p.1	**Gaia hypothesis** The Gaia hypothesis, also known as the Gaia theory or the Gaia principle, proposes that living organisms interact with their inorganic surroundings on Earth to form a synergistic and self regulating, complex system that helps to maintain and perpetuate the conditions for life on the planet.	The statement appearing in the paragraph at the left is reasonable and seems to be persuasive. If you had portrayed these ideas in analytical and abstract terms, without any aspect that might have amounted to personification or symbolism from pagan perspectives, I would not have reacted so adversely — even though at some point I would have expressed regrets at the lack of any reference to the divine plan or God's creative intent.
p.1	The hypothesis was formulated by the chemist James Lovelock and co-developed by the microbiologist Lynn Margulis in the 1970s. **Lovelock named the idea after Gaia, the primordial goddess who personified the Earth in Greek mythology.** In 2006, the Geological Society of London awarded Lovelock the Wollaston Medal in part for his work on the Gaia hypothesis. *[emphasis added]*	This choice of a name, along with everything it implies and symbolizes, is a major concern of mine. For additional factors that serve to illuminate this issue, please see the excerpt from pages 7 and 8 that I have reproduced below.
p. 1	Topics related to the hypothesis include how the biosphere and the evolution of organisms affect the stability of global temperature, salinity of seawater, atmospheric oxygen levels, the maintenance of a hydrosphere of liquid water and other environmental variables that affect the habitability of Earth.	I do not have any scientific background or insight that would enable me to comment on these apparent interactions, but they seem to be persuasive. Further, I see no philosophic or spiritual reason to object to any such views along these lines.

p. 2	Gaian hypotheses suggest that organisms co-evolve with their environment: that is, they "influence their abiotic environment, and that environment in turn influences the biota by Darwinian process." Lovelock (1995) gave evidence of this in his second book, showing the evolution from the world of the early thermo-acido-philic and methanogenic bacteria towards the oxygen-enriched atmosphere today that supports more complex life.	Ditto.
p. 3	Less accepted versions of the hypothesis claim that changes in the biosphere are brought about through the coordination of living organisms and maintain those conditions through homeostasis. **In some versions of Gaia philosophy, all lifeforms are considered part of one single living planetary being called *Gaia*.** In this view, the atmosphere, the seas and the terrestrial crust would be results of interventions carried out by Gaia through the coevolving diversity of living organisms. *[emphasis added]*	From an analytical perspective, this is the aspect that concerns me the most. I emphatically reject the idea that our planet Urantia is itself alive or, as a material object, otherwise contributes to the consciousness of some living entity. On the other hand, it seems very reasonable to me to postulate that living entities *on Urantia* interact with and affect the material environment that surrounds them (*i.e.*, matter present on our planet that, in contrast, is not itself alive).
p. 4	**Daisyworld simulations** In response to the criticism that the Gaia hypothesis seemingly required unrealistic group selection and cooperation between organisms, James Lovelock and Andrew Watson developed a mathematical model, Daisyworld, in which ecological competition underpinned planetary temperature regulation.	The more detailed explanation provided in the Wikipedia article is very useful, for it enables me to understand that the term "Daisyworld" does not refer to the living environment of Donald Duck's girlfriend.

pp. 7-8	**Precedents** The idea of the Earth as an integrated whole, a living being, has a long tradition. **The mythical Gaia was the primal Greek goddess personifying the Earth, the Greek version of "Mother Nature" (from Ge = Earth, and Aia = PIE grandmother), or the Earth Mother.** James Lovelock gave this name to his hypothesis after a suggestion from the novelist William Golding, who was living in the same village as Lovelock at the time (Bowerchalke, Wiltshire, UK). Golding's advice was based on Gea, an alternative spelling for the name of the Greek goddess, which is used as prefix in geology, geophysics and geochemistry. Golding later made reference to Gaia in his Nobel prize acceptance speech. *[emphasis added]*	In effect, this paragraph elaborates on the general principle contained on page 1 of the Wikipedia article (the description I cited above), while making the "Earth Mother" overtones more obvious and more explicit.
p. 9	In 1971 microbiologist Dr. Lynn Margulis joined Lovelock in the effort of fleshing out the initial hypothesis into scientifically proven concepts, contributing her knowledge about how microbes affect the atmosphere and the different layers in the surface of the planet. The American biologist had also awakened criticism from the scientific community with her theory on the origin of eukaryotic organelles and her contributions to the endosymbiotic theory, nowadays accepted. Margulis dedicated the last of eight chapters in her book, *The Symbiotic Planet*, to Gaia. However, **she objected to the widespread personification of Gaia and stressed that Gaia is "not an organism," but "an emergent property of interaction among organisms."** She defined Gaia as "the series of interacting ecosystems that compose a single huge ecosystem at the Earth's surface. Period." The book's most memorable "slogan" was actually quipped by a student of Margulis': "Gaia is just symbiosis as seen from space." *[emphasis added]*	The verdict of Dr. Lynn Margulis ought to be decisive, whether or not you found my previous remarks persuasive.

pp. 10-11	**Second Gaia conference** In 1988, climatologist Stephen Schneider organised a conference of the American Geophysical Union. The first Chapman Conference on Gaia was held in San Diego, California on March 7,1988. ... Lovelock was careful to present a version of the Gaia hypothesis that had no claim that Gaia intentionally or consciously maintained the complex balance in her environment that life needed to survive. **It would appear that the claim that Gaia acts "intentionally" was a metaphoric statement in his popular initial book and was not meant to be taken literally.** This new statement of the Gaia hypothesis was more acceptable to the scientific community. Most accusations of teleologism ceased, following this conference. *[emphasis added]*	Readers of scientific works do not expect metaphoric statements. To the contrary, they expect facts and analysis that deserve to be taken literally. By departing from these expectations, Lovelock implicitly fostered the conceptual and symbolic illusions that appear to have misled you.
pp. 12-13	**Criticism** After initially being largely ignored by most scientists (from 1969 until 1977), thereafter for a period the initial Gaia hypothesis was criticized by a number of scientists, such as Ford Doolittle, Richard Dawkins and Stephen Jay Gould. **Lovelock has said that because his hypothesis is named after a Greek goddess, and championed by many non-scientists, the Gaia hypothesis was interpreted as a neo-Pagan religion.** Many scientists in particular also criticised the approach taken in his popular book *Gaia, a New Look at Life on Earth* for being teleological — a belief that things are purposeful and aimed towards a goal. Responding to this critique in 1990, Lovelock stated, "Nowhere in our writings do we express the idea that planetary self-regulation is purposeful, or involves foresight or planning by the biota." *[emphasis added]*	If James Lovelock did not want his theory interpreted as a neo-pagan religion, he should not have named it after a Greek goddess.

p. 14	In a recent book-length evaluation of the Gaia hypothesis considering modern evidence from across the various relevant disciplines the author, Toby Tyrrell, concluded that: "I believe Gaia is a dead end. Its study has, however, generated many new and thought provoking questions. While rejecting Gaia, we can at the same time appreciate Lovelock's originality and breadth of vision, and recognise that his audacious concept has helped to stimulate many new ideas about the Earth, and to champion a holistic approach to studying it." Elsewhere he presents his conclusion "The Gaia hypothesis is not an accurate picture of how our world works." This statement needs to be understood as referring to the "strong" and "moderate" forms of Gaia — that the biota obeys a principle that works to make Earth optimal (strength 5) or favourable for life (strength 4) or that it works as a homeostatic mechanism (strength 3). The latter is the "weakest" form of Gaia that Lovelock has advocated. Tyrrell rejects it. However, he finds that the two weaker forms of Gaia —Coevolutionary Gaia and Influential Gaia, which assert that there are close links between the evolution of life and the environment and that biology affects the physical and chemical environment — are both credible, but that it is not useful to use the term "Gaia" in this sense.	Although there is no real need for me to comment on this analysis by the author Toby Tyrell, it seems to be persuasive.

Comments and concerns

On balance, I find it difficult to set aside and disregard the fact that examination of these specific scientific matters has been occurring from an explicitly atheistic perspective, the "revolt against God himself" that the Midwayer Commission deplores in section 8 of Paper 195 *[the Midwayer Commission, 195:8.6]*. Although there are huge swaths of science that do not trouble me at all (*e.g.,* aerodynamics, astrophysics, oceanology, optics, plant pathology, genetics), certain environmental matters are quite problematic, perhaps because they seem to verge on ancient superstitions associated with nature worship. For example:

> Ararat became their sacred mountain, having much the same meaning to later-day Vanites that Sinai had to the Hebrews. *[An Archangel of Nebadon, 860:6 / 77:4.11]*

> Ideas about tree spirits varied greatly among different tribes and races. Some trees were indwelt by kindly spirits; others harbored the deceptive and cruel. The Finns believed that most trees were occupied by kind spirits. The Swiss long mistrusted the trees, believing they contained tricky spirits. The inhabitants of India and eastern Russia regard the tree spirits as being cruel. The Patagonians still worship trees, as did the early Semites. *[A Brilliant Evening Star, 945:7 / 85:2.4]*

> The worship of rocks, hills, trees, and animals naturally developed up through fearful veneration of the elements to the deification of the sun, moon, and stars. *[A Brilliant Evening Star, 947:4 / 85:5.1]*

With all this in mind, I hasten to assure you that factors pertaining to long-term weather patterns and/or climate change do not arouse such sensitivities for me. On the other hand, I find theories pertaining to the nature, character, and behavior of the earth to be rather problematic, especially if they involve the planet as a whole and appear to have at least a tangential relationship to nature worship. The scientific theory that proponents have called the Gaia hypothesis fulfills both criteria, and it has the additional disadvantage of evoking pagan mythology. Further, I find it highly unfortunate that "Earth Mother" overtones *also* seem to have contributed to traditional veneration for the person whom many Christians call "the Virgin Mary."*

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* As an example of how this implicitly superstitious veneration applies in practice, let us examine a paradoxical artifact of contemporary culture in North America, the colloquial phrase "a Hail Mary pass." This resonant association of common words appears to imply that Mary, the mother of Jesus — a former human being presumably located on and operating from some unspecified location on the mansion worlds — is able to influence the trajectory of an inflated oblate spheroid wafted into the air during some athletic competition involving two cohorts of well-nourished beefcake who are colliding upon and cavorting across a manicured expanse of grass!

Let us now turn to the immediate context that we are implicitly dealing with, the content and implications of our extended discussion on the evening of Wednesday the 11th. In part, you pointed out that in the early 1970s, when the chemist James Lovelock wrote about and published scientific theories of his that he referred to as "Gaia," the atheistic overtones of his profession (and of contemporary scientific discourse in general) made it impossible for him to refer to God, the divine plan, or creative intent, even if he had wished to do so. For clarity I should specify that I am not aware of any information suggesting that he had any such inclination; but your point relates to the outer limits of what was possible for him at the time according to the accepted canons of his profession, and I accept it. This, however, does not oblige us to embrace or commend the atheistic approach he pursued, and the fact that he promoted his theories by associating them with the name of a Greek goddess is at least a distraction that creates neo-pagan overtones. Nonetheless, it is reasonable for us as committed readers of *The Urantia Book* to sympathize with Lovelock *as a scientist,* especially in view of explicit remarks that the Midwayer Commission addresses to us in section 6 of Paper 195:

> No matter what the apparent conflict between materialism and the teachings of Jesus may be, you can rest assured that, in the ages to come, the teachings of the Master will fully triumph. In reality, true religion cannot become involved in any controversy with science; it is in no way concerned with material things. Religion is simply indifferent to, but sympathetic with, science, while it supremely concerns itself with the *scientist*. *[The Midwayer Commission, 2076:7 / 195:6.2]*

From this perspective, it appears to be fully appropriate to appraise Lovelock's actions in terms of the ethics of science. In retrospect, it now seems quite clear that he had no scientific evidence that would tend to support the view that the earth is itself a living entity, as opposed to a location and context in which living entities interact with the material environment. Nonetheless, the initial version of his hypothesis seems to have left the implication that the earth is alive. In contrast, the Wikipedia article states that during a conference held in March 1988:

> Lovelock was careful to present a version of the Gaia hypothesis that had no claim that Gaia intentionally or consciously maintained the complex balance in her environment that life needed to survive. It would appear that the claim that Gaia acts "intentionally" was a metaphoric statement in his popular initial book and was not meant to be taken literally. *(page 11 of the Wikipedia article)*

From my perspective, I see nothing in the traditions and ethics of science that permits a scientist to include one or more metaphoric statements when he or she is announcing and promoting a scientific theory. To me, at least, metaphors make well accepted contributions to literature and perhaps to philosophy, but are inappropriate and out of place in any scientific thesis. Further, it is highly significant that Lovelock's intellectual partner Dr. Lynn

Margulis, a microbiologist, explicitly took issue with "the widespread personification of Gaia." To the contrary, she "stressed that Gaia is 'not an organism,' but 'an emergent property of interaction among organisms'" *(page 9 of the Wikipedia article)*.

If we examine the Papers in which the Midwayer Commission narrates key events of the trip around the Mediterranean that Jesus undertook in the company of Gonod and Ganid, we find at least two paragraphs that seem to be quite relevant to our appraisal of the Gaia hypothesis and of Lovelock's tactics when he initially propounded it:

> The materialistic scientist and the extreme idealist are destined always to be at loggerheads. This is not true of those scientists and idealists who are in possession of a common standard of high moral values and spiritual test levels. In every age scientists and religionists must recognize that they are on trial before the bar of human need. They must eschew all warfare between themselves while they strive valiantly to justify their continued survival by enhanced devotion to the service of human progress. If the so-called science or religion of any age is false, then must it either purify its activities or pass away before the emergence of a material science or spiritual religion of a truer and more worthy order. *[The Midwayer Commission, 1457:3 / 132:1.4 — excerpted from Jesus' discussion with Angamon, the leader of the Stoics, while sojourning in Rome]*
>
> Scientists may some day measure the energy, or force manifestations, of gravitation, light, and electricity, but these same scientists can never (scientifically) tell you what these universe phenomena are. Science deals with physical-energy activities; religion deals with eternal values. True philosophy grows out of the wisdom which does its best to correlate these quantitative and qualitative observations. There always exists the danger that the purely physical scientist may become afflicted with mathematical pride and statistical egotism, not to mention spiritual blindness. *[The Midwayer Commission, 1476:6 / 133:5.4 — excerpted from Jesus' discourse on science while he, Ganid, and Gonod were visiting Athens]*

If I endeavor to be as tactful as possible, I am nonetheless obliged to declare that Lovelock's approach to promoting the theory that he called the Gaia hypothesis does not harmonize with the criteria that Jesus set forth in these two paragraphs. Even if we were to set aside the fact that he appears to have included a key contention for which he had no scientific evidence — the idea that the earth is itself a living entity — we would still be compelled to wrestle with the fact that he seems to have accepted the recommendation of the novelist William Golding that he use the name of a Greek goddess as an evocative label for his theory, presumably because of their joint belief that this expedient would attract greater attention and eventually sell more copies of Lovelock's book *(pages 7-8 of the Wikipedia article)*.

In closing, please permit me to offer you my own conclusions in regard to three verbs that might conceivably be applied to the scientific theory that James Lovelock called the Gaia hypothesis: *commemorate, congratulate,* and *celebrate.*

— Since the Gaia hypothesis appears to have stimulated considerable discussion and interest ever since Lovelock advanced it in the early 1970s, the verb *commemorate* seems persuasive and fully justified.

— In contrast, the verb *congratulate* appears to be at least partly problematic, for I would find it exceedingly difficult to congratulate Lovelock without also expressing serious reservations about ethical aspects and the neo-pagan overtones of the name he chose.

— From my own perspective, I cannot identify persuasive reasons for maintaining that the Gaia hypothesis as a whole justifies the verb *celebrate*, even though it may have served as a broad umbrella for scientific findings in certain specific domains that appear to be valid, insightful, and worthwhile *(the categories of research and study that are mentioned on the first two pages of the Wikipedia article)*. Was this broad umbrella truly necessary, or is it more reasonable to believe that these advances were meritorious in their own right and probably would have occurred in any case?

Even though the general framework for contemporary science is essentially atheistic and can therefore be associated with the "revolt against God himself" that the Midwayer Commission deplores in section 8 of Paper 195 *[the Midwayer Commission, 195:8.6]*, there are many segments of scientific inquiry in our era that do not actively embody atheistic overtones. For example, it would be difficult even to ask whether theories associated with aerodynamics or optics are being pursued from an atheistic perspective, or with appropriate attention to God's creative intent. In the case of the Gaia hypothesis, however, atheistic implications seem to permeate the theory, and this makes it very difficult for me to react in ways that are entirely dispassionate.

(December 16, 2019)