

The Beauty in Scientists' Eyes—Less or More?

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I. Introduction

English poet John Keats (1795–1821) once wrote in his remarkable narrative poem “Lamia”: “[cold] Philosophy will clip an Angel’s wings / Conquer all mysteries by rule and line,” that “cold philosophy”, by which he meant science, dismantles beauty. (“Lamia [poem]”) Throughout mankind’s exploration of Nature, however, science has always been a fruitful combination of multiple principles—assumption and imagination, experimentation, deduction, systematization and unification, under which aesthetic beauty plays a role in the selection, integration and harmonization of knowledge and discoveries. (Poincaré 174) While some perceive science as pure rationality and poetry as a symbol of beauty in imagery, how do these two seemingly contradictory approaches to discover Nature compare in terms of their beliefs and purposes, interpretation of beauty, road to seek truth and usefulness to mankind?

As celebrated physicist Richard Feynman (1918–1988) questioned whether he himself as a scientist could “see less or more [than poets]”, (Feynman 3) this sparks yet another discussion on the relationship and weighing between the two. If science could be harmonized with aesthetics

in these aspects, perhaps it is also possible to establish the implication that, scientists could see equally as much as poets do, or even more in some themes.

II. Fundamental Comparison between Poetry and Science

i. Beliefs, Aims and Purposes by Poets and Scientists

The debate and confrontation between modern science and poetry could be traced back to the Romantic Period¹ when romantic poets initiated hostile criticism against scientists on the rationalization of nature. Romantic English novelist Thomas Love Peacock (1785–1866) argued in his work “The Four Ages of Poetry” that the rise of poetry in early civilization could be attributed to the superstition and passion of people, and the appeal of mysterious myths to them. (Cantor 77)

Towards science, the general impression possessed by poets could be summarized in English poet William Blake’s (1757–1827) renowned lines in “Mock on, Mock on Voltaire, Rousseau”:

The Atoms of Democritus
And Newton’s Particles of light
Are sands upon the Red sea shore,
Where Israel’s tents do shine so bright. (24)

Poets were in general critical towards scientists’ practice of breaking down matters into components for further studies, making them lose their

¹ An era marked by Romanticism, with emphasis on emotional expressions, spiritual and fantastic experience and subjectivism in music, literary, philosophical and other artistic creations. The Romantic Period (1780–1910), following the European artistic movement originated in Germany, was considered a revolt against the rationalization of nature by scientists. (Casey 32)

spiritual wholeness and significance. (Cantor 76) On the contrary, to them, the aims of creating poetry are to address the fanciful and mythical side of nature, to satisfy the emotional needs to express passion and sentiment in men, as well as to establish the sense of aesthetic beauty through literary devices.

However, science was never sheer reductionism,² (“Reductionism” 911) which is merely an approach adopted by scientists in the process of seeking the truth about Nature. What they do, instead, is generalizing and discovering the underlying laws behind the dynamic nature, without denying the unity of the universe and probable existence of supernatural powers. This can be demonstrated in how Plato (428–348/347 B.C.) proposed the visible realm relative to the intelligible realm, with idealization which laid the foundation for modern science, in which scientists develop models and laws that epitomize common properties instead of incidental ones. These ideal realms were considered to have independent and objective existence. (Lindberg 15)

ii. Echoes between Scientific and Poetic Views on Divine Power

Scientists are also in awe of Nature’s genuine beauty and the forces behind it. As Charles Darwin (1809–1882), originator of the evolution theory concluded *On the Origin of Species* with:

There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity,

2 Reductionism is considered philosophical positions which advocates that a complex is nothing but the combination of its components, thus can be reduced to individual constituents.

from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved. (“There is Grandeur”)

Even though the patterns of natural selection could be generalized through human observation, experimentation and deduction, phenomena are still described, instead of “explained”. Darwin was trying to suggest that the cause of everything is the Creator, and the planet itself has fixed laws which defined the most beautiful forms. The poetry and science disciplines do show some degree of similarity under this context. “The Creator”, as Darwin suggested, actually echoed with poetic views since ancient Greco times, when legendary author Homer wrote his epic poem *Odyssey* to express the belief that divine power intervened in the collective events in nature.

iii. Basis of Poetic Creation and Scientific Discovery

Poets base their creations on personal insights and imagination, abundant passion and feelings, incorporating their own subjective thoughts and imagery into objective phenomena or natural scenery that they can observe. Scientists, on the other hand, look for concrete knowledge and factual details, trying to integrate observable phenomena and explain the patterns. Even though scientists do rely on known facts and previously established systems in the course of seeking the truth, scientific discovery is in fact also a combination of luck and imagination. For instance, the discovery of the ring shape of the benzene molecule by German chemist August Kekulé (1829–1896) was a result of his daydream about a snake seizing its own tail. Poincaré also expressed that important insights do not often emerge during work, but unexpected moments after intense thinking, for example “one night [with] black coffee” when he founded the Fuchsian functions. (169)

Therefore, to say that science is a symbol of rationality, to the degree of over-rationalizing natural phenomena is in fact doing science injustice. In this sense, poetry and science may after all be running with similar principles.

III. Interpretation of True Beauty and Adaptation of Aesthetics in Science and Poetry

i. Harmonization and Application of Aesthetic Sense

Scientists do indeed adopt aesthetic sensibility as the “delicate sieve”. (174) Whether it is the hypothesis, observation and verification, design of experiments and selection of data, natural instinct and creativity are involved in scientists’ line of thinking. Mathematicians see the harmony of orders and numbers and elegances in geometry, (173) and seek beauty in the ideal form, which is not to be replicated by humans but to be reached by imagination and philosophical understanding. Another vivid example would be “the Father of Geometry”—Euclid, who in the transferal of length used a collapsible compass instead of adding a rigid compass in preservation of the aesthetic principle. (Dunham 264) Just in the same way, poets may find beauty in metaphors, imageries, alliteration, literary devices as such, trying to describe the small details of objects precisely to present their relationship harmoniously. Both disciplines have their own sense of aesthetic beauty, but individuals could enjoy the room for subjective interpretation and find their own answers to nature in poetry and science respectively. (Padel, “The Science of Poetry”) This suggests that poets and scientists are not necessarily contradictory in nature.

ii. True Beauty—Modesty in Accepting Own Inadequacy

Apart from the idealization emphasized by early scientists and philosophers, scientists and poets both have a certain degree of tolerance to

uncertainty, which is indeed a kind of modesty in admitting the limitations of mankind's capacity in explaining the cause of all events in the universe. (Padel, "The Science of Poetry")

As German writer Johann Wolfgang von Goethe (1749–1832) famously put, "The worthiest professor of physics would be one who could show the inadequacy of his text and diagrams in comparison to nature and the higher demands of the mind." English poet John Donne (1752–1631) also resonated in "Satire III":

On a huge hill,
Cragged and steep,
Truth stands, and he that will
Reach her, about must and about must go... (qtd. in Padel, "The Science of Poetry")

Both scientists and poets appreciate the greatness of nature and the idealistic true beauty beyond man's capacity, but they never cease in their endeavors in exploring Nature. This is where science and poetry shine the most with beauty in humility.

IV. Types of Beauty Embedded in Poetry and Sciences

i. Beauty Depicted in Poetry

Poets depict the beauty of Nature with delicately designed figurative and ornamental devices that incorporate their feelings and passion. (Cantor 80) In other words, poetry feeds emotional needs, and it depends on the subjective judgement by each individual whether the lyrical expressions could echo with their needs, thus is always categorized into the aesthetic field.

ii. Beauty in Science that Advances with Time

Scientists, however, do not suppress their thirst at their own discoveries, simply because “science is a collective and cumulative activity” in nature. (Cohen 62) In this sense, science presents the first type of beauty by the process of scientific discovery—harmonization and improvement across time and space. Isaac Newton (1642–1726), one of the most influential physicists and mathematicians of all time, was a great example. He continued and refined the discoveries by predecessors, such as Galileo’s (1564–1642) findings on mechanics and inertial motion, Kepler’s (1571–1630) laws of planetary motion to formulate his own dynamic system. (Cohen 62)

The accumulation of scientific discoveries in turn pushes forward technological development, which presents to us the second type of beauty—usefulness and practicality. Not only have the Newtonian celestial mechanic principles inspired the birth of many modern inventions including artificial satellites and spacecraft, but he has also laid the foundation for the language of physics by inventing the calculus system and led the rise of color analysis and optic studies on electromagnetism. (49) Inventions are the most powerful evidence how science can benefit mankind by enhancing our living standards and capacity to discover beyond.

iii. Interactions between Aesthetics in Poetry and Science

The third type of beauty presented in science could be connected with poetry, as Feynman later on added, “It does not do harm to the mystery to know a little about it. For far more marvellous is the truth than any artists of the past imagined”. (3) Science has the ability to give details to poetry, enlivening lyrical creations by poets. This could be demonstrated in Lord Byron (1788–1824), Anglo-Scottish romantic poet who expressed his deep interest in cosmic speculations and celestial movements in *Cain*,

by hinting at and describing emerging theories in astronomy. (Cantor 81) With the concrete theoretical and knowledge base provided by science, it is also possible for poets to enrich their expressions and descriptive writings.

V. Conclusion

Though seemingly polarized and contradictory in their nature, poetry and science do indeed show several similarities in terms of the views owned by poets and scientists on divine power, sense of beauty and harmonization, as well as their attitudes in accepting the inadequacy of mankind. In some sense, science and poetry are in favor of the development of each other: science enriching the knowledge basis in poetry and poetry shaping the aesthetic beauty which could be applied in science. On top of that, science has a remarkable significance of motivating technological development and enhancement of man's standard of living. Therefore, scientists never see less than poets, but in fact are more flexible in viewing the Nature with both rational and aesthetic senses.

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Teacher’s comment:

To most people, science and art (in particular poetry), are incompatible disciplines. While the former is typified as pure rationality, the latter is highly focused on imagery. In her paper, Yee Ting discusses her view based on the arguments that both disciplines exhibit the characteristics of divinity and imagination. She interprets the ideas of beauty and also proposes “science . . . enlivening lyrical creation”. This paper ignites readers to appreciate the beauty of science and poetry, and reviews the relations of the two irreplaceable disciplines. (Yip Lo Ming Amber)