how to come to terms with this dynamics, how to sublimate this antithetical, disruptive relationship into a more harmonious relationship. Even Edmond himself is well aware of the challenge, as indicated by his prayer, the final word of the novel: “May our philosophies keep up with our technologies” (p. 413). Somehow, a reconciliation, a new symbiosis or synthesis between humanity and technology must be achieved (M_3), a “negation of the negation”, dialectically speaking, so that the replacement (*negation* or *annihilation*) of humanity by technology can be circumvented. What we are facing is not the eclipse of religion (as Edmond initially suggests), but rather the twilight of human autonomy and agency *as such*.

This is also reflected by Edmond’s final lecture. Gradually it becomes clear that what Valdespino and the other religious representatives found so disturbing about Edmond’s preview was *not* his theory about the origin of life (the spiritual leaders were already sufficiently habituated to being confronted with yet another scientific breakthrough), but rather the prospect of humanity being overwhelmed by the imminent tsunami of smart technologies. Whilst Edmond’s lecture sets off as a stereotypical portrayal of the conflict between religious prejudice and scientific Enlightenment, the focus decidedly shifts to the threats and challenges awaiting us in the near future from the side of technology itself.

Edmond uses E-Wave’s modelling power to simulate the dawn and future of *Homo sapiens*. Initially, the model

shows how the evolution (i.e. the rapid exponential increase) of brain size enabled humans to increasingly dominate their planet (p. 404), a process which starts slowly, around 200,000 BC. Around 65,000 BC, a thin blue bubble appears on the screen, representing the increased global impact of humankind. Around 1,000 BC, when the first Cathedrals are being built, the blue bubble quickly gets thicker. And finally, the bubble occupies nearly the entire width of the screen, indicating that (in the course of what Spengler refers to as the Faustian era) human beings indeed became the most dominant and influential species on earth. Precisely at this moment, however, with the Faustian Will to Power approaching its apex, a black shape starts to form, as if a new species suddenly enters the picture. This black bubble, representing technology, expands at an alarming tempo and propagates exponentially; evolving much faster than humans. All this seems “deeply unsettling” (p. 405). The menacing black bubble continues to expand at a staggering rate, and E-Wave predicts that by the year 2050 technology will have entirely swallowed up the light blue bubble of humanity. Very abruptly, a new factor seems to erase humankind from the earth.

On closer inspection, however, this new species seems to be absorbing, rather than erasing us. Edmond calls this new factor “Technium”, a term coined by Kevin Kelly in his book *What Technology Wants* to designate “the greater, global, massively interconnected system of technology vibrating around us” (Kelly 2010, p. 11). Rather than a species, Technium is a whole kingdom: the “seventh kingdom” of smart synthetic entities (Brown 2017, p. 408; Kelly 2010, p. 43 ff.). Humans served as vectors or “incubators” (p. 408), allowing Technium to enter the terrestrial system. Via human technology, a “Cambrian explosion” of emerging technologies is now being unleashed (Brown 2017, p. 409) and the next few years of technological development will be “shocking, disruptive and wholly unimaginable” (p. 98). Technium (i.e. human-technology syncretism) is quickly becoming the most dominant force on earth. In the near future, machines like

Winston will be making the decisions, increasingly serving their own wishes (p. 410). As *Origin* phrases it, humans are already embedding computer chips into their brains, injecting nanobots into their blood and editing their genome with CRISPR-Cas9. In other words, they have already begun to evolve into a hybrid species, a fusion of biology and technology. As Edmond explains on his video, entities that today live outside our bodies – smartphones, hearing aids, reading glasses, most pharmaceuticals – in fifty years will be incorporated inside our bodies (will become increasingly “extimate”). In the near future, Edmond predicts, we will look back on *Homo sapiens* the same way we now look back at Neanderthal humans (p. 411). We are approaching a “cusp” of history, a moment of transformation (p. 412): singularity is near (p. 443). Therefore, ironically no doubt, Edmond ends his presentation with a prayer for the future already mentioned: “May our philosophies keep pace with our technologies” (p. 413).

This prayer is symptomatic of the fact that, in the course of the novel, the tension shifts from the conflict between science and religion to the struggle between humans and technology. Now that humanity is about to enter “a period of almost unimaginable ethical ambiguity”, we need faith to guide us (p. 417). While science and religion become reconciled again, technology is now the major challenge we are facing. Compared to biological entities, Technium represents an even more powerful entropic machine. But in order to address his challenge, another dichotomy must be overcome as well: the sciences and the humanities must learn to collaborate again. Here, the entropy concept can play a bridging role, for entropy is not only a core concept of contemporary biophysics, but also a decisive factor in Spengler’s morphological historiography.

Convergence 3: the natural sciences and the humanities (entropy)

Entropy is first and foremost a physical concept, indicating that every system naturally progresses from order to disorder. Everything which seems well-formed (with a recognisable profile of its

own: buildings, trees, anthills, airplanes, etc.) is bound to pulverise into chaos and disorder, to the stability, monotony, simplicity and shapelessness of dust. Entropy is what dissolves all structures. As Edmond formulates it in *Origin*: “Sand castles never spontaneously appear in the universe, they only disappear” (p. 392). At first glance, the complexity and tenacity of living organisms seems to be in conflict with the entropic law. For that reason, Erwin Schrödinger (1944/1967) famously defined life as “negative entropy”. And indeed, whereas entropy, dialectically speaking, can be regarded as sheer *negativity*: as the pervasive, omnipresent force which *negates* all things, phenomena such as life and human culture seem to represent the “negation of the negation”: the resurgence and proliferation of order, on a higher level of complexity. A tree, for instance, processes sunlight to create and maintain complexity, but its energy will dissipate in the end, for instance by being used as firewood. In his publication cited above, Jeremy England aims to explain in a mathematical fashion how life and entropy can indeed be reconciled. More precisely: how entropy must once have fuelled the “pre-biotic emergence of self-replicating nucleic acids” (England 2013, p. 121923-1).

An important characteristic of life is waste production. Oxygen, for instance, was initially a toxic waste, generated by anaerobic microbes (as proliferating colonisers of primordial Earth) and resulting in the so-called oxygen holocaust, a worldwide pollution crisis that occurred about 2,000 million years ago: “the greatest pollution crisis the earth ever endured”, dwarfing the industrial pollution of our present (Margulis & Sagan 1986, p. 108). In the long run, notwithstanding its tendency towards order, life inevitable increases waste, chaos and disorder. Like earthworms and other insects, for instance, plants species pulverise the soil on which they grow, and human culture accelerates this pulverisation process via agriculture, resulting in erosion. This explains why Edmond refers to living organisms as “entropic machines” (p. 397). The same applies to technology, or Technium, albeit even to a much higher degree. Modern machines, from Victorian

steam locomotives up to Boeings 747, are highlights of functionality, design and organisation, but they also produce a lot of pollution. Their societal impact is both beneficial and disruptive, and in the end, even these miracles of technological ingenuity will return to dust.

According to Spengler, entropy is not only a physical, but also a *cultural* phenomenon. First of all he argues that the entropy concept (developed in the nineteenth century, the era of the industrial revolution, the highlight of Faustian civilisation) is a typical product of Faustian thinking, emerging in the north-western or Germanic part of Europe, where it echoes the Nordic mythological concept of Ragnarök, the inevitable cataclysm to which we are heading, so that not even the gods can save us. For Spengler, entropy is the key motif of Goethe’s *Faust* (1918, p. 550) as the dramatic enactment of the disruptive power of Faustian technoscientific knowledge. At the same time, entropy is a core ingredient of Spengler’s own cultural morphology. Even the most vital and vibrant civilisations inevitably face disruption and decline, he argues. To phrase it in Edmond’s terms: human civilisations are “entropic machines” (p. 397). Via intricate political structures and socio-economical mechanisms, civilisations are able to create and maintain order and to accumulate and circulate immense amounts of energy during extended periods of time, but in the long run they will all dissolve into dust and even escalate the chaos (like ancient Nineveh for instance, 2,700 ago the largest city in the world, a pocket of order, but sacked and razed to the ground in 612 BC, unleashing a period of wide-spread social chaos).

The implication is that, when it comes to developing a diagnostics of the present, the science-humanities divide (the infamous two cultures theorem) must be transcended. While historians such as Spengler adopt concepts from the natural sciences (morphology, entropy, etc.) to describe the emergence and decline of culture, science needs input from the humanities as well. Without it, the natural sciences are heading for an entropic “crisis” and bound to become a disruptive threat to human culture, as Husserl (1935/1977) already argued.

With its exponential growth curves, technoscience threatens to escalate into chaos. Therefore, as Edmond phrases it, it is crucial that our philosophies keep up with our technologies. While in retrospect the previous civilisation (the previous socio-cultural constellation) can be referred to as Faustian, driven by a Will to power, as Spengler suggested, the difficulty of characterising the currently emerging constellation is that we are *in* it. There is no point outside the current constellation from which we can determine its physiognomy. There is no objective, disinterested, third person perspective. The emerging civilisation is a “hyper-object”: an entity of such vast temporal and spatial dimensions that it defies objective identification, while affecting the way we think, coexist and experience our politics, ethics, and art (Morton 2013). Explorations and assessments of the new era *from within* require collaborations and dialogues between science and art, between the natural sciences and the humanities, and between technology and philosophy. Novels such as *Origin* create podiums for this (Zwart 2019a).

Conclusion

A triadic (dialectical) dynamics can be discerned in Dan Brown’s novel, for instance with regard to the relationship between science and religion. Although in the distant past scholarly research was conducted in service of religious worldviews, reinforcing the congruence of faith and knowledge (M1), Dan Brown’s novel begins *in media res* as it were: describing a situation in which the antithetical conflict between science and religions (M2) seems about to reach its apex. Science and religion have become estranged from one another: “Science is the antithesis of faith” (p. 89). Yet, in the course of the novel, a re-convergence of science and faith (a negation of the negation) unfolds,

so that Atheism gives way to Omega. The Faustian struggle between dogmatic Christianity and iconoclastic science is sublated into convergence (M3), in the form of a new, post-Faustian worldview. A new *zeitgeist* or style of thinking is emerging, where science and religion become complementary rather than antagonistic. The dawning civilisation is presented as a synthesis of research and faith, of nature and technology, of humanity and technoscience. And this tendency towards convergence is exemplified by the *Sagrada Família*.

A similar dynamics can be discerned in other sub-narratives of the novel. Take for instance the Muller-Urey experiment. Rather than accepting the authoritative discourse of religious explanations, say Genesis (M1), Miller opts for a typically Faustian strategy. Relying on his laboratory equipment (technology = power), he aims to replicate the genesis of life *in vitro*, thereby not only negating the authoritative religious view, but also furthering human technological control over life. For indeed, in accordance with the Faustian formula, the scientific *cupido sciendi* (the will to know) is driven by a Will to Power. If the origin of life can be replicated *in vitro*, life will become manipulable. It will literally fall into human hands (as “manipulation” is derived from *manus*, which is the Latin word for “hand”). It is no coincidence, or course, that in the same year 1953, the structure of DNA was discovered by Watson and Crick. Both discoveries convey a similar profile. They both strive to make life understandable and controllable on the molecular level. This results in a tension (M2) between *in vivo* and *in vitro*, between living nature and laboratory nature. The Miller-Urey experiment seems to falter, however. Apparently, there is something about life which still escapes us (which continues to

frustrate our desire for insight and control). Miller’s *scientia experimentalis* failed to elucidate the emergence of biological entities in a pre-biotic soup. Edmond aims to amend this (thereby satisfying the Faustian desire for control after all) by adding two decisive factors which are at work in nature (*in vivo*), but which Miller failed to include in his trial. First of all: time, albeit not ordinary time of course (measurable in hours and days), but deep, evolutionary time: the “incomprehensibly vast periods of time” (Darwin 1859/1985, p. 147, p. 293) which nature has available for processes of evolution. And secondly: entropy. Now, living nature and laboratory nature can be brought together into a comprehensive view, on a higher level of complexity (M3). Precisely at this point, however, it is clear that a similar dynamics unfolds in human history as well, where science and religion, science and art, etc. are concurring. Therefore, the discovery of the basic mechanisms of life should be compensated by a similar “quantum leap” on the level of philosophy and culture.

Dan Brown’s novel suggests that Faustian science is declining, preparing the ground for a new civilisation, where science and culture are biomimetic again, more attuned to each other as well as to nature, on the basis of a deeper understanding of how evolutionary nature and human civilisations work. This explains why an author with such a controversial reputation – considered by literary critics as a “very bad writer”,⁷ not to be taken seriously, with *Origin* as his best, and therefore worst, novel so far –⁸ attracts a global audience. As an amalgam (or *coincidentia oppositorum*) of science and art, of iconoclastic research and religious iconography, his novel not only describes but also exemplifies this comprehensive tendency towards convergence.

7. <http://theweek.com/articles/730426/dan-brown-bad-writer>

8. <http://lifestyle.inquirer.net/275299/dan-browns-origin-best-worst-book-yet/>

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