

A CONVERGENCE OF MINDS: TEILHARD DE CHARDIN AND CONWAY MORRIS

Abstract. While the work of Simon Conway Morris has garnered significant attention, very little has been paid to the overlap between his thought and the work of Pierre Teilhard de Chardin. Thus, I first detail the development of Conway Morris's thought and note his "theological turn." I then compare this with Teilhard's evolutionary theology, establishing a broad conceptual overlap. Lastly, I demonstrate Conway Morris's written engagement with and admiration for Teilhard's work during his theological turn and conclude that Conway Morris's later works have been impacted by Teilhardian thought. Consequently, this merits Teilhard's inclusion in contemporary discussions of convergence and teleology.

Keywords. consciousness; convergent evolution; evolution; mind; Pierre Teilhard de Chardin; Simon Conway Morris; teleology

What if evolution is the entirely unremarkable mechanism that ensures that the universe becomes self-aware?ⁱ

-Simon Conway Morris-

The human discovers that . . . we are nothing else than evolution become conscious of itself.ⁱⁱ

-Pierre Teilhard de Chardin-

In one of its 2012 funding cycles, the Templeton Foundation launched an initiative entitled "The Meaning of Convergence." The goal of the project was to investigate "the implications of biological convergence for a deeper understanding of life and its history."ⁱⁱⁱ Biological convergence is here defined as, "The phenomena that occur when unrelated organisms evolve similar adaptations to similar environmental or selective pressures, arriving there by very different routes."^{iv} In other words, if evolution is a highly contingent and unpredictable process, why do the same features arise repeatedly? Could this phenomenon bear witness to a deeper and largely unexplored aspect of biology? According to Templeton, this possibility alone was sufficient to warrant \$5 million dollars in grants for research. While interest in convergent evolution is nothing new, this recent surge of attention is almost entirely the result of

Cambridge paleobiologist Simon Conway Morris whose work has introduced the phenomenon into the contemporary minefield of conversations surrounding biological teleology.

Relatively few topics in biology garner more controversy and infighting than the subject of teleology. Conventionally, teleological language is avoided in most scientific disciplines for fear it would denote content—namely, intentionality—that goes beyond science’s explanatory scope. Within biology, teleological statements, while often retained, are assumed to be shorthand for and reducible to a nonteleological equivalent.^v However, Conway Morris mocks convention by devoting much of his career to razing this presupposition and chiding his scientific colleagues for their reactionary attitude toward the prospect of biological teleology.^{vi} Contrasting with the prevailing paradigm, Conway Morris reasons from the ubiquity of convergent evolution that the morphological and adaptational space available to evolving organisms is far more restricted than previously assumed. Evolution, he asserts, is a highly predictive process, and a species cognitively analogous to humanity is a biological inevitability. While others, such as Richard Dawkins, maintain a similar view of evolution,^{vii} Conway Morris differs from his colleagues by deriving theological and philosophical implications from these conclusions.

Yet Conway Morris is not original in this effort. Decades prior, the paleontologist Pierre Teilhard de Chardin arrived at a nearly identical perspective, maintaining both the directional nature of evolution and humanity as the process’s *telos*. This, I will argue, is not coincidental but rather reveals a Teilhardian influence on Conway Morris’s work. How direct or conscious this impact was on the thinking of Conway Morris is, of course, impossible to fully know merely from his written work. Nevertheless, there is sufficient evidence to warrant there being a significant impact. If this is, in fact, the case, it would suggest that Teilhard has foreshadowed modern discussions of the theological implications of convergence for teleology and, perhaps

further, natural theology. This conclusion will be demonstrated in three steps. First, I will trace the development of Conway Morris's thought, noting what I call the "theological turn" in his writings. Next, I will compare this development to the conclusions of Teilhard de Chardin, indicating the intersection in their respective thought. Finally, I will show that these intersections coincide with Conway Morris's own contact with Teilhardian works. It will then be possible to conclude that Conway Morris's theological turn was at least partially inspired by his interaction with Teilhardian works.

The Evolution of Conway Morris's Thought

Conway Morris first received significant attention after the 1989 publication of *Wonderful Life* by the famed paleontologist Stephen Jay Gould.^{viii} In it, Conway Morris is one of a trio of heroic paleontologists whose work on the Burgess Shale revealed the radical contingency of life's evolutionary history. Gould praises the work of Conway Morris, calling him a "personal friend,"^{ix} "genius,"^x and deserving of a Nobel Prize.^{xi} From the trio's work, Gould concludes that if one were to "wind back the tape of life to the early days of the Burgess Shale [and] let it play again from an identical starting point . . . the chance becomes vanishingly small that anything like a human intelligence would grace the replay."^{xii} This conclusion was not Gould's alone. Gould himself credits a 1985 paper by Conway Morris for inspiring the conclusions he makes regarding life's contingency.^{xiii} Even the famous illustration of "rewinding life's tape" is drawn directly from Conway Morris's article.^{xiv}

Someone familiar with Conway Morris's 1998 tome *The Crucible of Creation* might be shocked to discover these facts since it was written as a direct rebuttal to Gould's earlier work.^{xv} While Conway Morris begins by acknowledging Gould's kind and enlightening treatment of his

previous work,^{xvi} he nevertheless challenges Gould's conclusions in a tone so severe, it led one reviewer to conclude, "The way Conway Morris goes about biting the hand that once fed him would make a shoal of piranha seem decorous."^{xvii} Conway Morris confronts his former benefactor by arguing that the ubiquity of evolutionary convergence reveals a process that is highly constrained and predictable. Although this represents a major shift in Conway Morris's own thinking, he nevertheless fails, at this stage, to draw any significant theological or philosophical conclusions. The only remark worthy of comment is his repeated refrain regarding humanity's "stewardship" and its "possibility of transcendence,"^{xviii} and, even here, these statements should only be interpreted as a rebuttal to Gould's own "libertarian attitude whereby, by virtue of a cosmic accident, we, and we alone, have no choice but to take responsibility for our own destiny and mould it to our desire."^{xix}

After *The Crucible of Creation*, language of stewardship and transcendence never again appear in any major work.^{xx} However, rather than abandoning theological language, after the publication of *The Crucible of Creation*, Conway Morris begins to increasingly engage in theological reflection on his work. This "theological turn" in his written work is conspicuously exhibited with the publication of his second major work in 2003, entitled *Life's Solution: Inevitable Humans in a Lonely Universe*.^{xxi} As the title suggests, Conway Morris remains loyal to his prior conviction of evolution's predictability. Sentient lifeforms are not fortuitous, he argues, but rather nearly guaranteed by evolution itself. However, *Life's Solution* differs from his previous effort in its overt attempt to draw theological significance from the work's scientific arguments, leading one reviewer to accuse it of "mixing up these two categories of science and religion."^{xxii} His final chapter, titled, "Toward a theology of evolution?" strongly cautions against a science unrestrained by morality and theology. Moreover, he advocated for the continued

reunification of science and theology, seeing his own contribution as a demonstration of the congruity between evolutionary theory and the concept of creation.^{xxiii} While this, he cautions, is not proof of God, it nevertheless corresponds with a teleological reading of natural history.^{xxiv}

Conway Morris expands upon this reading in future works. In 2008, he edited *The Deep Structures of Biology*, maintaining and expanding his stance that convergence offers a positive case for biological teleology.^{xxv} A similar argument can be found in his 2012 contribution to *The Blackwell Companion to Science and Christianity*.^{xxvi} In 2015, however, Conway Morris advances his argument to its furthest point yet in his work *The Runes of Evolution*.^{xxvii} This recent work is more apologetic than previous efforts in its attempt to undermine the “oxymoronic triumphal aridity of the ultra-Darwinists”^{xxviii} who seek to undermine the meaningfulness of the universe. Against these “dubious metaphysics” used to “meet the cultural zeitgeist,”^{xxix} *The Runes of Evolution* offers an alternative metaphysic drawn from the ubiquity of convergence.

Conway Morris calls for a “post-Darwinian” paradigm that accepts Neo-Darwinism yet incorporates the predictive element missing from the current synthesis.^{xxx} This missing element will account for the prevalence of convergent features, especially the emergence of advanced cognition within various species.^{xxxi} Mind, he argues, acts as the *telos* of the evolutionary process. *The Runes of Evolution* cites a myriad of examples, such as octopi, cetaceans, corvids, and primates, to demonstrate the common emergence of intelligence in unique environments. Conway Morris further argues that mental functions are observable in organisms as simple as mollusks, jellyfish, and even plants.^{xxxii}

Mind and intelligence, then, are much more prevalent than previously held. He writes, “Evolution is not only a search engine by which the universe becomes self-aware but also one that perceives its deep order. As importantly, if such an order is invariant, then it is hardly

surprising that the routes of discovery turn out to be strikingly convergent.”^{xxxiii} What is this deep order? A scan of an earlier section reveals it to be the “orthogonal worlds” of abstract realities such as mathematics and language.^{xxxiv} The brain, in effect, serves not to create these worlds but rather to discover them by operating as an “antenna” or “conduit.”^{xxxv} This is most obvious, he states, in the emergence of song. He cites the work of Patricia Gray to argue that even animal song demonstrates convergence, suggesting there is “a universal music awaiting discovery.”^{xxxvi} Hence, a post-Darwinian account of evolution will regard the process not as a radically contingent struggle for survival but as matter’s teleological march into the realm of mental realities. The unique receptibility of the human brain to mind allows it access to new and abstract worlds—worlds where the process of discovery has only just begun.^{xxxvii}

Convergence with Teilhard in Biological Conclusions

Over a half-century prior to the publication of *The Runes of Evolution*, the controversial figure Pierre Teilhard de Chardin arrived at nearly identical conclusions.^{xxxviii} Published posthumously in 1955, Teilhard’s seminal work *The Human Phenomenon* likewise reinterpreted evolutionary history by arguing for an empirically detectable directionality. Teilhard labeled this the “law of complexity and consciousness” and held that evolution had a “psychically convergent structure and curvature.”^{xxxix} While a maverick in his day, he presumed that future scientific discoveries would lead to the universal recognition of this directional quality to the universe.^{xl} His contemporaries, however, were less than convinced. Despite early support from Theodosius Dobzhansky and Julian Huxley, scathing reviews from prominent scientists ensured that his work was dismissed by philosophers and scientists alike as a speculative overreach of the scientific evidence.^{xli} Peter Medawar declared it “a bag of tricks,” and claimed its supporters

were guilty of an “active willingness to be deceived.”^{xlii} The famed biochemist Jacques Monod agreed, stating, “I am most of all struck by the intellectual spinelessness of this philosophy.”^{xliii} Even George Gaylord Simpson, a personal friend to Teilhard, maintained that no evidenced existed for Teilhard’s central thesis of the interconnected evolution of all things.^{xliv} These early negative reviews allowed the scientific community to dismiss the work of Teilhard as the ramblings of a religious zealot. This trend has not slowed in our day. For example, Daniel Dennett has cited Teilhard as one of the three “losers” who challenged scientific orthodoxy. He writes, “it has become clear to the point of unanimity among scientists that Teilhard offered nothing serious in the way of an alternative to orthodoxy; the ideas that were peculiarly his were confused, and the rest was just bombastic redescription of orthodoxy.”^{xlv} Dennett, like his predecessors, takes particular issue with the metaphysical and theological conclusions offered by Teilhard. Like Conway Morris after him, Teilhard’s work was deemed a religious intrusion upon the field of science.

Similarly, Teilhard also maintained that evolution was teleologically orientated toward increasing cerebralization. While not denying the element of chance, he nevertheless labeled it “directed chance.”^{xlvi} He states, “Not only does the distribution of animal forms according to their degree of cerebralization exactly follow the contours imposed by systematics; but it also confers on the tree of life a depth, a sharpness of feature, and an impetus in which it is impossible not to see the sign of truth.”^{xlvii} Hence, Teilhard foreshadows Conway Morris by positing mind as evolution’s *telos*.

Thus, mammals (especially large-brained primates) have a privileged position within the framework of Teilhard. Their advanced intellect marks them as the leading edge of evolution’s drive toward greater self-consciousness.^{xlviii} It is a point one finds additionally developed by

Conway Morris in his coining of the term “mammalness.”^{xlix} Conway Morris christens this neologism in order to denote cognitively advanced features like parental care, sociality, and speech-like properties that have emerged independently in reptilian and avian forms.¹

Furthermore, Conway Morris argues that primates are particularly primed for the emergence of advanced intelligence. This is evidenced by the independent arrival of highly developed cranial capacities in both New World and Old World monkeys.^{li} He concludes, “It is difficult to avoid the conclusion that from the moment the primates emerged, big brains were an inevitability.”^{lii}

One variation between Teilhard and Conway Morris, however, is their use of the term “convergence.” For Conway Morris, the term designates the independent evolution of analogous structures and behaviors. For Teilhard, the term signifies the unification of consciousness that occurs following the formation of the noosphere. This is a reversal from what has been seen in Conway Morris. Rather than physical convergences effecting mental complexity, physical complexities effect in mental convergence. Thus, the role of homoplasies is not as pronounced in Teilhard; nevertheless, it is not absent. David Grumett has noted that Teilhard’s paleontological expeditions in China revealed that the “range of actual evolutionary mutations was small in comparison with the number of possible ones.”^{liii} This, when paired with the rapidity of evolutionary change, “suggested to him that something more than purely random processes was at work in generating evolutionary change.”^{liv}

Moreover, Lodovico Galleni has worked extensively to reveal the role “parallel evolution” played in the formation of Teilhard’s thought. Galleni’s work demonstrates that Teilhard’s frequent use of the term “orthogenesis”^{lv} denotes the parallel emergence of similar features in distinct evolutionary lines. He writes, “[Teilhard] believes canalization of evolution means that evolution runs along parallel paths due to factors other than selection.”^{lvi}

Furthermore, these parallelisms in evolution would act as his primary empirical evidence for evolution's "moving towards."^{lvii} Galleni establishes that within Teilhard's writings orthogenesis is described as occurring at three distinct levels. The first, deemed "microorthogenesis," denotes parallelisms that emerged in recently separated evolutionary lineages. If each lineage independently continues on a similar evolutionary trajectory despite adverse selective pressures, then it would appear another mechanism outside natural selection must be invoked to explain this phenomenon. Teilhard presented this conclusion in a 1942 paper regarding the separate emergence of hypsodonty in three branches of *Siphneidae*.^{lviii} In 1949, Teilhard expanded his thesis to include the independent evolution of larger size and fused cervical vertebrae.

It is, however, the second level of "macroorthogenesis" that is "fundamental for understanding all work of Teilhard de Chardin."^{lix} Macroorthogenesis involves the independent emergence of similar traits in distinct phyletic groups.^{lx} Therefore, this second level more closely aligns with the examples of convergent evolution given by Conway Morris. Of course, the primary instance of macroorthogenesis for Teilhard is increased cerebralization. He states, "Research shows that from the lowest to the highest level of the organic world there is a persistent and clearly defined thrust of animal forms towards species with more sensitive and elaborate nervous systems."^{lxi} These two levels ground the third and highest stage of orthogenesis, appropriately named "megaorthogenesis."^{lxii} At this level, evolution is shown to have a directional quality leading toward greater complexity and consciousness. Thus, megaorthogenesis closely parallels Conway Morris's conviction of the "inevitability" of human evolution. Moreover, the overlap between the scientific conclusions of Teilhard and Conway Morris is so conspicuous, Galleni himself has recently cited Conway Morris's *The Crucible of Creation* as the latest verification of Teilhard's evolutionary thesis. Additionally, he maintains

that the work *Fitness of the Cosmos for Life*, a book coedited by Conway Morris, is “a book confirming Teilhard de Chardin [sic.] theories on evolution, but Teilhard is quoted only once.”^{lxiii}

Convergence with Teilhard in Philosophical Conclusions

The similarities between these two thinkers go beyond their scientific interpretations of evolution and into the realm of metaphysical speculation. In one brief statement in *The Runes of Evolution*, Conway Morris questions if mind acts as an “attractor” in the evolution of life.^{lxiv} This is noticeably similar to Teilhard’s concept of an Omega-point, the mental *telos* that eternally draws creation toward unification and consummation in God.^{lxv} For both scholars, then, mind is the teleological attractor in the evolution process. While Conway Morris only hints at these idealistic implications in his earlier work *The Deep Structures of Biology*,^{lxvi} by the publication of *The Runes of Evolution*, he asks the reader to imagine, “two figures ascending from opposite directions and greeting each other: Plato and Darwin embrace.”^{lxvii} Teilhard’s metaphysical views were also deeply impacted by Platonic thought. There was, he asserted, a bondedness between spirit to matter.^{lxviii} Spirit enables matter to ascend into consciousness while matter provides for spirit the possibility to act and receive sustenance.^{lxix} Like Conway Morris, Teilhard acknowledges that his project was an attempt to wed idealism (what he calls “spiritualism”) with materialism.^{lxx} This synthesis was, for both authors, the only satisfactory method of dealing with the phenomenon of consciousness. Teilhard even begins his seminal work by posturing it as a work of pure science, despite its treatment of traditionally metaphysical issues.^{lxxi} Science, he contends, must begin with the phenomenon of consciousness rather than end with it.^{lxxii} Conway Morris echoes this, scolding his fellow scientists for their collective disregard for the phenomenon of mental states.^{lxxiii}

If evolution, then, acts to wed mind to matter, how far down the biological scale do mental qualities exist? In other words, at what point in the evolution of life did it first receive mind? For Teilhard, the answer lies even below the biological level. Since reality is “bifacial,” every element of physical reality, even fundamental particles, possesses an “inside,” or spiritual aspect.^{lxxiv} This is not to claim that Teilhard believed atoms and molecules are “conscious” in any real sense but rather that every aspect of physical reality is imbued with the elements of mind. Conway Morris is reticent to make a similarly bold claim; however, he is more optimistic when the question is restricted to biological organisms.^{lxxv} For instance, while questioning whether plants have a form of perception and intelligence, he argues, “Nervous systems (and quite possibly non-nervous analogues such as we see in hunting ciliates) on this planet point to deep-seated commonalities that hint at how mental processes, and by further implication mind, must be universal.”^{lxxvi} Additionally, in *The Deep Structures of Biology*, he questions if bees and wasps possess the capacity for dreams and self-identity.^{lxxvii} Even at the bacterial level, Conway Morris argues that organisms possess photo-sensitivity which is, at the very least, the precursor to conscious experience.^{lxxviii} He states, “It is not my intention to suggest that bacteria ‘experience’ such qualia, but to indicate that the inherency of this property lies close to the roots of all life.”^{lxxix} The chain extends no further for Conway Morris, however, as he restricts himself from metaphysical speculations below this level of complexity. Nevertheless, there is a remarkable degree of congruity between these thinkers in their optimistic extension of consciousness to lower levels of reality.

Because of this, one might be tempted to label both thinkers under the umbrella of pansychism; however, this would be mistaken in each case. While Conway Morris has seriously entertained the position, he ultimately denies it for its lack of explanatory power.^{lxxx} Teilhard is

more easily interpreted as a panpsychist, and his statement, “There is neither spirit nor matter in the world; the ‘stuff of the universe’ is spirit-matter,”^{lxxxii} has persuaded some of this assessment. For instance, David Skrbina, in his extensive survey of western panpsychism, argues, “There was perhaps no more visionary and exuberant panpsychist philosopher than Pierre Teilhard de Chardin.”^{lxxxiii} However, Teilhard scholar David Grumett has resisted this classification of the priest, claiming that statements that seem to suggest a panpsychist leaning are fairly exceptional and should be regarded as hyperbole. Instead, he suggests that Teilhard should be read as offering a Chalcedonian view of “dynamic contact.” He states, “It is in this sense that the relation between matter and spirit should be understood: *fusion* rather than *confusion*.”^{lxxxiii} Spirit enlivens and animates matter, but it is not to be identified with it.

Therefore, both authors resist the conflation of mind and matter. Conway Morris’s “antenna” perspective, whereby the brain acts as a receptacle for the mental world, is neither a monistic panpsychism nor a sharp dualism.^{lxxxiv} Rather, his work is best understood as an attempted retrieval of Platonic philosophy.^{lxxxv} Evolution was merely a mechanism for the universe to discover these orthogonal worlds of “infinite potentiality”^{lxxxvi} wherein the process of human discovery has only begun.^{lxxxvii} Teilhard similarly gives ontological supremacy to mind yet binds it intimately to the transformation of the physical universe.^{lxxxviii} An example of this can be found in the work *Science and Christ* when he argues, “In the light of pure reason, nothing in the universe is intelligible, living, and consistent except through an element of synthesis, in other words a spirit, or from on high.”^{lxxxix} Thus, the emergence of self-conscious mind inaugurated a novel form of evolution. The arrival of the noosphere initiated the advent of technological conceptual creativity. Evolution must now be understood as operating primarily at this mental level of human progress. Hence, the “artificial, moral, and juridical” are merely the

mental equivalent to the “natural, physical, and organic.”^{xc} In humanity alone, biological evolution is significantly replaced by psychological and technological evolution.

Thus, in both their biological and metaphysical conclusions, there is little divergence between the thought of Conway Morris and Teilhard. Outside of Teilhard’s “bifacial” perspective on matter, the primary differences in their work is merely one of emphasis rather than actual disagreement. While this overlap is remarkable, one could still theoretically maintain that this unity in their respective thought is merely coincidental. Obviously, similarities in thought do not, by themselves, conclusively establish intellectual contact between two scholars. It is at least possible Conway Morris simply arrived at his conclusions independently. What is additionally needed to secure this conclusion is evidence demonstrating Conway Morris’s interaction with Teilhard de Chardin. Prior to his theological turn, evidence of any interaction is absent, yet after the publication of *The Crucible of Creation*, not only does Conway Morris shift into theological and metaphysical speculation, his work simultaneously begins to reveal a knowledge of Teilhardian thought.

Documented Interaction with Teilhard de Chardin

The earliest indication of Conway Morris’s familiarity with Teilhard appears in a review of Robert Wright’s *Nonzero* published in January 2000, just prior to his theological turn.^{xci} Wright’s work draws explicitly from the thought of Teilhard de Chardin to argue for the common, utopic destiny of humanity. Conway Morris praises Wright’s insistence that cultural convergences reveal a common goal for humanity. While not explicitly stated by Conway Morris himself, it is a conclusion that would merely extend Conway Morris’s biological thesis to a sociological level.

Conway Morris is not wholly complimentary, however. He writes, “Repeatedly [Wright] teeters on the edge of acknowledging a religious dimension, but each time backs away.”^{xcii} What is this religious dimension? He later clarifies:

So what is our destiny? Wright is right about so many things: evolution is seeded with inevitabilities, cultures have common trajectories and human history has seen great hopes and terrible crimes but is capable of achieving a final destiny. . . . To imagine that human destiny is entirely mundane may be one of the most peculiar errors of the moderns. Throughout ‘Nonzero’ stalks the ghost of Teilhard de Chardin, but were this gentle and intelligent Jesuit to have seen this book, I think his face might have darkened.^{xciii}

Thus, Conway Morris criticizes Wright not for emulating Teilhard de Chardin too much but, rather, too little. Wright’s book lacked the religious element that had allowed Teilhard to perceive human destiny beyond the merely “mundane.” Moreover, his final statement reveals that, by early 2000, Conway Morris was well enough acquainted with Teilhard to not only offer a defense of his legacy but also demonstrate a level of admiration for his intellectual predecessor.

Conway Morris’s critique of unchecked progress reappears three years later in the final chapter of *Life’s Solution*.^{xciv} While not explicitly mentioned, a covert reference to Teilhard is present. Near the beginning of the chapter, Conway Morris poses a thought experiment to illustrate the dangers of science unconstrained by theology and morality. He asks his reader to imagine the invention of a gene-modification process that would end world hunger.

Unfortunately, its usage would simultaneously cause a remarkable increase in childhood cancer. He writes, “Of course, the gene is patented, and in strictest confidence I can reveal to you alone that the biotech company, OmegaPoint, has the product ready for immediate marketing.”^{xcv} The company’s name, OmegaPoint, is a clear reference to Teilhard’s Omega-point theology.

However, it is difficult to interpret the aim of this reference. While within the thought experiment itself, gene manipulation is critiqued, the overall context appears to warrant a more positive interpretation of his Teilhardian allusion. Conway Morris’s thought experiment is not a

critique of human progress *in toto* but only human progress unchecked by theological and moral guidance. Scientific advances achieved in this spirit are merely an attempt at an unbridled control of nature. A reading of the entire chapter makes this evident. For instance, he states, “At present it is the natural world, which according to some, should be treated as a sort of genetic play-dough. Now vanished is the notion that the world we have been given might have its own integrity and values. Rather the prevailing view of scientism is that the biosphere is infinitely malleable.”^{xcvi} It is noteworthy here that Conway Morris isolates scientism as the object of attack. Therefore, it seems safer to understand Conway Morris’s reference as an expansion of his prior critique of Wright—namely, of a Teilhardian progressivist narrative understood outside of its religious parameters. This interpretation would better correspond with the rest of the chapter’s defense of humanity’s teleological orientation^{xcvii} and of constructive approaches between evolutionary science and theology—two features that, while central to the writings of Teilhard himself, are often neglected by his secular followers.^{xcviii}

While these two works, written prior to and during Conway Morris’s theological turn, might be enough to establish both a familiarity with and admiration for Teilhardian thought, one could add further circumstantial evidence from his later works. For instance, his 2008 edited collection *The Deep Structures of Biology* concludes with two contributions from theologians Celia Deane-Drummond and John Haught. Not only are both authors Teilhard scholars,^{xcix} Christopher Southgate has isolated their work as being particularly impacted by Teilhardian thought.^c It is unsurprising, then, to discover Teilhard referenced in each chapter.^{ci} Notably, John Haught closes Conway Morris’s work with an extensive tribute to Teilhard’s efforts to incorporate mind into his scientific picture of reality. He asserts, “The underlying experimental spirit of science, as Teilhard himself suggests, should permit thought to transcend the narrower

empiricism of scientific method so as to take into account all the data of our experience.”^{cii} Here and throughout his chapter, Haught cites the work of Teilhard to defend the thesis of Conway Morris’s book.

Conway Morris’s latest work, *The Runes of Evolution*, conclusively demonstrates interaction with Teilhard. Buried within over 150 pages of endnotes lies a single direct reference to Teilhard who is enigmatically referred to as the “cosmic paleontologist.”^{ciii} It cites a 1936 paper by Teilhard on his work in northern China which revealed remarkable levels of convergence in horse evolution. This citation discloses two facts. First, by 2015, Conway Morris has had direct contact with Teilhard’s work (even, it seems, certain obscure, scientific texts such as the one referenced). Prior references and allusions could not decisively determine this fact but only lend strong credence to it. Second, Conway Morris is aware of Teilhard’s work with fossilized convergences, work that would ultimately lead Teilhard to his “cosmic” conclusions.^{civ}

Finally, Conway Morris confirmed his support for Teilhard de Chardin at multiple conferences sponsored by the British Teilhard Network. He has appeared as a noted speaker at least twice—once in 2007 and again in 2016.^{cv} His second talk occurred at the conference “The Theology of Evolution — Convergent, Contingent or Directed?” and was, according to organizer David Grumett, “highly sympathetic” to Teilhard de Chardin.^{cvi}

Conclusion

While, individually, these points might be dismissed, they collectively provide a powerful case for Conway Morris’s interaction with Teilhardian thought. This argument is strongly evidenced by the timing of Conway Morris’s theological turn, his written interaction with Teilhard, and the overwhelming convergence in their scientific, theological, and metaphysical

conclusion. How direct, conscious, and early this influence occurred cannot be determined from this evidence. However, one could speculate that it is Teilhard's previously noted scientific disrepute which has contributed to Conway Morris's cautious appropriation of him. In any case, if we are to take Conway Morris's central thesis seriously—namely, that a ubiquity of convergence is not coincidental but instead hints at a deeper reality—then we must consistently conclude that the thought of Teilhard de Chardin has impacted the intellectual development of Simon Conway Morris. If this is the case, it might demand a greater inclusion of Teilhard's thought into the modern conversation regarding biological teleology and convergences. Outside of the work of David Grumett, the late priest's thoughts on natural theology and a teleological perspective on cosmic evolution is largely dismissed for being as archaic as the thought of Henri Bergson or the vitalists of his era. If, however, Conway Morris provides merely an updated adaptation of Teilhard's primary conclusions, the modern theological and biological conversation would be imprudent to continue to neglect the work of this gentle and intelligent Jesuit.

ⁱ Simon Conway Morris, "Creation and Evolutionary Convergence," in *The Blackwell Companion to Science and Christianity*, ed. J. B. Stump and Alan G. Padgett (Oxford: Wiley-Blackwell, 2012), 260.

ⁱⁱ Pierre Teilhard de Chardin, *The Human Phenomenon*, trans. Sarah Appleton-Weber (Brighton: Sussex Academic, 1999), 117.

ⁱⁱⁱ John Templeton Foundation. "The Meaning of Convergence." <https://www.templeton.org/internal-competiton-fund/the-meanings-of-convergence>.

^{iv} Ibid.

^v There are, of course, exceptions to this rule. See, for example, Francisco Ayala, "Teleological Explanations in Evolutionary Biology." *Philosophy of Science* 20:1 (1970).

^{vi} Simon Conway Morris, "It all adds up.... Or does it? Numbers, mathematics, and purpose," *Studies in History and Philosophy of Biological and Biomedical Sciences* 58 (2016), 117.

^{vii} See Steve Fuller, "Beyond Naturalism to Science," in *The Nature of Nature: Examining the Role of Naturalism in Science*, ed. Bruce L. Gordon and William A. Dembski (Wilmington, DE: ISI Books, 2010), xvi.

^{viii} Stephen Jay Gould, *Wonderful Life: The Burgess Shale and the Nature of History* (New York: W. W. Norton & Company Inc., 1989).

^{ix} Ibid, 15.

^x Ibid, 100.

^{xi} Ibid, 84.

^{xii} Ibid, 14.

^{xiii} Ibid, 144.

-
- xiv Simon Conway Morris, "The Middle Cambrian metazoan *Wiwaxia corrugata* (Matthew) from the Burgess Shale and Ogygopsis Shale, British Columbia, Canada," *Philosophical Transactions of the Royal Society of London B* 307 (1985): 572.
- xv Simon Conway Morris, *The Crucible of Creation: The Burgess Shale and the Rise of Animals* (Oxford: Oxford University, 1998).
- xvi *Ibid.*, vii.
- xvii Richard Fortey, "Shock Lobsters: Review of *The Crucible of Creation: The Burgess Shale and the Rise of Animals* by Simon Conway Morris," *London Review of Books* 20:19 (Oct. 1998): 24.
- xviii Conway Morris, *Crucible*, 14.
- xix *Ibid.*
- xx Perhaps the one exception is a brief comment on sensory systems transcending physics in Simon Conway Morris, *The Runes of Evolution: How the Universe Became Self-Aware* (West Conshohocken, PA: Templeton, 2015), 296.
- xxi Simon Conway Morris, *Life's Solution: Inevitable Humans in a Lonely Universe* (Cambridge: Cambridge University, 2003).
- xxii Rob Hengeveld, "Review of *Life's Solution: Inevitable Humans in a Lonely Universe*," *Acta Biotheoretica* 52:3: 223.
- xxiii *Ibid.*, 329.
- xxiv Conway Morris, *Life's*, 329-330.
- xxv Simon Conway Morris, ed., *The Deep Structures of Biology: Is Convergence Sufficiently Ubiquitous to Give a Directional Signal?* (West Conshohocken, PA: Templeton, 2008).
- xxvi Conway Morris, "Creation and Evolutionary Convergence."
- xxvii Conway Morris, *Runes*.
- xxviii *Ibid.*, 43.
- xxix *Ibid.*, 22.
- xxx *Ibid.*, 24 and 299.
- xxxi *Ibid.*, 7.
- xxxii *Ibid.*, 286ff.
- xxxiii *Ibid.*, 264.
- xxxiv *Ibid.*, 8.
- xxxv *Ibid.*, 8 and 296.
- xxxvi *Ibid.*, 295.
- xxxvii *Ibid.*
- xxxviii Other works that have briefly noted the similarity in these two thinkers include George R. McGhee, *Convergent Evolution: Limited Forms Most Beautiful* (Cambridge, MA: MIT, 2011) 270, and Neil Spurway, "Taking Darwin Seriously," paper presented at Scottish Church Theology Society on 14 January 2016, https://research-repository.st-andrews.ac.uk/bitstream/handle/10023/10956/Spurway_2016_TiS_23-1_CCBYNC.pdf?sequence=1&isAllowed=y.
- xxxix Teilhard de Chardin, *The Human*, 28.
- xl *Ibid.*, 92.
- xli John F. Haught, "Review of *The Human Phenomenon*," *Theology and Science* 7:4 (2009): 422; George Gaylord Simpson, "The Divine Non Sequitur," In *Teilhard de Chardin: In the Quest of the Perfection of Man* (Madison, WI: Fairleigh Dickinson University, 1973).
- xlii P. B. Medawar, "Critical Notice: A review of *The Phenomenon of Man*," *Mind* 70:99-106 (1961): 106.
- xliii Jacques Monod, *Chance and Necessity: An Essay on the Natural Philosophy of Modern Biology*, trans. Austryn Wainhouse (New York: Alfred A. Knopf), 32.
- xliv George Gaylord Simpson, "The Divine Non Sequitur," in *Teilhard de Chardin: In The Quest of the Perfection of Man* (Madison, WI: Fairleigh Dickinson University, 1973).
- xlv Daniel C. Dennett, *Darwin's Dangerous Idea: Evolution and the Meanings of Life* (London: Penguin Books, 1995), 320.
- xlvi Teilhard de Chardin, *The Human*, 66; cf. Conway Morris, *Deep Structures*, 50.
- xlvii Teilhard de Chardin, *The Human*, 94.
- xlviii *Ibid.*, 101-2.
- xlix Conway Morris, *Deep Structures*, 50; Conway Morris, *Runes*, 57ff.
- ¹ *Ibid.*, 57.
- ^{li} *Ibid.*, 257.
- ^{lii} *Ibid.*, 258.

-
- liii David Grumett, "Teilhard de Chardin's Evolutionary Natural Theology." *Zygon* 42:2 (June 2007): 526.
- liv Ibid. Teilhard may have also had homoplasies in mind when he spoke of the development of "pseudoproboscideans, pseudorodents, pseudohorses, and pseudomonkeys" on the American continent in *Human*, 79.
- lv For example, Teilhard de Chardin states, "Here and elsewhere in this work, I take this much discussed term 'orthogenesis' (a term with which it is as impossible to dispense as with the equally ambiguous work 'evolution') in its etymological sense of oriented development, a purely 'vectorial' quality (without which one could not speak of trends or phyla) which does not in itself convey any idea either of monophyletism, or (at least at the beginning) of finality" (1956, 215).
- lvi Lodovico Galleni, "How Does the Teilhardian Vision of Evolution Compare with Contemporary Theories?" *Zygon* 30:1 (March 1995): 36.
- lvii Lodovico Galleni, "Teilhard de Chardin and the Latin School of Evolution: Complexity, Moving towards and Equilibriums of Nature." *Pensamiento. Revista de Investigación e Información Filosófica* 67 (2013): 691.
- lviii Pierre Teilhard de Chardin and Pierre Leroy. "New Rodents of the Pliocene and Lower Pleistocene of North China." *Publications de l'Institut de Geobiologie* 9 (1942):1-101, 3635-3746.
- lix Lodovico Galleni, "Relationships Between Scientific Analysis and the World View of Pierre Teilhard de Chardin." *Zygon* 27:2 (June 1992): 161.
- lx Teilhard places an exception on human evolution, however, which he argues to have developed monophyletically. See David Grumett, "Teilhard, the Six Propositions, and Human Origins: A Response." *Zygon* 54:4 (Dec. 2019): 959-61.
- lxi Pierre Teilhard de Chardin, *Let Me Explain*, trans. Rene Hague and others (New York: Harper & Row), 30.
- lxii Galleni, "Relationships," 162.
- lxiii Galleni, "Latin School," 704.
- lxiv Conway Morris, *Runes*, 260.
- lxv Teilhard de Chardin, *The Human*, bk. 4.
- lxvi Conway Morris, *Deep Structures*, 62, "If evolution is effectively the motor whereby the deeper realities of the universe may be uncovered, then it might be that an idealistic program can help to expel the corrosive relativism that attempts to etch our framework of meaning."
- lxvii Conway Morris, *Runes*, 297.
- lxviii David Grumett, *Teilhard de Chardin: Theology, Humanity and Cosmos* (Leuven: Peeters, 2005), 32-3.
- lxix Ibid.
- lxx Teilhard de Chardin, *Human*, 22.
- lxxi Ibid, 1.
- lxxii Brian Hebblethwaite, *The Ocean of Truth* (Cambridge: Cambridge University, 1998), 58.
- lxxiii Conway Morris, *Runes*, 295.
- lxxiv Teilhard de Chardin, *Human*, 24.
- lxxv Simon Conway Morris, "What Is Written into Creation?" in *Creation and the God of Abraham*, ed. David B. Burrell, Carlo Cogliati, Janet M. Soskice, and William R. Stoeger (Cambridge: Cambridge University, 2010), 187, "Nervous systems (and quite possibly non-nervous analogues such as we see in hunting ciliates) on this planet point to deep-seated commonalities that hint at how mental processes, and by further implication mind, must be universal."
- lxxvi Conway Morris, "What is Written," 187.
- lxxvii Conway Morris, *Deep Structures*, 59.
- lxxviii Conway Morris, "What is Written," 186.
- lxxix Ibid, 186.
- lxxx Ibid, 188.
- lxxxi Pierre Teilhard de Chardin, qtd. in David Grumett, *Teilhard de Chardin*, 35.
- lxxxii David Skrbina, *Panpsychism in the West* (Cambridge, MA: MIT, 2005), 182.
- lxxxiii Ibid. Emphasis in original.
- lxxxiv Conway Morris, "Creation," 256, "There seems no *a priori* reason why mind should emerge from matter. The solution (if that is the word) is to postulate that mind is identifiably different. This need not lead to dualism." Cf.
- lxxxv Simon Conway Morris, Personal Interview, 5 December 2018.
- lxxxvi Conway Morris, *Runes*, 8.
- lxxxvii Ibid, 300.

^{lxxxviii} Pierre Teilhard de Chardin, *Science and Christ*, trans. Rene Hague (London: Collins, 1966), 57, “In the light of pure reason, nothing in the universe is intelligible, living, and consistent except through an element of synthesis, in other words a spirit, or from on high.”

^{lxxxix} Pierre Teilhard de Chardin, *Science and Christ*, Trans. Rene Hague (London: Collins, 1966), 57.

^{xc} Teilhard de Chardin, *The Human*, 155.

^{xc i} Simon Conway Morris, “Where Are We Headed?” Review of *Nonzero* by Robert Wright. *New York Times*. January 30, 2000, <http://movies2.nytimes.com/books/00/01/30/reviews/000130.30conwayt.html>.

^{xc ii} *Ibid.*

^{xc iii} *Ibid.*

^{xc iv} Interestingly, in Teilhard de Chardin, *The Human*, 82, Teilhard refers to shared evolutionary outcomes among various animal species as “life’s solutions.” Whether this phrase had any impact on the choice of title for Conway Morris’s book, however, is purely conjectural. See also David Grumett’s discussion in “Cult books revisited: Pierre Teilhard de Chardin’s *The Phenomenon of Man*.” *Theology* 122:6 (2019), 408.

^{xc v} Conway Morris, *Life’s*, 311.

^{xc vi} *Ibid.*, 325.

^{xc vii} *Ibid.*, 313, “The fact remains that humans have an overwhelming sense of purpose. As a species we are strangely comfortable to find ourselves embedded in a teleological matrix.”

^{xc viii} Further discussion of the essentiality of Teilhard’s Christian faith to his progressivist vision can be found in Grumett, “Cult books,” 410-11. Because Teilhard’s works were published posthumously, Grumett argues, Teilhard’s works were susceptible to misinterpretation, resulting in its greater impact outside the Church rather than within it.

^{xc ix} See, for instance, Celia Deane-Drummond, *Pierre Teilhard de Chardin on People and Planet*, (London: Equinox, 2006); John Haught, “In Search of a God for Evolution: Paul Tillich and Pierre Teilhard de Chardin,” *Zygon* 37:3 (Sept. 2002): 539-554.

^c Christopher Southgate, *The Groaning of Creation: God, Evolution, and the Problem of Evil* (Louisville: Westminster John Knox, 2008), 27.

^{ci} Celia Deane-Drummond, “Plumbing the Depth: A Recovery of Natural Law and Natural Wisdom in the Context of Debates about Evolutionary Purpose,” in *The Deep Structures of Biology: Is Convergence Sufficiently Ubiquitous to Give a Directional Signal?* Ed. Simon Conway Morris (West Conshohocken, PA: Templeton, 2008); John F. Haught, “Purpose in Nature: On the Possibility of a Theology of Evolution,” in *The Deep Structures of Biology: Is Convergence Sufficiently Ubiquitous to Give a Directional Signal?* Ed. Simon Conway Morris (West Conshohocken, PA: Templeton, 2008).

^{cii} Haught, “Purpose in Nature,” 227.

^{ciii} Conway Morris, *Runes*, 435.

^{civ} Galleni, “Teilhardian Vision,” 43, “At this point I emphasize that hypsodontia is one of the most evident characteristics Teilhard used to exemplify his concept of orthogenesis as parallel emergence of characteristics.” Notably, Conway Morris himself uses the convergence of hypsodontia for a similar argument. See Conway Morris, *Runes*, 57.

^{cv} Southgate, *Groaning*, 27; “The Theology of Evolution — Convergent, Contingent or Directed?” *British Teilhard Network*. <https://www.teilhard.org.uk/past-events/theology-evolution-convergent-contingent-directed/>.

^{cvi} David Grumett. Personal email. Received 21 January 2019. Unfortunately, since no audio exists of this particular lecture, I have had to rely on personal testimony from the conference’s organizer.