



# Aspects of wonder-in-humility as part of a Christian spirituality (part 1)<sup>1</sup>

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## Abstract

Wonderment is a remarkable ability that the human species has developed where one is amazed when observing phenomena from nature and then reflects on its beauty, immensity, complexity, and meaning. Several aspects of wonderment have surfaced following a careful reading of various literature sources representing some theological, philosophical, scientific, and to some extent psychological/spiritual thinking as well as some texts from the Hebrew Bible.<sup>2</sup> Although wonderment can be experienced in many spheres of life, this article will focus on the experience of the natural world. The aim is to consider what value wonderment can bring to the enrichment and deepening of Christian spirituality in the experience of nature and how it can contribute to a disposition of humility. This article is the first of two deliveries on the subject. Aspects of wonderment were identified in the writings of the authors and reflected upon and laid out as a synthesis of what was thought to be relevant. Wonderment necessitates that the observer can be overawed with astonishment and surprise at what is experienced, revealed, achieved and then reflected upon. A prior disposition is assumed namely eagerness, thoughtfulness, and attentiveness which will enrich and nourish a philosophical disposition.

**Keywords:** Wonder/wonderment, awe, phenomena, experience; curiosity, humility.

## Introduction

There are diverse concepts of God with multiple nuances and how it is subsequently experienced in practical life. This experience is expressed according to the type of spirituality of the believer and there will be a reciprocal influence between the concept of God and experience of faith (Waaïjman, 2002: vii)<sup>3</sup> Wonderment and the humility that should flow from

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<sup>1</sup> This contribution constitutes a further development of research conducted as part of the PhD dissertation in Christian Spirituality, Unisa, submitted under the title of "Verwondering-in-nederigheid as krities-Christelike spiritualiteit vanuit Skrifuur en Natuur".

<sup>2</sup> The dissertation mentioned in footnote 1 covers the Hebrew texts in greater depth in respect of wonderment.

<sup>3</sup> Kees Waaïjman (2002: vii) writes that spirituality has two perspectives: a "lived spirituality" and the discipline (science) of spirituality. He continues: "Our study leads to the following conclusion: Materially, spirituality is the jointed process of the divine relation which is, formally, a layered process of transformation." In his book (Waaïjman, 2002: 316-365) he discusses spirituality in various concepts as it is experienced in different religions. One of the concepts specifically dealt with is "spirituality" and Waaïjman concludes:

The basic word 'spirituality' interprets the area of spirituality as 'spirit': the spirit of God and the spirit of man which interact with and impact each other. The range of the spirit is enormous. It includes the movement of the spirit (*ruach*) and the existential intensity of the mind (*nous*). By its weight



this is a valuable (rather essential) dimension of Christian spirituality and this article will present some reflection on various aspects of wonderment and the experience of the same to influence the experience of God, fellow humans, and the environment constructively. Wonder can be experienced on multiple phenomena ranging from culture, technology, and nature, but in this article the latter will be focused upon. KJV Dictionary's (2023) definition of wonder is: "That emotion which is excited by novelty, or the presentation to the sight or mind, of something new, unusual, strange, great, extraordinary, or not well understood; something that arrests the attention by its novelty, grandeur or inexplicableness". A variety of literature and media sources have been consulted representing different schools of thought in theology, philosophy, natural sciences,<sup>4</sup> and to some extent psychology/spirituality. What follows is thus a synthesis of various aspects of wonder that were identified in the literature. In this contribution the following will be attended to:

1. The nature of wonder
2. Why shall we wonder?
3. What can be marvelled at?
4. Some Hebrew texts reflecting wonderment.

In a follow-up article further aspects of wonderment will be unpacked.

### **The Nature of Wonderment**

The literature consulted have revealed various aspects on the nature of wonder which will be reflected on below.

#### **Uniqueness**

In his article *How wonder works*, Prinz (2013) refers to Jane Goodall, the world-renowned primatologist, who pointed out that chimpanzees also become excited about what they observe. As an example, she describes a chimpanzee which became very excited when looking at a waterfall. I am of the view that the chimpanzee's experience should of course be acknowledged, but then it should be recognised as only an emotion whilst a need for more exists with humans and that "more" will entail, amongst others, a level of awe and some comprehension of meaning. Michelle N. Shiota (2021: 86) writes in a similar way stating that the human mind has developed to extraordinary levels with the ability to model and predict the outside world. It seems that no animal has developed such a complex, vivid, internal vision of the environment and cannot show such imagination in engaging with and manipulating that vision. The human species has developed an ability to understand phenomena and interpret them as remarkable and subsequently people may express their wonder in myths of origin, experimental verification, and artistic representations. This development makes humans a remarkable species which in itself is a reason for wonder. To wonder at the level that humans do, is a higher function which is unique to humans and contributes to spiritual development and an enhanced quality of life and it can be considered as eudaimonic in nature.

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spirituality is able to exceed the boundaries of the established religions and to open up new areas.

Waaajman (2002: 308) also refers to Sandra Schneider (1998: 39-40) who defines spirituality as follows: "the experience of conscious involvement of the project of life-integration through self-transcendence towards the ultimate value one perceives." For Waaajman "experience" is the all-determining characteristic of spirituality in Schneider's definition.

<sup>4</sup> When the term "science" is used in the remainder of this article, the natural sciences are presumed.



## Language

Language has a rich treasure of vocabulary to express and describe the sensation of wonder – the literature consulted provided many examples: marvellous, stunning, astonishing, awe, awestruck, sublime, glorious, beauty, deeply satisfying, aesthetically appealing, mystical, revelation, ecstasy, magnificent, amazement. It is noteworthy that this kind of language is not only used by the layperson, but even the professionals and erudite in various sciences are likely to use this vocabulary abundantly, for example Francis Collins (2007: 106, 107) – biogeneticist, Jesse Prinz (Prinz, 2013) – philosopher, astronomers like Edwin Hubble (Cantore, 1977), and John Mather (Goldstein, n.d.). The use of such descriptive language by scholars is rather extraordinary since more reserved and unemotional language is usually preferred in academic use. Afrikaans has its own stock of expressive adjectives to articulate wonder: *wonderbaarlik, wonderlik, verbasingwekkend, aangrypend, verstommend, ontsagwekkend, subliem, geweldig, eerbied, vrees* (the latter term is “fear” in context of awe), *verhewe, heerlik, groots, grandioos*, and many more. Ruth Bancewicz (2012), British geneticist, frequents the word “fascination” to describe the excitement of scientific research and the results gained as consequence. In Afrikaans this could be translated as *betowering, bekoring, geboeidheid*. On the opposite side of the emotional spectrum it may even happen, when something wonderful is experienced, that the observer is left speechless – the person is incapable to articulate the sensation because the observed is overwhelming and the observer is too emotional.

## Amazement and Surprise

The element of surprise is an important motivation for scientific investigation, writes Enrico Cantore (1977). As such amazement or surprise is equally a significant element of wonderment and it can be felt with emotions such as delight, be astounded, and joy. The newness of the first observance of something; the process of investigation that follows and the ultimate achievement of a result or finding in the end are all exciting and offer great joy and even ecstasy for some people. It is indeed the case that wonderment does not just have to be a motivation for investigation alone *but can be experienced from the investigative process as well*. Tania Lombrozo (2021: 50) shares this view: “... but I find, even as a scientist, that I have to make space to get to approach things in that way, where I’m not thinking about the immediate goal of learning about this *but only thinking about learning for its own sake*.” (italics added). This may have been the sensation of Edwin Hubble when he discovered that the universe is expanding and he described it as a “mystical experience” (Bancewicz, 2012).

It is not only the spectacular or sensational that evokes surprise or excitement – it ought to be experienced by the common and mundane as well (interestingly, though, the online Collins dictionary describes “mundane” as “everyday, ordinary, and *therefore not very interesting*”) [italics added]. Later, in this article, some everyday examples will be presented that will demonstrate the opposite – quite fascinating.<sup>5</sup> To see an airliner take off is a stunning sight, but an everyday matter such as a dragonfly in the garden can be an equally enchanting experience which may encourage the observer to research more about the insect, whether at deep academic level or merely in popular literature because it is interesting. It is thus both the scientist and the layperson that can experience surprise and amazement. May one surmise that a person who has no concern for wonderment is somewhat spiritually and emotionally impoverished?

Amazement, being dumbfounded, and admiration may come unexpectedly when something is observed – it may have been regarded as impossible or unlikely before. The experience of what is seen or heard becomes a pleasant surprise which could lead to reflection upon with even more amazement which in turn will lead to a higher sensation of wonder and awe for that which lies at the base of it. The Victoria Falls may serve as an example: the onlooker is ecstatic

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<sup>5</sup> <https://www.collinsdictionary.com/dictionary/english-thesaurus/mundane>



about the spectacle, but could also marvel at the scene about the underlying forces of nature at play.

In a lecture presented at the *Thomas Aquinas College* by Marcus Berquist (1985) the verb “wonder” is frequently used which leaves the listener/reader with the question whether he means “to ask”, in other words “I wonder how....” or “to be in awe of ....” The verb “wonder” in the English language can have both meanings and it appears that Berquist uses the word in both ways depending on the context.<sup>6</sup> A person may wonder: How is possible that a frigate bird can fly uninterruptedly for two months without sleep or landing?” You may also be filled with wonder and be amazed that something like this is possible (or similar emotions). Both activities of wonder are related because the wondering (questioning) can lead to the sense of “to wonder at” (being filled with awe). It can become a cycle. One wonders how the frigate bird can manage such a long uninterrupted flight because it is remarkable and interesting, but it can become wonderment with the realisation of the evolutionary development involved which in turn leads to further questions. Wonder oftentimes sparks imagination which expresses itself in creativity.

### Philosophical Disposition

To wonder about phenomena – in the sense of being in awe or searching for meaning – implies a philosophical disposition. Philosophy in this context must be distinguished from the academic disciplines of philosophy and theology – here it entails a *love for wisdom* (Berquist, 1985). Here, too, a cycle may develop: the more one wonders (in both meanings) about something, the more wisdom may develop which in turn may lead to more questions and wonderment resulting in more wisdom. It is noteworthy that when one wonders, a perception emerges that the observer’s own knowledge is limited (cf. Berquist, 1985) – in other words one realises that others have more expertise on the subject and own existing assumptions may be wrong. To experience awe it often triggers an awareness that there is a profound gap in our understanding of things that we don’t know how to address, according to Lombrozo (2021: 53). Thus, to wonder about things nurtures humility and modesty.

What is true as well, is that knowledge does not necessarily bring forth wonder and wisdom, but knowledge does have the potential to nurture wonder and wisdom. Wisdom in this sense would presume good judgement, sensitivity, respect, and responsibility when dealing with fellow humans and the environment – this is an attitude of humility.

At the heart of wonderment there are even more profound attitudes. Berquist (1985) refers to what he has read on the wall at the entrance gate of the *Pomona College* in Claremont, California: “Let only the eager, the thoughtful, and the attentive enter here.” Eagerness, thoughtfulness, and attentiveness lie at the heart of wonder, according to Berquist.<sup>7</sup> It

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<sup>6</sup> Online dictionaries on the internet present the following meanings of “wonder”:

Collinsdictionary.com for “wonder” as verb: “ 1) If you wonder about something, you think about it, either because it interests you and you want to know more about it, or because you are worried or suspicious about it. 2) If you wonder at something, you are very surprised about it or think about it in a very surprised way.”

As noun: “3) If you say that it is a wonder that something happened, you mean that it is very surprising and unexpected. 4) Wonder is a feeling of great surprise and pleasure that you have, for example when you see something that is very beautiful, or when something happens that you thought was impossible.”

Dictionary.com explains “wonder” as follows: verb: “1) to think or speculate curiously; 2) to be filled with admiration, amazement, or awe; marvel (often followed by at).”

As noun: “3) something strange and surprising; a cause of surprise, astonishment, or admiration; 4) the emotion excited by what is strange and surprising; a feeling of surprised or puzzled interest, sometimes tinged with admiration.”

<sup>7</sup> The inscription on the wall at the entrance actually reads “Let only the eager, the thoughtful and the reverent enter here”. It is not clear why Berquist’s lecture reads “attentive”, but Berquist uses “attentive”



presumes an openness and receptiveness to perceive the marvel of the world and life and to appreciate – whether it be small or big, everyday or exceptional. To phrase it colloquially: one's *radar should be tuned in with sensitivity* to notice what is happening around you and experience it with wonder and reflection to recognise the marvel and acknowledge it.

### **Wonder versus Curiosity**

Although curiosity is an important element of wonder, the latter has a deeper quality than mere curiosity. It certainly contributes towards the experience of wonder, but wonder takes the curiosity further. Mere curiosity can be superficial, but wonderment is about knowledge and more – it is about meaning and the value of what is perceived. Wonder through knowledge is not necessarily useful for immediate practical use, but it does contribute substantially towards an enhanced and deeper view of and disposition towards life. To illustrate: curiosity wants to understand how the survival of coral reefs and interconnected ecological systems are influenced by climate change. Ultimate insight and understanding turns into wonder about the interdependence of ecosystems and the importance of it for a healthy environment. Curiosity and the wonderment that follows from it leads to moral and ethical conduct, respect and appreciation to act responsibly towards the environment (cf. Kelsey, 2009: 346-348).

It is often an effective way to contrast different matters or to describe something that is in fact not the case to clear up the concept one is explaining. This is true in the case of scepticism as opposed to wonder. Pessimistic or cynical scepticism is negatively inclined on many aspects of life and everything is questioned mere out of habit and no positive value is added towards the gain of knowledge. Such sceptics derive pleasure and satisfaction by undermining and sabotaging the valid efforts of well-meaning individuals who marvel at things and to dismiss it as nonsense, trivial or naïve. Typical reactions from the sceptic are “who says?”, “so what of it?”, “really?” (as if it is of no importance) or “yes, but...” and then usually no useful alternative is offered. This illustrates precisely what people who marvel are not or don't do (cf. Berquist, 1985).

### **Not Inferior**

Prominent thinkers in history such as Francis Bacon (cf. Prinz, 2013), Thomas Aquinas (cf. Daston, 2014), and Ernst Mach (cf. Cantore, 1977) were of the opinion that to wonder is an inferior activity being subjective and temporarily. The subjectivity of wonder is the reason why it does not belong in science, according to Mach. Bacon has the viewpoint that wonder is temporary since it is only experienced at the beginning of an observation, but eventually it should disappear when the investigation is completed. Aquinas holds that the more knowledge is acquired the smaller wonder will become. Richard Dawkins believes science is deserving of wonder but it should be experienced in strict professional sense only to liberate us from dwelling in nature's mysteries. Dawkins is very critical of efforts to portray science as a fun and lark activity because “fun sends the wrong signals and may draw people to science for the wrong reasons”<sup>8</sup> (Sideris, 2021: 70)

On the other side are equally respected personalities who hold opposite views about wonderment. Einstein is quoted by Cantore (1977):

Even though the axioms of the theory are set down by man, the success of such an enterprise presupposes a high level of order in the objective world which we have no a priori right to expect. There lies the 'Wonder' which increases steadily with the development of our knowledge. Here lies the weak point of the positivists and professional atheists who feel happy in the consciousness that they have not only successfully

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to make his point. The notion of “reverent” would be equally valid as a base attitude for wonderment, though.

<sup>8</sup> Sideris quotes Richard Dawkins



dedivinized (*entgöttert*) but even dewonderized (*entwundert*) the world (Einstein, 1956: 114).

Another example where Cantore (1977) quotes Max Planck who wrote along the same trend:

Rightly viewed, the *real marvel is that we encounter natural laws at all* which are the same for men of all races and nations. *This is a fact which is by no means a matter of course. And the subsequent marvel is that for the most part these laws have a scope which could not have been anticipated in advance.* Thus, the *element of the wondrous* in the structure of the world picture increases with the discovery of every new law (Planck, 1949:93) (italics added).

Fritjof Capra, well-known in the physicist fraternity and a system theorist, articulates his experience of wonder as follows:

On the contrary, we attempt to express it in technical language, including mathematics, as precisely as possible. However, the fundamental interconnectedness of all phenomena is a dominant theme also in modern science, *and many of our great scientists have expressed their sense of awe and wonder when faced with the mystery that lies beyond the limits of their theories* (Capra, 2015: 4) (italics added).

Sideris (2021: 71) holds the view that wonder may only be perennial for those who practice science in the halls of science but laypersons will not have the same continuous experience – the initial sensation of wondering appreciation when the solution of puzzle is experienced for the first time cannot be returned to again. I disagree. The initial amazement/surprise may be gone but I am in awe everytime I see the International Space Station crossing our night sky – especially realising what is at stake considering six astronauts held up there by the laws of physics, incredible engineering, and travelling at 27 500 km/h. Wonderment can be (should be?) perpetual.

Wonderment is indeed a subjective experience, but it is not inferior. As is evident from the examples above (and many more), wonder is not only inspired by the mystery of the subject, but indeed the objective knowledge gained from observation of the objective facts (which includes the process of observation and analysis) and the resultant comprehension and insight, is likewise a reason for amazement, joy and even ecstasy. This subjective experience with all its emotions is invaluable and important for someone to have a deeper, wider and more complete experience of the world and being human and cannot be considered as inferior.

### **A Spiritual Experience**

The spiritual is being touched upon when the mystery of the material reality is experienced and this occurs in both the psychological and religious domains. Sometimes something inexplicable or captivating of reality is encountered for which no words can be found – even in science where objectivity and being clinical is preferred. There are, however, scientists who do not mind to acknowledge the spiritual nature of their wonder and will even encourage it. Some examples to illustrate this are:

Bancewicz (2012) quotes Edwin Hubble, astronomer, from Pedersen (1988):

Sometimes, through a strong, *compelling experience of mystical insight*, a man knows beyond the shadow of doubt that he has been in touch with a reality that lies behind mere phenomena. He himself is completely convinced, but he cannot communicate the certainty. It is a private revelation. He may be right, but unless we share his ecstasy we cannot know (Pedersen, 1988) (italics added).



Albert Einstein, physicist, on more than one occasion expressed his affection for the mysterious. Here we have him articulate his appreciation of the mysterious as quoted by Capra (2015: 4):

The fairest thing we can experience is the *mysterious*. It is the fundamental emotion which stands at the cradle of true art and true science...*the mystery of the eternity of life*, and the *inkling* of the marvellous structure of reality, together with the single-hearted endeavor to comprehend a portion, be it ever so tiny, of the reason that manifests itself in nature (Einstein, 1949) (italics added).

Capra (1982:7), himself, describes his seeing and hearing the waves at sea as a spiritual experience. The physicist and author, Alan Lightman (2014:52-54), senses the spiritual dimension and connection when he makes eye contact with an osprey diving towards him. The world is made up of matter which, in a wonderful way, reacts with and has a connection with each other and with humans who are part of the environment – when one wonders about that, one reflects on its underlying beauty, truth and meaning. In this regard Stellar (2021: 84) agrees that awe may encourage greater meaning and to encourage individuals to think about larger and even spiritual questions in search for greater meaning.

The recipient of the 2019 Templeton prize, Marcello Gleiser (physicist), who describes himself as an agnostic, articulates his spiritual experience of the natural world and science as follows:

I believe we should take a much humbler approach to knowledge, in the sense that if you look carefully at the way science works, you'll see that yes, it is wonderful — magnificent! — but it has limits. And we have to understand and respect those limits. And by doing that, by understanding how science advances, science really becomes a deeply spiritual conversation with the mysterious, about all the things we don't know. (Billings, 2019)

For the theistic believer the spiritual nature of wonderment will have a more focused substance: God is involved and acknowledged in the appreciation of what is observed. This spiritual experience becomes a form of worship. Francis Collins led an international project to map the human genome (the DNA molecule) and the process of revealing and comprehension of the functioning thereof was to him “an occasion of worship” (Collins, 2007:3). This religious wonder is not limited to the Christian tradition, but is experienced in all major religions. The Indian mathematician and Hindu, Srinivasa Ramanujan expressed his wonder on occasion: “Sir, an equation for me has no meaning unless it expresses a thought of God” (Ranganathan, 1967:88).

The believing observer gains a perspective on the grandeur of creation and humankind's place in it when the marvel of creation is realised. In the Judaeo-Christian tradition wonderment and reflection on everything (the cosmological argument) often leads to the conviction that there is indeed a purpose or direction in it all and that material reality is an epiphany of God – in the words of Sallie McFague: “creation is God's self-expression.” (n.d.). A humble disposition is usually the result of wonderment and should be a key feature of religiosity.

### **Wonder in Science and Faith**

On the relationship between science and faith and the conflict between them much is being debated and written on. Science and faith/religion/theology are different disciplines where each should be conducted according to its own research methodology and each has its own goals in their research, interpretation and reflection on the facts and results. The conflict, in fact, is unnecessary – it is between people and not in the essence of science and faith itself. Both disciplines should respect each other though and their respective boundaries of inquiry and interpretation should be respected – the presumption is that both should be conducted with profundity and integrity.



There is however, common ground between science and faith and that is the sensation of wonderment. In both there will be awe and amazement, but the substance will differ. John Mather is an astrophysicist and recipient of the 2006 Nobel Prize in physics and he writes much about the relationship between science and faith. In an interview with NASA's E. Goldstein he is asked about the intersection between science and creation theology and what kind of questions are asked when he addresses church groups and what his answers would be. Mather replied as follows:

We have our religious traditions coming from many thousands of years, and I think to myself, well, you know, if Moses had come down with tablets from the mountain that said, 'And guess what? There are protons and neutrons, and they are made out of quarks,' people wouldn't have understood what he said. So he didn't. We are discovering what the universe is really like, and it is totally *magnificent*, and one can only be *inspired and awestruck* by what we find. *I think my proper response is complete amazement and awe at the universe that we are in, and how it works is just far more complicated than humans will ever properly understand.* (Goldstein, n.d.) (italics added).

Jennifer Wiseman, astronomer and senior project scientist of the Hubble Space Telescope project, expresses her unmistakable awe when observing and investigating the universe:

Activities still going on, stars still forming. Galaxies are merging. The God that must be behind all this is not only very powerful but also very creative. This is majestic, it's powerful, it's also very beautiful, and to me one of the connections that I think that God has enabled us to have, is a connection between understanding and observing the universe and then having a sense of beauty and wonder about it. Why do we look at a spiral galaxy and then say 'That is beautiful!?' Why do we see spiral arms and symmetry and its beauty? There's probably a biological explanation as to why we respond to symmetry. There is also, I think, a true explanation of beauty on its own that is valid. (Wisemann, n.d.)

Here we encounter believing scientists who openly express their wonder about their research to a community of faith. Science wonders about the chemistry, physics, biology, and psychology that is being revealed and which brings forth greater insight. The researcher will be delighted and feel satisfaction about what has been achieved. The faith community will be amazed about the same findings but will however find further meaning from it through a perspective of faith by recognising God in it – the wonderment gains a further and more fulfilling value in a different way. The knowledge of and insight in the origin and evolutionary development of the universe with everything in it is a point in case. One is left speechless and awestruck when it is realised how the laws of nature and inconceivable long epochs shaped the current cosmos and all its contents. For the believer there is a different appreciation and admiration when the conviction is accepted that God wills it, that God is responsible, and it can be understood teleologically. For many non-believers the experience of the material reality is spiritual as well, even though it does not have a dimension of faith. Although the substance of wonder may differ, wonder will remain a significant common denominator between the worlds of science and faith. In this regard we should take note again of Alan Lightman who admits that he is atheist, but, he writes:

Some people believe that there is no distinction between the spiritual and physical universes, no distinction between the inner and the outer, between the subjective and the objective, between the miraculous and the rational. I need such distinctions to make sense of my spiritual and scientific lives. For me, there is room for both a spiritual and a physical universe, just as there is room for both religion and science. Each universe





has its own power. Each has its own beauty, and mystery. A Presbyterian minister recently said to me that science and religion share a sense of wonder. I agree. (Lightman, 2014: 64,65).

Science and faith/religion need not discredit or demonise each other, but rather they should complement and learn from each other which may contribute to the discovery of greater and deeper meaning.

### **Why shall we wonder?**

It has been mentioned above that the level of wonder the human species is capable of is a unique characteristic of humans. Studies have indicated that wonderment is a late human development – initially survival skills were essential, but to wonder about things eventually led to art, science and religion which is a byproduct in the development of humans (Prinz, 2013). Is it necessary for humans to wonder? The literature reviewed revealed two reasons why it is important.

### **Value**

Many phenomena that are being observed have some degree of value and can be appreciated accordingly, writes Robin Attfield (2017: 1). This presupposes that openness for admiration should be present to recognise the value of life's phenomena however minute. This statement should be qualified though: there are aspects of life which are destructive and detrimental to the environment and humans and must be controlled with sound judgement, for example insect pests. It can be assumed that Attfield's view that everything has value has the intent that one should be *sensitive* to everything in life to notice, value and appreciate. This holds true not only for the spectacular and sensational, but also for the everyday and ordinary. An everyday phenomenon, the lizard in my garden, is impressive when one realises something about its physiology.

It has the same organs as a human, but weighs only 0.0279% of an average sized person of 70kg and 1.72m. From these measurements it can be calculated that a lizard is made up of approximately 10 billion cells (Barth, 2017).<sup>9</sup> This is astonishing and the ecological significance of the creature is not even considered yet – the value of this little creature, apart from its ecological significance, lies in the enormous complexity of its physical structure.

### **Appreciation and loyalty**

Appreciation follows when something is observed and wondered about. Appreciation implies gratitude for the beauty and wonder of the world and that one can be part of it. Gratitude is to acknowledge that what is experienced is wonderful, and then *inevitably* the origin of it is taken into account and acknowledged as well. The believer will recognise and acknowledge God as the giver and therefore gratitude will be directed at God. Not everyone recognises God in the things that are wondered about, but where the believer does, it becomes a motivation to honour God and the marvels of life and the world. David Kelsey (2017:337) describes the relationship between humankind and God as one of *loyalty*. In the context of wonderment loyalty can be interpreted as supporting God's cause through respect, recognition, and

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<sup>9</sup> These numbers are based on the fact that an average sized adult person weighing 70kg and is 1.72m tall, is composed of 37.2 trillion cells according to Barth, 2017, <https://handling-solutions.eppendorf.com/cell-handling/about-cells-and-culture/detailview/news/how-many-cells-are-in-your-body-probably-more-than-you-think/> . The number of cells with respect to the garden lizard *Trachylepis striata* weighing on average 19.5g is rounded off, taking into account that the anatomy of a human and a lizard could differ in respect of complexity. Should the total number of cells in the lizard be adjusted by one billion upwards or downwards, it still wouldn't detract from the enormity of the composition of an ordinary natural phenomenon such as a lizard.



appreciation for God's creation. Wonder is evident in Psalm 119. "Open my eyes," cries the Psalmist, "that I may behold wondrous things out of your law" (v. 18). And in verse 27, he pleads, "Make me understand the way of your precepts, and I will meditate on your wondrous works."

As pointed out before the human species has developed a remarkable ability to wonder in awe and amazement about and appreciate the phenomena of the world. This has resulted that humans can wonder, reflect upon and give expression to it in art, religion, and science which leads to further development on spiritual, cultural, and material levels. Although the ability to wonder is not essential for physical survival and was only a later development in humans, it is evident that wonderment is important for the sake of being fully human; for the Christian it also carries the implication of being in the image of God, *imago Dei* – humans are distinct from the rest of creation. A human's ability to marvel may lead to an enhanced quality of life and recognition of the meaning of life. Wonderment may be seen as a demonstration of loyalty to the person self, to fellow humans, and the environment: humans as creations of God are called to take care of the personal self, fellow humans, and also the environment. Insightfully Jennifer Stellar (2021: 82, 83) writes that it is vital to the experience of awe that self-diminishment will occur, not in an anxiety-provoking, destructive, and existentially threatening way, but in an invigorating, constructive, and potentially generative one. Therefore awe walks the thin line carefully. The self is diminished causing the narrative self to feel small, unimportant, lacking control, and low in status, but, and this is critical: in away that it is not threatening. Awe has the ability to draw the focus away from the self and that the person is not separate from the bigger world but part of it. Here we have significant implications for ethics, compassion, and justice – this is characteristic of humility.

This development of being able to wonder and experience the world with awe and realise that it is meaningful, can be marvelled about. It begs the question: why did Homo Sapiens come about in this way?

Richard Feynman (1983), well-known physicist, is correct when he points out in a television interview that nature with everything in it is a wonder.<sup>10</sup> The wonder deepens when one is receptive to it. Through scientific study of nature and the insight gained from it, the wonder becomes clearer and grander.<sup>11</sup> Not everyone has the opportunity to expose nature through deep scientific research, but on elementary level the layperson can also take note of findings in science, and it is valuable to obtain a comprehension and respect for it. Comprehensible but well-founded popular scientific literature can be read by the layperson in order to understand something of nature; through personal observation everyday small things may reveal surprising things which may leave the observer with awe and admiration. It is important and valuable in many ways that the believer shall take notice of science and process it in the experience of God and the world. This should lead to a more balanced, accommodating, and nuanced understanding of the world and life. The magnitude, complexity, and beauty of the macro and micro universe and everything in between ought to instil an awareness of one's own smallness and cultivate a humble way of life and a gentler approach to the world. Dealing with matters such as homosexuality and evolution serve as points in case which are problematic issues for a large part of the faith community and often result in arrogant, superior,

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<sup>10</sup> In a TV interview with the BBC in 1983 Feynman explains with contagious enthusiasm and striking, comprehensible metaphors the complexities of quantum mechanics. At a given point he articulates in unmistakable ecstasy: "... But you got to stop and think about it to really get the pleasure about the complexity, the inconceivable nature of nature!", <https://youtu.be/P1ww1IXRfTA> , 43:26. (Retrieved February 09, 2020).

<sup>11</sup> In a 2015 TEDx presentation physicist, Russell Cowburn, explains what nanotechnology entails and the benefits it may have in practice. With regard to the increased scientific knowledge and insight he concludes with a valuable and important observation: "..... that doesn't mean that God has got any smaller. What it means is we actually see his creative activity in greater detail", [https://www.youtube.com/watch?v=UepCFseK\\_os](https://www.youtube.com/watch?v=UepCFseK_os) , 19:41 (Retrieved February 13, 2023).



cynical, judgmental and heartless statements resulting in unsavoury discussions and destructive divisions.

### **What can be marvelled at?**

Phenomena in the environment can be observed, but it is possible that this is done without necessarily being in awe of something even though the beauty is recognised and appreciated. Something of an artistic nature such as a painting serves as an example with the reaction it invokes such as “this is beautiful!” but does not necessarily mean wonderment; the aesthetic value is recognised, but does not necessarily elicit any deep reflection. There can be an overlap though between aesthetic appreciation and wonder because the beauty and intricacy of the observed is so deep-set that amazement and delight are probable, and the meaning of it is then pondered upon.

### **Science and art**

The scope of this article focuses more on the wonderment about natural phenomena, but recognition should also be granted to the arts and the imagination and wonder they evoke. There is indeed a connection between science on the one hand and religion and art on the other hand as can be seen in churches and museums where objects of scientific nature are depicted in different mediums. Museums are not just places to satisfy curiosity only. Jesse Prinz writes:

As temples of wonder, museums were showcases for oddities: a fine portrait, a waxwork tableau and a biological aberration all had their place ... Nowadays, we don't think of museums as houses of curiosity, but they remain places of wonder. They are shrines for art, where we go to be amazed (Prinz, 2013).

In museums the layperson can experience the wonder of science through quality depictions and look at them with astonishment and be carried away – aesthetic appreciation of the artwork turns into wonderment. This was a personal experience when visiting the Maropeng Museum in the Cradle of Humankind in Gauteng, South Africa. This museum describes the history of our planet, fauna and flora, and hominids through illustrations of three dimensional sculptures, fossil replications and other works of art. It leaves the onlooker with amazement, reverence and awe. The museum is left with deep understanding, respect, and a form of reverence for the process that nature had gone through to bring forth the environment and the human species. For me as a believer it was a spiritual experience through which I could bring honour and praise to God as the Creator.

Museums are not locations for art and science alone. They can be experienced solely for the sake of art in itself where paintings, sculptures, and artefacts are exhibited and be admired and marvelled at without conveying scientific knowledge. Artists have a remarkable ability to interpret life and express it in their art which moves the onlookers and helps them to make sense of life. The works of art displayed in museums such as the Louvre in Paris, the Museum of Modern Art in New York, The Acropolis Museum in Athens and the Rijksmuseum in Amsterdam, to name but a few, had many visitors testify to the wonder they felt by experiencing the enchantment and history of the works of art.

### **Natural phenomena**

There is nothing in the natural world that cannot be marvelled at. It does not have to be limited to spectacular waterfalls or sunsets, but an everyday and unobtrusive phenomenon such as an ant carrying a leaf to its nest is equally worthy of our attention. It is known that an ant is able to carry 10 – 50 times its weight (Holbrook, 2019). In my garden in Pretoria I see a rock and with the knowledge that the earth has an evolutionary history of 4.5 billion years, I wonder about that rock's age. After further investigation and questions about the region where Pretoria is located, I come to know that the rock formations in this region, the so-called Transvaal



Supergroup, is about 2.5 billion years old (Moore, Tsikos, et al, 2001: 437-444). Then I look at the usual inconspicuous rock in my garden with respect considering the unfathomable long history that lies within it: its origins, the process it has undergone to eventually be noticed and wondered about. For me as a believer these insights have a deep spiritual meaning and value: through the mechanism of evolution and the passage of eons, God has allowed that this planet to take shape and become a habitable place for living organisms and finally Homo Sapiens – I am humbled.

It is not only individual natural phenomena, whether big or small, that deserve our attention; science has also revealed the interwovenness and interdependence of ecosystems and how they interact with each other. The whole planet is made up of ecosystems such as large regions, the oceans and seas, and atmosphere and these systems are subdivided in smaller biomes such as forests, smaller bodies of water, mountain regions, and plains which depend on each other and influence each other. Humans are part of these ecosystems and human activities affect them significantly which in turn affects the wellbeing of humans. This state of affairs is reason for wonderment. The magnitude of these ecosystems are often immense. On a small scale and an everyday event in the material world are our breaths and the air we breathe. At standard room temperature and pressure, we breathe in about 25 sextillion molecules with each breath. That's 25 with 21 trailing zeros! (Worall, 2017).<sup>12</sup> The smallness and numbers of molecules that are apparent here, are astonishing and leaves a deep impression of the magnitude of the natural world with which we are in contact with every moment. Actually, everything in life is startling.

### **Some Hebrew texts from Scripture reflecting wonderment**

As was pointed out in this article the focus of wonderment was on the natural phenomena. When it comes to reflection on what Scripture can contribute to the aspect of wonder about nature what better place than to start with the creation story as told in Genesis 1?<sup>13</sup> What is striking about the Genesis 1 account is the gradual unfolding, the logic, and structuring of heaven and earth and the efficiency of all the aspects in creation as described in this creation story. Here is no indication of magical tricks as it is portrayed in the Babylonian *Enuma Elish* creation myth (cf. Westerman, 1984: 111). The logical, demythologised presentation of God's creative work is indicative of critical and sober thinking even in the context of very limited scientific knowledge of the time which is in itself something to wonder about. And deservedly the Priest can repeatedly exclaim "it was good!" – even God was impressed with what he achieved.

The poets of Psalms 8, 19, and 148 must have had a common experience of awe when observing the creation which included the sky, the earth, the plant- and animal kingdom, and humanity. The sky is described in its immensity, steadfastness and perpetuity, as delicate handiwork (Ps. 8:4, the work of God's fingers) which sends out its message silently but clearly (Ps. 19:4, 5). The earth with everything and everyone in it is involved in a chorus of praise because everything has value and beauty. And God is acknowledged and honoured as the Creator of all this wonder (Ps. 148:5,6,8).

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<sup>12</sup> Simon Worrall in a conversation between National Geographic and Sam Kean about his book *Caesar's last breath. Decoding the secrets of the air around us*, <https://www.nationalgeographic.com/science/article/air-gas-caesar-last-breath-sam-kean> (Retrieved April 04, 2021).

<sup>13</sup> It must be pointed out as of critical importance that the author of this article does not endeavour to use science to validate the Bible or to use the Bible to prove science as true. The disciplines of science and theology have their own methodologies, boundaries and objectives which ought to be respected. From a faith perspective though they should complement each other to bring forth a deeper and richer understanding.



## Conclusion

The ability of the human species to wonder and the extent to which it can be done (in contrast to the limited ability of the chimpanzee), is a unique phenomenon and in itself something to be stunned at. Wonderment can be articulated in a rich variety of vocabulary which expresses the colourful variety of sensations forming part of wonderment. Wonderment entails that the observer can be overwhelmed with amazement and surprise at what is experienced, revealed, achieved and then reflected upon. A prior disposition is assumed namely eagerness, thoughtfulness, and attentiveness which will enrich and nourish a philosophical disposition.

Mere curiosity is not yet wonderment, but it may lead to wonder and in turn lead to progress to greater curiosity – it becomes a cycle. Wonderment is more than to know – it is to admire with awe and deep reflection. To wonder is not naïve or infantile nor should it be short-lived – it should be practised perpetually regardless of status and profession; it is not inferior. Wonderment may have a spiritual substance which will differ for the believer to the nonbeliever: something of the mystery of reality is experienced and it is realised that one is part of a larger reality and the deeper meaning is recognised. It is significant that wonderment is not only experienced in the spiritual/religious realm, but in the scientific domain as well. Here we have a common denominator where science and faith can find, compliment and enrich each other.

Is it necessary for someone to wonder? Yes, everything has value to a greater or lesser extent and for this, we can be grateful and give acknowledgement to – for the believer, it is directed at God. It becomes an expression of loyalty to God, to fellow humans, and the environment. Wonder gives one a positive feeling and makes one pause in appreciation for many things such as those in nature that are far greater than people.

It is not difficult to find something to wonder about. Everything can leave one speechless – whether it be big and sensational or be it small and an everyday aspect of life. We will find it in the arts, with humans, in science and nature. A sense of wonder leaves one with an insatiable curiosity, and asking oneself questions, and then an inquisitive mind springs into action. Everything is actually remarkable when observed in more detail. When we become sensitive to the cosmos and the world which we live in and observe it with wonder, awe, and reflection, we are overcome with humility which is expressed in compassion, respect, and responsibility towards God, fellow humans, and the environment.

From a faith perspective the Bible gives us exquisite samples of reflection on the wonder of the creation in the Genesis 1 account and in the wisdom of the Psalms. With the scientific knowledge and insight to our disposal today these texts can be read and understood with a deeper sense of awe and meaning.

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