

## **Martin Heidegger on Science and Technology: It's Implication to the Society**

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**ABSTRACT:** *Martin Heidegger stands out as one of the greatest philosophers in the contemporary period. His philosophy centers on Being. His contribution to philosophy is to recover the real meaning of Being that other philosophers had forgotten. For him, Being manifests itself anew at different times. He approaches this problem of Being in three stages, the first stage is Dasein analysis, the second is art and truth as a path to Being; the final stage is Being as a process that is expressed as Ereignis and Gelassenheit. Science and technology falls with the second stage of Heidegger's view on Being. Heidegger is not against science and technology but the abuse. According to Heidegger, the poet names the holy, the philosopher thinks Being, the men of science and technology are also inspired by Being; therefore, the men of science and technology should not produce things that will bring progress to man. But today people are slaves to things they produce one cannot think well again without using calculator or cell phone, one cannot spell English words correctly without the aid of computer. We are now annihilated human beings. In this work, I wish to make us aware of certain elements which might prove destructive to our society, if they are not properly guarded against in our bid to reach the apex of science and technology. Our method is textual analysis, a critical look at the original tools of Heidegger and the commentaries written on an aim by other books authors to know the effects of science and technology in our society.*

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### **I. Introduction**

According to Heidegger, man alone exists, God is, but he does not exist, angels are they do not exist, trees and horses are but they do not exist. Man gives meaning to this world by making tools, and uses things in this world by making tools, and uses things in his environment. The question arises: Does technology in any way lead man to a higher level of existence? In other words, does it facilitate authentic existence? If yes how and if no how can it be made so? Answers to these questions will be our major preoccupation in this work. However, before moving into the philosophical arguments in Heidegger's reflection on science and technology, it is pertinent to define some of our terms.

### **II. Explication Of Terms**

#### **Science and Technology**

The word science comes from the Latin word "Scientia" which means to know. Therefore, anything that can be known is science and is different from mystery. Mystery is that which one cannot comprehend and it is beyond human knowledge. Generally, the word science in recent times refers to knowledge in physics, chemistry, physiology, etc which are called experimental sciences today. Experimental sciences are different from philosophy and mathematics. Philosophy and mathematics are rational sciences which are developed by systematic reflection and analysis. Neither the mathematician nor the philosopher appeals to any observable facts except those of the common sense. Both can conduct in their exploitations while sitting at a desk, both are arm chair thinkers.

On the other hand, technology itself has a long history of its own. In the early Greek period, the word technology is derived from "Techné" and "logos" referring to discourse on both fine and applied arts. Later in the seventeenth century, it came to mean both the discourse and practice of applied arts only. Furthermore, in the first part of the twentieth century, it is referred not only to tools and machines but also to ideas, means and processes. However, in more recent years, it has come to be understood as "means or activities by which man seeks change or manipulates his environments."<sup>1</sup> To this effect tools are developed by man for his use. These tools which are ideas and concepts existed only mentally, and now have attained physical and practical existence. Consequently, the immaterial is materialized. At this level, utility is primarily emphasized. Indeed, some of the applied sciences have practical values. It is the practice of this category of applied sciences that is referred to as technology.

### III. Martin Heidegger On Science And Technology

For Heidegger, one cannot talk of technology without his reflection on art. According to Heidegger, technology is not evil but the abuse of technology is harmful. Heidegger also makes a clear distinction between technology and the essence of technology. Heidegger believes that art is a reflection which leads to the understanding of Being as Being. What is this limitation; this is the route through which Heidegger overcomes the limitation of aesthetics. For Heidegger, the understanding of art as aesthetics within metaphysics occurred with Plato and Aristotle. Art as aesthetics dimension which debases art as imitation occurred at this time. Prior to this and with the Greek early tradition of philosophy, the ideal status of art was upheld and which Heidegger attempted to restore. What is this ideal status? This ideal status is that art is a mystery and every artist was inspired that is why if one does not tell an artist the day he will deliver the work he/she will continue to work without stopping. C. S. Nwodo reflecting on this development observed by Heidegger says:

There is for him the early and later tradition. The former covers the pre-Socratics, especially Anaximander, Parmenides and Heraclitus. It is at this period, according to Heidegger, that philosophy reached its surpassed purity and excellence. The later includes Plato and Aristotle, to whom Heidegger attributes the end of philosophy and the beginning of metaphysics.<sup>2</sup>

Nwodo also maintains that Heidegger's reflection on art as an overcoming of aesthetics is a radical questioning about the quidity of art, a deepening of aesthetic categories that have lost their real meaning and force in the course of the history of western metaphysics.

Furthermore, Heidegger believes that art is not mere thing. By implication the work of art is not strictly speaking of a thing. The confusion is due to the fact that being equipment shares in both the nature of art and the nature of mere thing. Art is not a particular people at a particular time. According to Heidegger, the art work can be considered as a thing. But it is more than a thing. David Farrel Krell, editor of Heidegger's Basic Writings writes:

Heidegger.....the "thingly" quality of art works, as though "thing" were the genus to which one would add the specific difference "art" in order to make an artistic interpretation; of traditional concept. (1) The things as a substance to which various accidents or properties belong, or as a subject that contains predicates. (2) The things as unity within the mind of a manifold of a sense – impressions. (3) The thing as a matter invested with form. But these interpretations reflect their origin in a particular kind of human activity, involvement with tools or equipment.<sup>3</sup>

The art work has two kinds of meanings, the external and the internal aspects. The thingly element, which allows it to share with other objects and also have the internal element. The thingly element serves as the allegory and symbol and the other element distinguishes the art work from other objects and gives meaning. Heidegger calls it the authentic element. Therefore, art work is not just a mere thing. When Heidegger talks about the origin of the work of art "origin" here means that from which and by which something is what it is and it is. What something is, as it is, we call it origin.

The artist is the origin of the work; the work is the origin of the artist, neither one can do without the other. The work of art is out of and by means of the artist; works of art are familiar to everyone, all works have this thingly character. Heidegger says:

A thing, as everyone thinks he knows, is that around which the properties have assembled. We speak in this connection of the core thing. The Greeks are supposed to have called it *Ta-hypokeimenon*. For them, this core of the thing was something lying at the ground of the thing, something always already there. The characteristics however, are called *Ta-symbebekota*, that which has always turned up already along with given core and occurs along with it.<sup>4</sup>

However, we limit the term to lifeless object, piece of wood or equipment. The real things so called are those objects lying around that we can refer to as 'mere things'. Human beings, animals, angels and God could not be called things in any circumstances at all. Heidegger examines and describes the work of art in "Van Gogh's Shoes of the Peasant" which reveals three modes of being: of useful artifacts, of natural things and of works of fine arts. This work of art of "Van Gogh's Shoes of the Peasant" explains the value of thingness in the peasant who walks in those shoes while working on earth. Then it also shows the world picture; and finally discloses the kind of equipment used. Today, we cannot talk about the world without equipment. When we are talking about equipment we mean technology. For Heidegger, the basic characteristics of modern science and technology are the subject/object relation, reason, calculation and manipulation. At the root technology, Heidegger insists, we must find out the truth of our age.

Art work is non-practical, non productive enterprise, while technology is practical and productive. People generally say art is an expression of emotion and should not be confused with amusement or magic. Amusement aims at arousing emotion and sustains it as a stimulant or deterrent in practical life. Commenting Heidegger on art Hegel says: "art should not be merely a useful instrument in the realization of an end which possesses real and independent importance outside the realm of art".<sup>5</sup>

When one looks at things it seems art has nothing to do with technology with Heidegger the situation changes and the relation between art and technology is traced to a single root. Heidegger makes a distinction between technology and the essence of technology. Heidegger writes:

We shall be questioning concerning technology, and in so doing we should like to prepare a free relationship to it, the relationship will be free if, it opens our human existence to the essence of technology.<sup>6</sup>

When we can respond to this essence, we shall be able to experience the technology within its bounds. Technology is not equivalent to the essence of technology. When we are seeking the essence of a “tree” we have to come aware of that which pervades every tree, is not itself a tree that can be encountered among other things. Therefore, the essence of technology is by no means anything technological. Heidegger discussion on technology centers around the application of the principles of science to the practice especially modern use of mathematical calculation. In this connection he also maintains that there is a reciprocal relation between modern science and modern technology. When it comes to the discussion about the essence of technology Heidegger traces it to a common root. He makes a clear distinction between metaphysics mathematical project in science and technology. At the beginning of western thought metaphysics, art and technology had a common root, namely poiesis-techné, that is, at the dawn of man’s glimpse of Being ; before techné became technology and before poiesis became aesthetics. It is this common root that we are still reflecting.

Another aspect of technology according to Heidegger is about instrumental and anthropological. It is exactly at this juncture, that the anthropological aspect of overriding importance. The essential point Being the master or control of technique and directing it to “spiritual ends”. The essence of technique is to pass beyond the instrumental concept. Modern technology and modern science are one of reciprocal dependence. Modern technology is indeed the application in practice of the result of modern science; but modern science as experiment depends, to a great extent, on technological development: Manfred Fringes commenting Heidegger says:

Scientific progress is relayed by progress in the construction of experimental apparatus. Modern technique in as much as it is mechanized is mediated by mathematized science; and modern science in as much as it is experimental is mediated by modern techniques but more radically, transformation into Bestand; a fund, proceeds and requires the practice of a certain language; that certain reason, which is the modern, mathematized sciences.<sup>7</sup>

According to Heidegger, every significant thinker in the west since Plato has interpreted reality, Being, truth in a subjectivistic manner in which reason and logic dominated. As a result thinking became mere representation and calculation. Calculative thinking is used for solving problem and it is inferior to meditative thinking. Heidegger believes that there is in all technical processes a meaning, not invented or made by us, which lays claim to what man does and leaves undone.

To arrive at the essential feature of modern science we have to see how modern science appropriates “what rules and determines the basic movement of science itself”. Science in any age and at every stage of its development arises out of man’s “metaphysical projection” it is of natural things and the way it relates to things. Heidegger says the basic characteristics of modern science are the fact that it is “mathematical”. This does not mean that modern science is numerical or deals essentially with figures. The term “mathematical” comes from the Greek phrase “Tamatematika” which has two fold connotations.

Firstly, it means that which can be learned as well as that which can be taught. Secondly, the Greek word “mathesis” means teaching as well as the context of the teaching that is, the doctrine that is taught. Therefore, “mathematical” means that aspect of reality that one can learn and it can also be taught. Learning is a kind of grasping and appropriating not really things as things but in a use of things. This learning is not about to get things out but in a certain way, we bring it already with us.

Heidegger invites us to meditate on fundamental feature of modern science. Modern science is “mathematical” not because it deals with figures but because it is an axiomatic project. When we count or calculate the figure we use do not tell us the essence of what we are counting; nor do the things we are counting tells us what the number is. The numerical is therefore mathematical in the sense of being an a priori approach to things, an approach that works without really grasping the essence of what is approached. To understand modern science and technology it is important to go beyond their practical instrumentality and investigate into the mathematical and axiomatic as well as modern subjectivity. Modern science and technology are in essence the result of how modern man conceives the nature of things and its relationship to them. The men of science and technology are conscious of what happens in their age and this is about truth. Art, science and technology have a common root in the event of truth; this is because each is a form of production not in the sense of fabrication but in the sense of unconcealment; of making what is known or what is produced to emerge. The way a particular people of a particular epoch uncovers the event of truth or participated in this happening, would determine their history and civilization. In addition, Heidegger remarks:

The meaning pervading technology hides itself...that which shows itself and at the same time withdraws is the essential trait of what we call the mystery. I call the comportment which enables us to keep open to the meaning hidden in technology, openness to the mystery.<sup>8</sup>

In continuation, C. S. Nwodo commenting on technology in Heidegger says:

...art and technology are epochal manifestations of Being, both rooted upon the essence of truth as aletheia. The work of art is an incarnation in the history of the world of particular people at a particular time; that is an expression of their understanding of themselves and their relation to Being. It is also setting forth of the earth, thus the work of art is essentially a conflict between world and earth is also the event of truth as aletheia, a strife between light and darkness, between obscurity and unconcealment. This indicates the essential relationship between the work of art and the essence of truth as unconcealment.<sup>9</sup>

What one can understand from the above citation is that art properly understood is technology and that art, truth are co-related because they lead to Being which is a mystery. Heidegger cannot be forgotten about his phenomenological hermeneutics which he used in his approach to art. In the case of the relationship between the artist and the work of art. An artist depends on the work of art, also the art does depend on art work because without it, art is nothing but an abstract concept hence there is a mutual dependence at work.

According to Heidegger to become who we are requires two things in interpretation. Firstly, we can continue to be who we want to be. Secondly, what we are interpreting is already interpretative. This is because we are thrown into this world without background. Heidegger believes that any good interpretation should disclose something about human existence and the world. Here is different from Hans Gadamer who believes that every interpretation involves one's background or baggage.

#### **IV. Martin HEIDEGGER ON SCIENCE AND TECHNOLOGY: ITS IMPLICATION TO THE SOCIETY**

Naturally, man is technological, B. Franklin writes: "man is a tool making animal".<sup>10</sup> Infact, he is the only tool making animal, it means that he does not only make tools but uses tools, he also has the concept and idea of tools which he uses.

However, Heidegger believes that technology has some effects on man, some are positive while others are negative. On a positive note technology enhances man's standard of living. His traditions of existence become better with improved technology. The invention of sophisticated tools makes labour easier for mankind. Communication and transportation become more effective. In short, to the extent of making life become more comfortable.

On the other hand, there are some in human effects of technology in the society when one looks at it outweigh the advantages. For example, industrialization and environmental pollution.

Industrialization uses man as a means and not as an end, human beings now lack full use of their faculty and potentials. In deed, we are now slaves to what we have produced. For example, a person cannot thing mathematically again without using calculator or cell phones to calculate thing she/she buys in the supermarket. Again we cannot spell English words correctly without depending on the computer.

Environmental pollution from technology, this pollution comes from industrial wastes and causes skin diseases, cancer which is one of the most deadly diseases of our time. To be sincere, the disadvantage of technology in the society is more than the advantages. No wonder Heidegger says:

The essence of modern technology is enflaming. It means modern technology is not putting nature into an unreasonable deamdn.<sup>11</sup>

It means that modern technology violates the self limiting capacity or capacity that would seem to be "essential" to the organisms in question by treating human beings like machines. Man is no longer natural, his physical, psychical capabilities are either under used or artificialized. Modern ethics added to the artificialization and dehumanization of humanity by inventing life taking and life sustaining devices.

Above all, technological advancement in nuclear weapons seriously threatens the continued existence of humanity and even the whole range of living things. R. E. Leakey writes:

The third world war would almost certainly be the last war...our planet would be completely devastated and almost all forms of life, animals, plants and bacteria would suffer the same fate.<sup>12</sup>

Though, it is quite clear that science is an attempt to conquer nature and use it for man's own good, it is evident that the same nature is over exploited not only to the detriment of nature but also of the exploiter – man. H. Nasir puts it this way:

There is every-where the desire to conquer nature but in this process, the value of the conqueror himself, who is man is destroyed and his very existence threatened.<sup>13</sup>

Now that man's existence is threatened in this way and he exists in fear and doubt of continued existence, it becomes clear that though technology enhances human existence, to some extent, but a larger extent it is an agent of dehumanization.

Bertrand Russell affirms it when he says: “some of these scientific advancements create new fears and doubts as to the effects of science on human life”.<sup>14</sup> This characteristic of technology is an objectification of its role as a door to man’s inauthentic existence. Since according to John Macquarie “whatever kind of relation to the other that depersonalizes and dehumanizes is an inauthentic existence”.<sup>15</sup>

From the above citation, it is clear that technology is not creating an atmosphere for authentic existence.

## V. Evaluation

Heidegger places his interpretation of ancient technology against modern technology. The essence of Greek technology is revealing; equals the approach of the modern peasant who cares for and maintains his world. On the other hand, the essence of modern technology is also “revealing” but the revealing that rules in modern science and technology is challenging which puts nature to unreasonable demands. Therefore, technology leads to an inauthentic existence, chiefly because up till today, it has been taken the dignity of the human person into inadequate consideration. Today men are treated as means to an end, used for experimentation or even threatened to be destroyed.

So the recognition of the primacy of the human person vis-avis technological consideration weapon would be a long step towards the solution of our problem. Man should be seen as a human being who should be loved, respected, cared for and preserved instead of just moving lumps of matter with which anything can be done. Man should produce only those things that will make life better and not what will destroy life.

## VI. Conclusion

Heidegger is not against science and technology but against abuse of technology. He also makes a clear distinction between technology and the essence of technology. The essence of technology is very important to Heidegger and it is based on aletheia (truth) of each age and at every stage of all developments. In Heidegger Being and truth are closely related. It follows, therefore, that the philosopher who thinks Being, the real artist and the man of technology are like the poet who names the holy. They are both responding to the call and the challenge of Being; to the way Being chooses to manifest itself to man. The way Being chooses to reveal itself to man, either through art or through technology, does not depend on man; it depends on Being. For Heidegger, when man has learned to be “calmed” , when he no longer tries with the aid of technology to bend nature to his will only then will he be able to carry out his tasks as the “guardian of Being”.

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