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Richard Payne Knight, the Picturesque and Scientific Revolution

Introduction

Richard Payne Knight, an eighteenth-century scholar in the field of aesthetics, in his work entitled *An Analytical Inquiry Into the Principles of Taste* devotes much attention to the aesthetic category of the picturesque, which was coined by William Gilpin. Knight was an erudite student of the contemporary philosophy, influenced profoundly by the modern science (in those days, science was called “natural philosophy”).

In Knight’s time, the progress of science determined the way in which thinkers perceived both nature and man. The same laws of physics were applied to account for both, the complexities observable in lifeless objects and in living bodies. Furthermore, the leading trend in the science of the seventeenth and the eighteenth century was reductionism, manifested in an attempt of scholars to explain “large-scale phenomena in terms of smaller-scale parts” (eg. interactions of tiny atoms accounted for the large-scale physical processes).¹ Animal organisms and human bodies were considered machines (it was Rene Descartes who first introduced

¹ Augutter Paul S. and Denys N. Wheatley *Thinking About Life. The History and Philosophy of Biology and Other Sciences*, Springer 2008, p. 7

the analogy between man and a machine), and the complex biological functions in them were accounted for with reference to the so-called mechanical models. Mechanical models were schemata that consisted of the interacting material particles whose clashes and tremors produced impulses carried through a nerve, a tube or a blood vessel.

This materialistic vision of reality created by scientists penetrated into the theories of those thinkers who dealt with matters more delicate than the principles of anatomy or physics, and who focused on the elusive sphere of the human imagination and feeling: who investigated into the principles of taste and aesthetic pleasure. Richard Payne Knight's theory of the picturesque, which deals with the question of taste, was influenced by the scientific attitude of the time. My aspiration is to show that Knight's conception of the picturesque owes much to the intellectual climate of the Scientific Revolution and that the aforesaid author, explaining the issues of aesthetic pleasure, resorts to the materialist science, to the rules of mechanistic physics and assumes a reductionist worldview of the eighteenth-century natural philosophy. In order to prove my thesis I juxtapose fragments from Knight's *Analytical Inquiry into the Principles of Taste* with excerpts from Newton's *Optics* and ponder on to what extent Knight adopts the materialist views of the famous English physicist. Furthermore, I set Knight's theory of aesthetic pleasure in the context of the mechanistic conception of nature proposed by Descartes and try to show that the Knightian man who enjoys the picturesque beauty shares features with the Cartesian man-machine.

1. Gilpin and the Picturesque

In order to understand Knight's contribution to the theory of the picturesque and his interpretation of the picturesque aesthetics through the lens of natural sciences, we need first to delineate the essential traits of the picturesque style. To attain this objective, we trace the idea of the picturesque to its source and discuss the fundamentals of William Gilpin's theory.

William Gilpin, an amateur painter, found certain objects in nature more painterly than others and those which he considered the most "suitable for the canvas" he started to call picturesque. In his theoretical work, *Three Essays: On Picturesque Beauty, on Picturesque Travel and on*

Sketching Landscape he attempts to pinpoint those characteristics in objects and scenes which make them picturesque. Thus, the essential feature of objects which belong to the aesthetic category of the picturesque is rough surface and rugged contour,² such as, for instance, “the outline, and bark of a tree [...] the rude summit, and craggy sides of a mountain.”³ Apart from roughness and ruggedness, Gilpin mentions a few other derivative characteristics. For instance, the richness of colour or variegated chiaroscuro stem from roughness and ruggedness. For “breaks and little recesses” of uneven surfaces reflect light in such a way that we have an impression of deep and multiple tonal contrasts. Conversely, smooth objects lack the aforesaid variety: they are “commonly uniform in colour” and have light equally spread along their flat surfaces.⁴ Objects which were smooth, well-polished, of regular surface and, consequently, uniform in colour, Gilpin contrasted with the irregular multicoloured picturesque forms and called beautiful. Beautiful objects, unlike the picturesque ones, were not interesting enough for a painter due to their excessive formality and monotonous character, but they could, nevertheless, be pleasing to the eye in their natural state.⁵

Gilpin, trying to characterize the type of a scene suitable for the canvas, actually gave rise to a new kind of aesthetic taste. This taste lay in preference of roughness, variations in colouring and “graduated lights and shades;” it was a taste for “complexity and intricacy.”⁶ This kind of aesthetic became compulsory not only in the art of painting (represented, for instance, by such landscape painters as William Gilpin, Richard Wilson or John Robert Cozens), but also in landscape gardening (Uvedale Price, Humphrey Repton) throughout the latter half of the eighteenth century.⁷

2. Richard Payne Knight – Picturesque and Scientific Context

The theory of the picturesque was further developed by Richard Payne Knight and it was explained against scientific and philosophical theories of the Age of Reason. Knight discussed the picturesque on two levels, firstly, as a response of the organs of sight to certain scenes and objects (part one of *An Analytical Inquiry Into the Principles of Taste*), and, secondly, as a reaction of our emotions and imagination to such scenes (part two of *An Analytical Inquiry*). Due to space limitations, we leave out the theme of picturesque regarding emotions and imagination and concentrate on the picturesque referring to the sense of sight. The choice is motivated by the

fact that the author discusses the picturesque enjoyed by the organs of sight in the context of the Newtonian corpuscular theory of light.

In the current part of the article I interpret the Knightian conception of the picturesque taste against two influential philosophies of the Scientific Revolution: Isaac Newton's theory of light and Descartes' idea of man-machine.

2.1. Knight and Isaac Newton – sight and picturesque

The Knightian conception of the picturesque taste grows out from Knight's theory of sight. Therefore, we must start with Knight's principles of visual perception and their scientific background before we proceed to his discussion of taste.

The central tenet of Knight's conception of vision is that the eye is able to perceive only colours and the chiaroscuro modelling, while it is incapable of seeing distance and volume. We see the world as a two-dimensional entity composed of spots of different hues and tonal variations. It is only from the distinctness and temperature of colours that we indirectly create the idea of distance, and from the gradation of shade and light that we infer the notion of volume. To clarify his conception of how we see things, Knight uses an analogy with the aerial perspective and chiaroscuro modelling in painting. In nature, he claims, "the eye sees only superficial dimension; as clearly appears in painting," where certain distribution of colour and light creates "optical deceptions, which produce the appearance of projection or thickness upon a flat surface."⁸ Sight, we can surmise from the above discussion, infers the idea of the third dimension indirectly. Direct information about depth and volume comes from a different sense – the touch. To acquire knowledge about distance and volume, claims Knight, "sense of seeing" needs to be "aided and corrected by that of touch"⁹ (i.e. we need to extend the arm and feel how far an object is from us). The eye is repeatedly "corrected" by touch, so that we could form, through repeated experience, "analogies between the perceptions of vision [colour intensity and temperature] and those of touch [the distance between an object and the perceiver]."¹⁰

⁸ Payne Knight Richard *An Analytical Inquiry into the Principles of Taste* London 1805, p. 59.

⁹ *Ibid.*, 58–9.

¹⁰ The comparison of our perception of distance with the aerial perspective in a two-dimensional coloured picture is not Knight's invention, but a borrowing from the Eighteenth century Scottish empiricist Thomas Reid

Having restricted the scope of visual phenomena to colour, and nothing but the colour, Knight was able to explain the operations of our sight in a scientific way, through reference to the corpuscular theory of colour borrowed from Isaac Newton. To fully acknowledge Knight's debt to Newton we need first to delineate the fundamentals of the Newtonian optics.¹¹ Newton derives all the colourful impressions received by the eye from one underlying principle, the light. He discovered that white (solar) light "consists of difform rays," while he was observing daylight passing through the prism. Inside the prism, the light got split into its constituent rays, which were refracted, each ray showing a different degree of refrangibility.¹² The degree of refrangibility of a ray, as Newton determined, was strictly connected with the "disposition to exhibit this or that particular colour".¹³ "The least refrangible rays," explains Newton, "are all disposed to exhibit a red colour" and those most refrangible are disposed to exhibit violet.¹⁴ The light or rather its constituent colourful rays are the source of all colourful impressions which our eye receives from the external world. "The colours of all natural bodies have no other origin," expounds Newton, "than this that they are variously qualified to reflect one sort of light in greater plenty than another."¹⁵ Those objects which, for instance, best reflect the rays "indued with red", will appear to our sight as red.

The tenets from Newton's *Optics* are reflected in Richard Payne Knight's writings almost verbatim. We read the following Knight's passages as if they were paraphrases of Newton's: "All the objects seen,"

(Reid Thomas *An Inquiry into the Human Mind* VI,3, London, Edinburgh, 1875, pp. 402-3. However, the originator of such an approach to visual perception was George Berkeley. (Berkeley George, *An Essay towards a New Theory of Vision* [in] *The Works of George Berkeley D. D. the Bishop of Cloyne* ed. Rev. G. N. Wright M. A. London 1843, pp. 250-251.)

¹¹ The same conception appears in Reid's theory of perception and it is also a borrowing from Newton. Reid claims: "The eye is a machine most admirably contrived for refracting rays of light, and forming a distinct picture of objects upon the retina" (Reid Thomas, *Essays upon Intellectual Powers of Man* Chap. I, Essay II, p. 78) And further in the same text: "the rays of light passing from visible objects to the eye are the medium of sight." (Reid Thomas, *Essays on the Intellectual Powers of Man* Essay II, chap. II Edinburgh 1785. p. 79). Knight was familiar both with Reid's text and with Newton's original conception. He was inspired by both.

¹² Newton Izaak *The New Theory of Colours. Communicated to the Royal Society, February 6, 1671/2* [in:] *Newton's Philosophy of Nature. Selections from his Writings*, ed. H. S. Thayer, New York, 1960, pp. 73-74.

¹³ *Ibid.*, p. 74.

¹⁴ *Ibid.*, 74.

¹⁵ *Ibid.*, 78.

explains Knight, appear “only as variations of light [...]: for the colours of objects are only different rays of light variously reflected from their surfaces.”¹⁶ These are thus not colours but light that is the primary substance underlying all our optical impressions, light variously modified, as it is refracted in or reflected by objects of various surfaces and textures, and appears to the organs of sight as a particular colour.

Having reduced visual impressions to colour and then colour to light, Knight insists that light is of material nature and is made of atoms; the atoms of light are the above-discussed colourful rays. This conjecture is, again, a borrowing from Newton. Newton insisted that the coloured rays constitutive of the white light are tiny solid particles and that they come into an immediate contact with the organ of sight thus causing optic impressions. The impetus from the light corpuscles falling on the retina results in “vibrations” of the atoms of the vitreous body “in the bottom of the eye.”¹⁷ The impulse from the organ of sight then spreads to the optic nerve to agitate tiny ethereal atoms which fill the crevices between the atoms of the nerve. From the nerve it is carried to the brain to set in motion the ethereal atoms in between the particles of the cerebral medullary substance, where, finally, the image is produced.¹⁸ In the above description Newton uses a “mechanical model” to explain the process of vision: visual impression is an effect of immediate interactions of multiple material particles, whose impetus is transmitted mechanically to other parts of the body (brain). On the basis of Newton’s materialist theory of vision and his corpuscular conception of light, Richard Payne Knight builds a similar mechanical model which serves to explain how we see things. Like Newton, he insists, that the nature of visual perception is mechanical, and that the mechanism of vision can be explained in the reductionist manner, through matter (i.e. atoms) and motion. Sight, he insists, is stimulated by coloured rays of light, which, after Newton, he describes as miniature solid bodies, or atoms. The rays fall upon the retina and cause “irritation”. Irritation is a mechanical impulse, which is transported, via tremors and vibrations

¹⁶ *Ibid.*, 58.

¹⁷ Newton Izaak, „Questions from the Optics” [in:] *Newton’s Philosophy of Nature. Selections from his Writings*, ed. H. S. Thayer, New York, 1960, p. 144.

¹⁸ *Ibid.*, p. 100.

of atoms, further, through the optic nerve, to the brain, where finally the image is created.¹⁹

Knight's materialist theory of sight is the foundation on which Knight constructs his conception of the picturesque taste. The objective now is to prove that the picturesque taste is, for Knight, a faculty which can be explained by means of material causes and mechanical models.

Sight is, as Knight believes, the only sense through which man can enjoy the picturesque, since the picturesque is, he claims, the subcategory of beauty addressed to the eye. In other words, the picturesque is, for Knight, identical with visual beauty, as distinguished from the beauty intended for the touch, the ear or the smell. Since the eye sees, as it has been demonstrated, nothing but colour, picturesque pleasure, according to Knight, must lay in the enjoyment of certain assemblages of hues. The question to be considered is what compositions of colours bring delight to the organ of sight.

The picturesque pleasure, is, according to Knight, an effect of the same mechanical cause which is responsible for the formation of an image on the retina: the "irritation" of the organs of sight by a beam of colourful rays, otherwise called the atoms of light. We experience picturesque pleasure when the "irritation" of our cornea with the colourful molecules is pleasant. Conversely, our eyes hurt "if the irritation be too strong", which happens when "the transitions of colour be too violent and sudden, and the oppositions of light and shadow too vigorous and abrupt."²⁰ Variegated and extremely bright colours apparently are associated with a stronger impetus of the colourful atoms and harsher irritation of the eye and optic nerve. There is no pleasure either, if the irritation is too weak, which happens when colours, are "too monotonous and feeble." In that case, "the sensation" is insipid and "too languid to be pleasing."²¹ Only medium irritation, when colourful rays are variegated but well harmonized, neither dull nor extremely harsh, is pleasant to the eye.²² However, stronger irritation also happens to be pleasurable to many perceivers because, according to Knight, the eye is, in the majority of people, "liable to be vitiated" and requires "such stimulants to give it pleasure as to give pain

¹⁹ R. Payne Knight, *Analytical Inquiry*, p. 58.

²⁰ *Ibid.*, 65.

²¹ *Ibid.*, 65.

²² *Ibid.*, 65.

to those of more refined sensibility” and oversensitive eyes.²³ Aesthetic pleasure is thus generally derived from richly coloured scenes and not from those of uniform colouring.

Variety of contrasting hues postulated by Knight was also considered a vital element of the picturesque by William Gilpin, the originator of the aforesaid aesthetic category. For Gilpin, the rich colouring was an effect of roughness, which he regarded the key feature of the picturesque. The rough “fractured rock,” he expounds, due to its variegated surface is covered by a diversity of colourful patches. “[...G]rey surface [is] adorned with patches of greenward running down its guttered sides [...]”. Consequently, “the rich colours of the ground arise generally from its broken (irregular, rugged) surface”.²⁴ Knight also insists on the multifariousness of colourful impressions, so he promotes the same type of aesthetics as that proposed by Gilpin. Knight, however, explains variety of colour scientifically, namely through the principles of molecular physics (irritation of the retina and cornea by certain assemblages of colourful atoms). In his interpretation of Gilpin’s theory of the picturesque, he refers to the legacy of the Scientific Revolution (mechanical models, materialist approach, atomism).

2.2 Descartes’ Man Machine and Knight’s Theory of the Picturesque

The discussion on Knight’s conception of the picturesque in the previous part of the article leads to a conclusion that the sense of picturesque beauty depends on mechanical causes. Such an approach to a sentient being and their cognitive functions is, obviously, inherited by Knight from Newton. However, the thinker who before Newton strongly insisted that “the same mechanical principles would suffice to explain both the animate and the inanimate” was Rene Descartes.²⁵ The aforesaid assumption led Descartes to the formulation of his famous thesis, namely, that a living body is a machine (i.e. an automaton driven by the same processes which occur in lifeless matter). In the fifth chapter of his *Discourse on the Method*, we find his declaration that man’s body is a “machine which, having been made by the hand of God, is incomparably better ordered and has in itself more amazing movements than any that can be created by men.”²⁶ Descartes’

²³ *Ibid.*, 65.

²⁴ W. Gilpin, *Three Essays*, p. 21.

²⁵ P.S. Agutter, p. 84.

²⁶ Descartes Rene, *A Discourse on the Method*, Oxford 2006, p. 46.

thought is vital in our discussion because the French philosopher was the first thinker to equate a sentient being and a machine, and an originator of an idea that organic life is restricted to mechanical processes. My aim is to compare the Cartesian mechanistic vision of a living creature with Knight's atomist conception of man's visual perception and aesthetic taste and to prove that Knight's man is, in a certain way, a machine.

Descartes bases his analogy of a man and a machine on the contemporary medical studies and his own research in the field of physiology. The engine of the human machine is, according to the French thinker, the circulatory system. The motions of the blood in veins are automatic and repetitive.²⁷ The perpetual circulatory blood movement is brought about by empirical, material causes, in the same way as the movement of any man-made machine is controlled by physical forces exerted by immediately applied material objects: levers, springs and cogwheels.²⁸ Having a purely empirical and material character, blood circulation is a subject of natural sciences, which discuss the properties of the inanimate nature.

Mechanistic conception of man in Descartes is also manifested in his tendency to apply reductionist explanations of molecular physics to the life processes in a living body. In *The Discourse on the Method*, he maintains that it is due to the actions and properties of blood molecules that some processes occur in different parts of our body; such as nourishment of our tissues or activation of our muscles. All these physiological processes occur in accordance with the rules of mechanics.²⁹ Furthermore, human sensual perception is regulated by motions of molecules in the organs of senses and respective nerves.³⁰ All in all, the natural world of Descartes, in which the body of man was not an exception, was, as Heller puts it, "a sum total of collisions, vibrations and tractions" of material particles (69).³¹ Man's body, on its macrolevel (body systems) and microlevel (molecules and their interactions), functions in the same way as a lifeless automaton driven by mechanical forces.

²⁷ Heller Michał and Józef Życiński, *Wszechświat – Maszyna czy myśl?*, Kraków 1988, p. 68.

²⁸ R. Descartes, *Discourse*, p. 40.

²⁹ *Ibid.*, p. 45.

³⁰ Karteusz, *Dioptryka* Kraków 2018, pp. 38-39.

³¹ M. Heller, *Wszechświat*, p.69. Descartes' detailed description of the natural world, which consists of infinitely divisible particles (hence not atoms, which are the smallest units of division of matter) their communication, clashes and movement is to be found in his *Principles of Philosophy*, part 2, 3 and 4. (Descartes Rene *Zasady Filozofii*, Kęty 2001)

Knight's man seems to be a machine in the Cartesian sense of this word: man's skills, such as sensual perception and the enjoyment of the picturesque (sensual, visual) beauty depend on automatic responses to mechanical stimuli. Material causes underly our sense of aesthetic pleasure; the mechanical model explains our sensual perception and our enjoyment of the sensual beauty.

Yet mechanicism in the Cartesian conception of man is restricted to the physical aspect of the human self, i.e. bodily systems, constitution of vital organs and the functioning of the organic senses; the French thinker does not extend his analogy between man and machine to the sphere of the human mind.³² If it comes to Knight, he creates mechanical models not only to account for physical processes (sensual perception), but also to explain how we enjoy the visual (picturesque) beauty. The skill of aesthetic judgement is commonly linked with the actions of the mind, such as fancy and higher feelings. Therefore, it might be surmised that Knight differs from the French thinker in that he extends the principles of molecular physics applicable to the lifeless matter not only to the organic life but even to the most elusive sphere of the human self, i.e. human consciousness, human imagination. However, in the closing passages of Book One of *An Analytical Inquiry into the Principles of Taste* Knight classifies the enjoyment of the picturesque beauty which proceeds from the irritation of the senses as solely physical pleasure. It occurs merely on the level of the organic senses and has nothing to do with the sphere of the intellect. He claims that:

the mere sensual pleasures of vision, which are at present exclusively the subject of inquiry, depend entirely on the primary impressions [addressed to the organic eye], unimproved and undistinguished by the intermixture of other notions or ideas, [...]: for as they consist in the different modes and degrees of organic irritation, they are of a totally distinct class from those which result from the operations of mind.³³

³²He identifies the psychical aspect of man with the Christian soul which is "distinct from the body" [belongs ontologically to a different sphere than the body], and therefore, the principles of physics applicable to our anatomical structures are totally irrelevant to the processes occurring in the human minds. The "sole nature" of the soul-mind "is to think." R. Descartes, *Discourse*, p. 38.

³³Knight, *Analytical Inquiry*, p. 90.

In short, our enjoyment of visual beauty, as described above, is nothing but an automatic reflex which occurs in the eye and the optic nerve (on the level of the body) on receiving an external (pleasant) stimulus.

It is only in Book Two of *An Analytical Inquiry into the Principles of Taste* that Knight introduces another, intellectual, kind of the picturesque beauty that appeals to “understanding and the fancy.”³⁴ The theme of the intellectual aesthetic pleasure discussed in Part Two of Knight’s *Analytical Inquiry* is, however, a broad subject which requires a separate extensive study and which remains beyond the scope of this article. Describing the intellectual aesthetic pleasure he leaves molecular physics aside and draws on psychological sciences, borrowing from such thinkers as Archibald Alison, John Locke, or David Hume.³⁵

Conclusions

The discussion of the picturesque in the first part of Richard Payne Knight’s *Analytical Inquiry into the Principles of Taste* is, on the one hand, a continuation of Gilpin’s aesthetic philosophy but, on the other hand, a thorough revision of the Gilpinesque thought. Knight agrees in general with his predecessor’s preferences in aesthetics, and, with Gilpin, extols such aspects in a scene as multiplicity of colour or prominent contrasts in light and shade. Knight, however, differs from Gilpin in that his aspiration is to account scientifically for the mechanisms underlying our response to picturesque beauty and, consequently, he reduces picturesque aesthetic pleasure to mechanical causes: he explains it through the impact of the colourful atoms which cause pleasurable irritation to the eye and optic nerve, and therefore, bring the sensual enjoyment.

Knight’s conception of visual pleasure was based on the mechanical model put forward by Newton in his theory of colours. Still, Knight’s idea of the picturesque and the mechanism of visual aesthetic pleasure actually is grounded in a larger context of the seventeenth- and eighteenth-century New Science, whose milieu was shaped by Newton but also by the Cartesian mechanistic conception of nature (man-machine), atomistic outlook, molecular physics and mechanical sciences. Embedded in such intellectual

³⁴ *Ibid.*, pp. 54–65.

³⁵ The foundation of the intellectual aesthetic pleasure is, according to Knight, „association of ideas”. *Ibid.*, pp. 64–65. Knight refers to the associationism of Alison, Locke and Hume.

context, Knight, a scholar and a well-read man, translated the theory of the picturesque coined by Gilpin into the language of the contemporary natural philosophy.

Richard Payne Knight: The Picturesque and Scientific Revolution

The aim of the present article is to show that Richard Payne Knight promotes the same style in aesthetics that was first described by William Gilpin in his theory of the picturesque, but that Knight also transforms the Gilpinian conception as he sets it in the context of the contemporary scientific thought. Gilpin enumerated characteristic features of the picturesque style, among which he mentions richness of colour and variegated chiaroscuro modeling. Variety of hues was also postulated by Knight. Knight referred to the Newtonian atomistic theory of colours and Newton's molecular physiology of visual perception to account for man's preference of the aforesaid assemblages of colours.

Keywords: picturesque, Scientific Revolution, atomism, mechanism, taste

Słowa kluczowe: malowniczość, rewolucja naukowa, atomizm, mechanicyzm, gust