Romanticism and the Universe

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Introduction

The purpose of this essay is to understand the spirit of Romanticism in relation to its view of the universe. For this purpose, it is essential to understand the impact on it of the Newtonian world view, because modernization, the main target of Romanticism, could not have proceeded without the prevalence of the Newtonian world view.

Romanticism generated and developed nearly a hundred years after the Scientific Revolution, and just in the middle of the Industrial Revolution, which is enough to show how essential a relation Romanticism has with modernization with its spreading of the modern scientific world view. Then what should first be investigated into is the relation between the dissolution of the medieval cosmos and the establishment of the Newtonian world view. Only after this investigation is fully answered, can we ask what the answers offered by Romanticism were to the problems caused by modernization.

Ⅰ. The Medieval Cosmos

It may look as if the Newtonian world view had been brought about by the establishment of Newtonian mechanics, but actually it was inside the framework of the Newtonian world view that Newton could formulate his laws. Therefore, it is behind the process of the fundamental change of world views, that is, the change from the medieval one to the modern one that we must find what caused the establishment of Newtonian mechanics.

Calling this change 'revolution', Alexandre Koyré argues:

> I shall therefore characterize this revolution by two closely connected and even complementary features: (*a*) the destruction of the cosmos, and therefore the disappearance from science—at least in principle, if not always in fact—of all considerations based on this concept, and (*b*) the geometrization of space, that is, the substitution of the homogeneous and abstract—however now considered as real—dimension space of the Euclidean geometry for the concrete and differentiated place-continuum of pre-Galilean physics

and astronomy.[1]

According to this characterization, we can understand the essence of this change as the quantification of nature, but to us who live in an already quantified world, it is very difficult to understand the meaning of the disappearance of the cosmos. Koyre explains:

> … the world of science, the real world, is no more seen, or conceived, as a finite and hierarchically ordered, therefore qualitatively and ontologically differentiated, whole, but as an open, indefinite, and even infinite universe, united not by its immanent structure but only by the identity of its fundamental contents and laws; a universe in which, in contradistinction to the traditional conception with its separation and opposition of the two worlds of becoming and being, that is, of the heavens and the earth, all its components appear as placed on the same ontological level …[2]

The characteristics of the cosmos explained above can only be fully understood when they are considered in relation to the medieval social order and the nature of human relationship in it.

The picture of the world as a hierarchically ordered whole was closely connected with and supported by the hierarchically ordered feudal system and church system. It is, therefore, on the basis of understanding the nature of this hierarchically ordered system that we can understand any other characteristic of the cosmos, such as the cosmos as a qualitatively and ontologically differentiated whole. The hierarchically ordered medieval system was essentially a system of values in which each position, whether social or natural, had its own meaning in the whole system. Each being in the system realizes its essence in its own position in the system. Even motions and activities were understood in relation to the essences of the moving or acting beings. In such a system one can find how one should live, through the social status to which one belongs. In every social status, one's way of life is formalized by tradition.

St. Thomas Aquinas's system can exactly be said to be the expression of such a cosmos. He neo-Platonized Aristotle's doctrine of form and matter by making it a picture of the world of a hierarchically ordered system descending from God to mere matter in which faith and reason, supported by this order, could both work as the way to ascend to God without a contradiction. It is, therefore, the appearance of Ockham's thought that what really exist in the world are separated individual things and that universals are mere signs of ideas in the mind that tells us the beginning of the dissolution of the cosmos. Ockham separated faith and reason, and asserted that God and eternal spiritual beings exist only as the objects of faith, and that reason works merely as a logic which establishes the necessary relations between signs. Ockham also denied the reality of the teleological sequence of time in which ideas are realized as the forms of individual things, saying that the chain of causes and effects can be traced infinitely. In Ockham's system there is no room for a hierarchically ordered system, but there appears the world of an infinite, homogeneous space in which

individual things exist independently from each other like atoms, and time flows equably from the infinite past to the infinite future.

Then what caused the dissolution of the medieval world picture of a hierarchically ordered whole? A world picture is nothing other than the reflection of the human relationship of the society. The human relationship of the hierarchically ordered medieval world was essentially that of what Martin Buber called the I-Thou relationship, that is, the relationship based on reciprocity. At the base of the medieval society were the consanguineous and reagional communities of peasants where the relationship between peasants was essentially reciprocal. On the communities of peasants the personified authority of the feudal lords was based, and therefore, the relationship between the feudal lords and peasants was of reciprocal nature. The relationship between the ruling feudal lords was that of feudal homage which, in essence, was a reciprocal one. The medieval world as a whole, therefore, was a large community, a network of I-Thou relationships between peasants, between peasants and feudal lords and between feudal lords, as in the hierarchically ordered medieval system, every being in the system had a common, though hierarchically ordered, spiritual element descended from God.

The hierarchically ordered medieval world system and the medieval world view based on this system were supported by the attitude of those people who belong to a community, and view the world from its inside as the extension of their community, that is, as the world based on the I-Thou relationship. This means that to them the nature of the world is essentially spiritual, as the nature of the I-Thou relationship is the relationship between those who have souls in them. Behind the dissolution of the hierarchically ordered system of the cosmos, therefore, we must think of the penetration into the system of a very different attitude toward the world, that is, the attitude to view the world from its outside in which the relationship between man and the world is what Buber called the I-It relationship. And this attitude, we can guess, was brought about by the penetration of a monetary economy into the medieval system from without.

The medieval hierarchical ordered world was such a system of values as a "qualitatively and ontologically differentiated" whole as Koyré pointed out. In the communication with other systems, however, which is necessary for the justification of the system itself, money gains a dominant position as a quantitative, and, therefore, more objective and transcendental standard of values. Paradoxically if money penetrates into the system, the system begins to be dissolved, because each component of the system now is and seeks to be evaluated from without by money as the quantitative and more universal standard of values.

Ⅱ. The Dissolution of the Medieval Cosmos and its Outcome

An image of the universe is actually nothing other than a reflection of human relations, and, therefore, is the reflection of a value system. Then it can naturally be said that the quantitative value standard was brought about by the attitude toward the world of those who were

engaged in a monetary economy. Those who are engaged in commercial activities have the attitude to view the world of space from its outside as their activities are practiced between communities and world systems with money as a quantitative, objective and universal standard of values in which a spatial distance is a very important factor. This attitude of merchants necessarily brings about the image of the world of a homogeneous and, therefore, infinite space. Those who are engaged in industrial activities have the attitude to view the world from outside its flow of time as they need to measure the flow of time quantitatively and objectively as the standard of the values of their products. This attitude of industrialists brings about the image of the world of both an infinite homogeneous expanse of space and an infinite equable flow of time.

Ockham's thought mentioned above was exactly the reflection of the attitudes toward the world of the people of commercial and industrial interest. During the fourteenth and fifteenth centuries, woolen industry came to rise in Britain through which a monetary economy rapidly penetrated into rural communities. It is, therefore, natural to think that this penetration brought about and disseminated a quantitatively calculable image of the universe. The result was the appearance of an infinite and homogeneous space in which each position lost its own unique meaning as it became nothing but a point in such a space, and that of an infinite and equable flow of time in which an Aristotelian, teleological, qualitative division of time also lost its unique meaning.

The dissemination of the quantitatively calculable image of the world naturally and necessarily dissolved the medieval cosmos with its status society, and there, in the infinite homogeneous expanse of space, and the infinite equable flow of time, what came to exist were only separated individual beings, existing in the state of atoms. In such a situation each individual person must face the world of an infinite homogeneous space and the infinite equable flow of time, as an individual, with faith and reason as separated faculties of the mind, the ground for the validity of both of which he must find in his own mind, not in the external world. An individual, as an individual with his own internal world, confronts the whole world, viewing it from its outside. An individual's relationship with the world comes to be Buber's I-It relationship, and, therefore, subject and object are now definitely separated, and paradoxically the scope of the world comes to coincide with that of self-consciousness.

Faith became that of Protestantism, in which God was the internal god that should be found in one's mind by being aware of the sinfulness and the weakness of human nature. In the hierarchically ordered medieval system, God existed at the top of the order to which man could reach by way of both faith and reason, through the church as a visible means. With the order, however, being eroded and dissolved, and with the external world becoming the infinite homogeneous expanse of space and the infinite equable flow of time, there was no other way for the evocation of God as the perfect and almighty being than by finding and emphasizing the imperfection and the powerlessness on the side of man.

Paradoxically the more one realizes the sinfulness in oneself, the surer one can be of his being saved by God.[3] With the change of world view, faith changed its nature. In the hierarchically ordered medieval system as a system of values, one was assured by the system itself

of one's being saved by God through faith, staying in one's position in the cosmos, following the way of life formalized according to one's status in the social system. This is enough to show how the faith in the medieval system worked for the control of human desire. Therefore, with the dissolution of the cosmos, one lost the way by which to control one's own desire, facing the world with money as the only standard of values and as the incentive of limitless desire.

The emphasis on human weakness and imperfection caused a sense of awe which was necessary to evoke the absolute being, and this sense could work as the most effective way to diminish desire to the minimum and then give full satisfaction to it through the conviction of salvation. This paradoxical working of the mind also appears in Romanticism, but in a different context, after the age of the Enlightenment.

When each individual faces the world of the infinite homogeneous expanse of space and the infinite equable flow of time with reason separated from faith, he must use reason methodically, that is, according to the standard for certainty in his own mind. Reason now is the faculty in each individual's mind, while in the hierarchically ordered medieval system reason was the order of the world itself where human reason existed as a part of it. In the medieval system the certainty of Aristotelian syllogism for knowing the truth of the world was assured by the system itself. With the dissolution of this system, however, there was nothing in the external world that could ensure the certainty of one's knowledge of it, and, therefore, one could not but depend on one's internal standard for certainty according to which one could proceed step by step.

Francis Bacon's experience was a methodically organized experience whose validity for knowing the external world was assured only by its procedure. Descartes reduced the external world to the formulas of analytic geometry, through which alone, he thought, the knowledge of it could be certain. However different they may appear from each other in their methods, they are common in considering the world of nature as an object that exists independently, and is subject to its own laws. This means that reason, separated from faith, should be directed to work according to the objective standard of truth which paradoxically man should find in his reason itself, that is, method.

Bacon was well aware that through the knowledge based on method alone man should improve his welfare in this world. Thus concerning the "end" of knowledge, he says:

> … I would address one general admonition to all; that they consider what are the true ends of knowledge, and that they seek it not either for pleasure of the mind, or for contention, or for superiority to others, or for profit, or fame, or power, or any of these inferior things; but for the benefit and use of life; and that they perfect and govern it in charity.[4]

In Bacon's thought, reason is supposed to work for ends, serving the satisfaction of human desire. He, therefore, thought it necessary to control human desire by subjecting it to higher ends, such as "the benefit and use of life" based on the objective standard. What is important

here is that to Bacon it is an individual that sets ends for the benefit of life in this world. And this is only possible when an individual as an individual takes the position to view the world from its outside, seeking the objective standard of values. In the hierarchically ordered medieval system, ends were included in the system itself, among which the end of eternal life was the most important. Bacon's idea, therefore, of an individual setting the end of knowledge for the benefit of man's life in this world, itself, betrays the dissolution of the medieval system, as the Aristotelian teleological time installed in this system loses meaning here. Bacon further attacked Scholastic knowledge based on Aristotelian syllogism as useless, whose validity was assured only by the existence of a hierarchical world order.

Bacon's method of induction is not a simple enumeration of examples, but a strict system of hypothesis construction and verification. The construction of a hypothesis, however, comes not from observations but from the world view. Bacon's only contribution to science was the elucidation of the thermal phenomena as the motions of particles, which was not based on observations as particles were invisible, but on his atomistic world view. Atomistic world view is based on the concept of space as an infinite homogeneous expanse and that of time as an infinite equable flow in their most radical form, which was brought about by the dissolution of the medieval cosmos, and the coming of an individual's attitude to view the world from its outside, seeking an objective standard of truth in reason itself.

Descartes sought the standard of truth for the knowledge of the world in mathematics, especially analytical geometry, because mathematics is the only system of knowledge which has certainty or self-evidence in itself. He, therefore, reduced the phenomena of the world into the motions of bodies. Then, if those motions of bodies are expressed in mathematical forms, the certainty of the knowledge of this world will be guaranteed, he thought. Actually the validity of Descartes' system itself cannot be verified, as it is based on his own world view, that is, the mechanical view of the world in which mind and body were separated, and mind as a subject exists outside the world, and views it as an object whose substance is a mere extension of matter, that is, the bodies whose motions are caused by inertia in the infinite homogeneous expanse of space and the infinite equable flow of time.

It should be noted that Copernicus's system was not supported by observation, that is, experience, but by the simple regularity of its mathematical expression. This means that the standard of truth for the expression of the reality of the universe was no longer the hierarchical world order, but the rationality of mathematics, though Copernicus still believed in the existence of celestial orbs. Once the mathematical expression was accepted, the qualitatively expressed difference between the celestial and the terrestrial worlds with its earth centered world view lost its meaning, and the center of the universe was now anywhere in the infinite and homogeneous expanse of space and the infinite equable flow of time in which matter was scattered as bodies like atoms moving according to the mathematically expressed laws. This is the essence of what we now call "the Newtonian world view", whose mathematical formulation was completed by Newtonian mechanics.

Ⅲ. The Newtonian World View and Imagination

In "Scholium" at the beginning of his *Philosophiae Naturalis Principia Mathematica* (1687), Newton lays out his concept of absolute time, space and motion. As for absolute time, he says:

> Absolute, true and mathematical time, of itself, and from its own nature flows equably without regard to anything external, and by another name is called duration: relative, apparent and common time, is some sensible and external (whether accurate or unequable) measure of duration by the means of motion, which is commonly used instead of true time …[5]

The essence of Newton's idea of absolute time is the time which flows equably from the infinite past to the infinite future. Then if we stand inside this flow of time, it is impossible for us to have any absolute measure for this time. Newton's absolute time, therefore, is actually relative time. For one to call this time absolute and real, as Newton does, it is necessary for one to take the position to stand outside this flow of time. And we suppose that Newton takes this position when he defines his absolute time as real time.

On his idea of absolute space, Newton says:

> Absolute space, in its own nature, without regard to anything external, remains always similar and immovable. Relative space is some movable dimension or measure of the absolute space; which our senses determine by its position to bodies: and which is vulgarly taken for immovable space …[6]

The essence of Newton's idea of absolute space is an infinite, homogeneous expanse. Then, as for its absoluteness, the same thing can be said about space as about time. If we stand inside this space, it is impossible for us to have any absolute measure for this space. Newton's absolute space, therefore, is actually relative space. For one to call this space absolute and real, as Newton does, it is necessary for one to take the position to stand outside this space, as Newton is supposed to do when he defines his absolute space as real space.

Then on his idea of absolute motion. Newton says:

> Absolute motion is the translation of a body from one absolute place into another: and relative motion, the translation from one relative place into another …[7]

The essence of Newton's absolute motion is the motion measured by the absolute standard in absolute time and space. And to Newton, knowing the truth of the universe is equal to finding the principles and laws of the absolute motions of bodies. Then to know the reality of the universe, we must take the position to stand outside the universe of the infinite,

homogeneous expanse of space and the infinite equable flow of time.

Based on this attitude of mind, Newton could construct the Newtonian mechanics, though Newton himself, under the influence of Cambridge Platonists, introduced into his system the concept of force perpetually working in the universe, and thought of a spiritual nature of the force in the universe. Newton's attitude towards nature, the world and the universe, however, was essentially the attitude based on the I-It relationship. Therefore, from Newton's universe spiritual elements disappear, and there comes an atomistic, mechanical and deterministic world view, such as Laplace's. Based on the same attitude toward the Universe as Newton's and on the Newtonian mechanics, Laplace could think of the possible existence of an intelligence that can know the state of the entire universe at any point of time in the history of the universe.

Is it, however, really possible to take the position outside the infinite universe? It is apparently impossible if we use our faculties of senses and logical thinking. It is only possible if we have the faculty of imagination which can mediate between the finite and the infinite intuitively.

On the faculty of imagination and reason, what Kant tries to shed light on in his *Critique of Pure Reason* (1781) is that Newton's idea of absolute time and space is based on imagination, and, therefore, cannot be proved to be real time and space. Kant further tries to make it clear that basic categories of human knowledge, such as quantity and quality, and relation and modality, are the forms of reason invoked by imagination, and cannot be proved to be corresponding to the reality of nature. From Kant's critical position, the whole system of modern science is based on human imagination, and, therefore, is an imaginative construction in which we can say nothing absolute about the universe.

Concerning the faculty of imagination, Romanticism takes quite the contrary position to that of Kant. Samuel Tailor Coleridge, like other Romantics, resorted to imagination as the highest faculty of the mind for the mediation between the finite and the infinite, and for the knowledge of the reality of the universe, saying:

> The Imagination then, I consider either as primary, or secondary. The primary Imagination I hold to be the living Power and prime Agent of all human Perception, and as a repetition in the finite mind of the eternal act of creation in the infinite I AM.[8]

In this definition, the infinity of the absolute being is seen in the eternity of its act of creation, while the absoluteness of the absolute being, the I AM, which, to Coleridge, is the creative process of the whole universe, is seen in its creativity itself as creativity includes the idea of origin as the standard and ground of absoluteness. For the finite mind to touch something absolute it is necessary to have the mental faculty for creation, that is, imagination which works for the "repetition in the finite mind of the eternal act of creation in the infinite I AM".

Here, to Coleridge, perception is creation, and the mind in Coleridge's system, through the faculty of imagination, is, in its act of creation, actually tracing the working of spiritual

forces descended from "the infinite I AM", that is, the eternal creative process of the whole universe. The finite mind, in this situation, must stand outside the whole universe including itself, and it can do so only through the faculty of imagination.

Coleridge further tries to explain the creative nature of imagination on the ground of his idea of self-consciousness. He proposes "SUM or I AM" as the first principle for the construction of his "Dynamic Philosophy", and he tries to express it indiscriminately "by the words, spirit, self, and self-consciousness", saying that a subject "becomes a subject by the act of constructing itself objectively to itself".[9] Only if we consider self-consciousness, the substance of imagination, as the perpetual process of self-construction, self-objectification, of the active subject, can we endow creativity to this process of the working of imagination for the knowing of the reality of the universe.

From all these, we can say that by using the faculty of imagination, one's mind as a subject can take the position outside the whole universe of the infinite time and space, and, by constructing itself objectively as an object, it can become a subject. It is this perpetual process of self-construction that is the essence of the realization of the transcendental nature of mind.

The transcendental nature of mind, however, wakes up in an individual self in the process of modernization. It appears inseparably with the advent of an individual who becomes an individual by confronting the whole world as an object to oneself. In this process the relation of an individual with the world becomes that of a subject with an object, i.e., the I-It relationship, not the I-Thou relationship. And it is in the I-It relationship with the world that the individual, finite mind realizes its nature of transcendence, through imagination, as the spirit working in modern science, in a modern nation state and in modern art and literature, by way of creation, the objective construction of itself, which leads to the unity of subject and object, man and the universe.

Conclusion: Newton and Wordsworth

For the purpose of this essay, it was necessary to inquire into the relation between the spirit of Romanticism and what constitute the metaphysical framework of modern science which lies at the very basis of the Newtonian world view. My hypothetical answer to this question was that, in both, the transcendental nature of human mind caused by imagination works which, however, came to be realized with the arrival of modern age as self or self-consciousness, as is shown by Coleridge's considerations on imagination. To make the point clearer, what we should attempt at this stage is to compare the structure of time and space, and the position of mind behind the literary works in Romanticism with those behind modern science.

We can take the best hint for this question from what William Wordsworth says about Newton in his poetical works. Wordsworth's room in St. John's College, Cambridge, was adjacent to Trinity College where Newton studied. On this, in his *Prelude,* celebrating

Newton's exploration, Wordsworth says:

> And from my pillow, looking forth by light
> Of moon or favouring stars, I could behold
> The antechapel where the statue stood
> Of Newton with his prism and silent face,
> The marble index of a mind for ever
> Voyaging through strange seas of Thought, alone[10]

From the phrase "for ever Voyaging through strange seas of Thought", we can imagine the space behind this poem as an infinite and homogeneous expanse in which one voyages for ever. What we should notice here is that to Wordsworth the expanse of space is to coincide with that of his own thought.

From the same phrase "for ever Voyaging through the strange seas of Thought", we can imagine the time behind this poem as that which flows equably from the infinite past to the infinite future. And what we should notice here also is that to Wordsworth the stretch of time is to coincide with that of his own thought.

From the considerations developed above, let us investigate where the position of mind is in this poem. First of all, there exists in this poem a mind that is "for ever Voyaging through the strange seas of Thought, alone" . This means that this mind is voyaging through the infinite, homogeneous space and time of the whole universe. And "alone" suggests that to this mind the whole universe coincides with the world of its own thought. In this poem, however, there exists another mind which can be an "index" for the mind voyaging for ever. And in this case, this "another mind" actually stands outside the world of voyager's thought, and, because of this positioning, it can provide the standard of truth for the voyager's mind. Then, it is only by taking the position to stand outside the world of its own thought that the voyager's mind can construct this world objectively as the real universe.

Wordsworth, therefore, seems to suppose that depending on its positioning, Newton's mind can both be the mind of the voyager and the mind as an "index", which makes it possible for Newton to construct the world of his thought objectively as the real world by standing its outside and presenting the standard of objective truth through the setting of an axis of coordinates in the infinite universe. This positioning of Newton's mind is exactly the same as the positioning of Wordsworth's mind when he composes this poem, which shows that this positioning of mind can only be realized because it derives from the transcendental nature of human mind itself.

From all these considerations, what I conclude is that behind Romanticism and modern science there exists and works the same framework of mind, the attitude of mind toward the universe, which comes from its transcendental nature. Depending on this attitude, overcoming the unbridgeable gap between subject and object in the modern world, both romanticism and modern science could express what they thought to be the objective reality of the universe, as the beauty in Romanticism and as the truth in modern science.

Notes

1 Alexandre Koyré, *Newtonian Studies* (Chicago, The University of Chicago Press, 1965), p. 7.
2 Ibid., p. 7.
3 Erich Fromm, *Fear of Freedom* (London, Routledge, 1960), p. 64.
4 Francis Bacon, *The Great Instauration* in *Collected Works of Francis Bacon* Vol. IV. (London, Routledge/Thoemmes Press, 1996), pp. 20–21.
5 Newton, I., *The Mathematical Principles of Natural Philosophy,* Eng. tra. by Andrew Motte, 2 Vols, (London, printed for B. Motte, 1850), Vol. 1, p. 9.
6 Ibid., p. 9.
7 Ibid., p. 10.
8 S. T. Coleridge, *Biographia Literaria,* ed. J. Showcross, 2 vols, (London, Oxford UP, 1907) I, p. 202.
9 Ibid,, pp. 178–83.
10 Wordsworth, W., *The Prelude or Growth of a Poet's Mind; An Autobiographical Poem,* (London, Edward Moxon, 1850), Book III, pp. 57–58.