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EXPOSITION OF MARTIN HEIDEGGERS PHILOSOPHY OF TECHNOLOGY: AN ANALYTIC APPROACH.

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ABSTRACT:

Technology has become a way of life in our time. Thus, virtually everything, human reproduction, human existence, human relationship and so on are now viewed from the technological framework. The recent unprecedented developments in technology have really called the attention for philosophical reflection. The wonders of modern technology have inspired the likes of Martin Heidegger to reflect critically on the essence of technology. In his usual style, Heidegger deconstructs the previous instrumental and anthropological definition of technology. He advances a radical criticism of the Aristotelian causes and argues that technology is a way of revealing. On this note, he points out that both the Ancient and the Modern technology deal with revealing. Heidegger goes on to highlight that the essence of technology is das Ge-stell, a word which is translated as enframing. Das Ge-stell simply means a way of challenging-forth that shows everything even man, as resources to be manipulated, ordered and conserved for man' s utility. Modern technology thus has set the stage for a more radical forgetting of Dasein (man). However, Heidegger prescribes meditative thinking, releasement toward things and openness to the mystery as the panacea to the dangers of technology. This work, therefore, using phenomenological and hermeneutical methods, attempts to critically evaluate Heideggers philosophy of technology.This research contributes to already existing literatures on Heideggers philosophy of technology.

GENERAL INTRODUCTION:

Martin Heidegger (1889-1976) was born in Messkirch in southern German in 1889. He was a German philosopher who developed existential phenomenology and is widely regarded as the most original and influential 20th-century philosopher. Heidegger, in his early years, is preoccupied with Seinsfrage, i.e. the question of being. In his Being and Time, he deconstructs the previous ontology as forgetting the question of being. Inspired by the question, why are there being instead of non-being, he chooses Dasein as the point of departure to the question of being. However, his later philosophy shifts from phenomenology of human existence to phenomenology of language and technology. People are more acquainted with Early Heidegger than Later Heidegger, which concentrates on language, technology and art. Thus, this thesis focuses on Heideggers critique of technology. It is worthy to note that Heidegger recorded monumental influence in different fields of life. Hence, Thomas Sheeman opines, " Apart from philosophy, Heideggers thought has had a strong influence on such disparate fields as theology (Rudolf Bultmann, Karl Rahner), existentialism (Jean-Paul Sartre), hermeneutics (Hans-Georg Gadamer), and literary theory and deconstruction (Jacques Derrida)" (Arrington; 2003, p.106).

THE BACKGROUND OF HEIDEGGER S PHILOSOPHY OF TECHNOLOGY:

Heidegger was not oblivious of the technological situation of his epoch. He experienced the agonies of the First and Second World Wars. He viewed also the inhuman destruction of one Million Jews in the Auschwitz concentration camp. He experienced the scourges of Atomic bomb test in Hiroshima and Nagasaki, Japan on August 6 and August 9 1945 respectively. On the positive perspective, he was not unaware of the technological developments recorded in Agriculture (mechanized food production) and in communication technologies (like radio and television). However, these notwithstanding, he observed with ontological wonder how the astronomical development of modern technology led paradoxically to the forgetfulness of man. On this note, we can grasp the purpose of Heideggers philosophy of technology from the very opening remarks of The Question Concerning Technology; which reads:

> In what follows we shall be questioning concerning technology. Questioning builds a way. We would be advised, therefore, above all to pay heed to the way, and not to fix our attention on isolated sentences and topics. The way is a way of thinking. All ways of thinking, more or less perceptibly, lead through language in a manner that is extraordinary. 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 (Heidegger; 1977, p.3).

The excerpt reveals clearly that Heidegger wishes to create a sort of technological enlightenment with his works on technology. He calls his project, a questioning which builds a way (Heidegger; 1977, p.3). The way can be likened to Heideggerian concept of truth (aletheia translated as unconcealment, unclosedness or disclosure). In order to achieve his project, he problematises the essence of modern technology. Heidegger draws our attention to his project with the paradoxical statement, " the essence of technology is by no means anything technological" (Heidegger; 1977, p.4). By this statement, he shows that he is not so much interested in the technological devices but in the ontology of technology. Technology for him is a mode of revelation of being within the present age.

DECONSTRUCTION OF THE CURRENT CONCEPTION OF TECHNOLOGY AS MEANS TO AN END AND HUMAN ACTIVITIES:

Heidegger in his usual style commences his critique of modern technology with the deconstruction of current conception of technology, as a means to an end and a human activity. This he calls the instrumental and the anthropological definition of technology (Heidegger; 1977, p.5). This definition of technology, according to him is correct, but not true. However, Heidegger posits that the correct instrumental definition of technology can aid us to seek the essence of technology (Heidegger; 1977, p.7). In this vein, he postulates that the relationship between end and means is causality. Hence, he highlights, " Wherever ends are pursued and means are employed, wherever instrumentality reigns, there reigns causality" (Heidegger; 1977, p.6).

On this note, he critiques the Aristotelian four causes with silver chalice: causa materialis, the matter out of which silver chalice is made; the causa formalis, the form or shape into which the material enters; the causa finalis, the end for instance, the sacrificial rite in relation to which the chalice is determined as its form and matter; and the causa efficiens, which brings about the actual chalice, the silversmith (Heidegger; 1977, p.6). Furthermore, Heidegger comments that for long time we are accustomed to representing cause as that which brings something about. On this note, the causa efficient (efficient cause) among the four causes remains the standard for all causality (Heidegger; 1977, p.7). Heidegger traces the etymology of cause (Causa, casus) to the Latin verb, cadere which means " to fall" , and denotes " that which brings it about that something falls out as a result in such and such a way" (Heidegger; 1977, p.7). Nevertheless, he argues that the Romans adulterated the original meaning of the word, cause. He explains that " causality in the realm of Greek thought and for Greek thought has nothing at all to do with bringing about and effecting" (Heidegger; 1977, p.7).

In this vein, he traces the origin of the cause to the Greek word, aition which means that to which something is indebted. Hence, he concludes that " the four causes are the ways, all belonging at once to each other, of being responsible for something else" (Heidegger; 1977, p.7). This means that the four causes are four distinct and unified processes that are responsible for the revelation of presence and bringing of presence into appearance. At this juncture, Heidegger argues from his demonstration that technology is beyond the correct instrumental definition; rather technology is a mode of revealing.

TECHNOLOGY AS A REVEALING:

Technology according to Heidegger stems from the Greek word, Technikon, which means that which belongs to techne. "Techne"according to him " is the name not only for the activities and skills of the craftsman, but also for the arts of the mind and the fine arts. Techne belongs to bringing-forth, to poiesis; it is something poietic" (Heidegger; 1977, p.13). " Also from the earliest times until Plato the word techne is linked with episteme. And the two words are names for knowing in the widest sense. They mean to be entirely at home in something, to understand and to be expert in it" (Heidegger; 1977, p.13). And such knowing provides an opening up, and as opening up, it is a revealing. However, Heidegger shows that Aristotle in his Nichomachean Ethics distinguishes between techne and episteme with respect to what and how they reveal. Techne is translated as craft and art; episteme, scientific knowledge.

Heidegger argues that techne brings something forth from concealment to unconcealment (Heidegger; 1977, p.13). Heidegger elucidates: " Technology is therefore no mere means.

Technology is a way of revealing. If we give heed to this, then another whole realm for the essence of technology will open itself up to us. It is the realm of revealing, i.e., truth" (Heidegger; 1977, p.12). Hence, he further highlights: " Technology is a mode of revealing. Technology comes to presence (West) in the realm where revealing and unconcealment take place, where aletheia, truth, happens"(Heidegger; 1977, p.13).

MODERN TECHNOLOGY AS CHALLENGING-FORTH:

Having established the fact that technology is a mode of revealing, Heidegger argues that both ancient and modern technologies are both ways of revealing. However, he opines distinctly and lucidly: " And yet the revealing that holds sway throughout modern technology does not unfold into a bringing-forth in the sense of poiesis. The revealing that rules in modern technology is a challenging [Herausfordern], which puts to nature the unreasonable demand that it supplies energy that can be extracted and stored as such" (Heidegger; 1977, p.14).

Andrew Mitchell explains that modern technology as challenging-forth leads to technological homogenization that diminishes the gap between subject and object; and transforms everything into an orderable and deliverable standing reserve, the human being included (Mitchell; 2019, p.125). In sum, to challenge-forth means to reveal whatever there is as a variety of resources (standing-reserve), to be effectively organized and used (Cerbone; 2008, p.142). Simpliciter, the revealing that reigns in Modern technology, unlike that of pre-modern technology, is violent, artificial and rape-like.

DAS GE-STELL: THE ESSENCE OF MODERN TECHNOLOGY:

Das Ge-stell is translated as enframing or positionality. Das Ge-stell is identified as the essence of modern technology. Heidegger describes enframing as " the gathering together that belongs to that setting-upon which sets upon man and puts him in position to reveal the real, in the mode of ordering, as standing-reserve" (Heidegger; 1977, p.24). Enframing is a way reality is revealed in the technological age. It is a kind of violent revealing that reveals everything including man as a standing-reserve to be mindlessly and uncontrollably manipulated and used.

Das Ge-stell in Heidegger' s words means: " To place, position, set means here: to challenge forth, to demand, to compel toward self-positioning. This positioning occurs as a conscription [die Gestellung]. The demand for conscription is directed at the human. But within the whole of what presences, the human is not the only presence approached by conscription" (Heidegger; 2012, p.26). In this excerpt, Heidegger uses the warlike term, conscription, which is the obligatory enrollment of citizens in the armed forces, to describe the activity of das Ge-stell. It is a forceful challenging forth of everything, ' the whole of what presences' , into a standing-reserve (Bestand).

Positionality or enframing is an aimless, endless, constant, continuous, uncontrolled, and unstructured ordering of reality into standing-reserve. Thus, in response to the question, " But now where does this chain of requisitioning finally run off to?" Heidegger answers this as follows:

> The hydroelectric plant is placed in the river. It imposes upon it for water pressure, which sets the turbines turning, the turning of which drives the machines, the gearing of which imposes upon the electrical current through which the long-

> distance power centers and their electrical grid are positioned for the conducting of electricity. The power station in the Rhine river, the dam, the turbines, the generators, the switchboards, the electrical grid—all this and more is there only insofar as it stands in place and at the ready, not in order to presence, but to be positioned, and indeed solely to impose upon others thereafter (Heidegger; 2012, p.27).

Enframing or positionality as the essence of technology denotes how the real is revealed in our epoch as piece of standing-reserve. Positionality is not the quidditas or what permanently endures or grants in the technologies. Rather it is how modern technologies structures nature or reality as a standing-reserve. Hence, by technology Heidegger means modern technology or machine technology. However, machine does not determine technology rather the essence of modern technology conditions machine. Heidegger argues; " Modern technology is what it is not through the machine, but rather the machine is only what it is and how it is from the essence of technology. Thus one says nothing of the essence of modern technology when one conceives it as machine technology" (Heidegger; 2012, p.32).

TECHNOLOGY, POSITIONALITY (ENFRAMING) AND NATURE:

If technology seeks to impose upon the forces and materials of nature; then it presupposes that positionality as the essence of technology is not universal since technology is limited by nature. This calls to question the universality of positionality and the relationship between technology and nature (Heidegger; 2012, p.38). Heidegger argues that we can grasp the answer to the relationship between nature and technology from natural sciences. Natural sciences do not tell us something about the essence of natural forces; however they calculate and measure its effects (Heidegger; 2012, p.39). Hence, in natural sciences, " Nature is represented as something actual, placed into measure and number, and presencing objectively in its having acted" (Heidegger; 2012, p.39).

Nevertheless, " Due to the essence of technology, nature, which to all appearances stands over and against technology, is already inserted into the standing-reserve of positionality as the fundamental standing reserve" (Heidegger; 2012, p.40). In the same note, Heidegger highlights; " In the world age of technology, nature is no limit of technology. There, nature is much more the fundamental piece of inventory of the technological standing reserve—and nothing else" (Heidegger; 2012, p.41). This also implies that positionality in its positioning is universal, since all that presences, even nature, shows itself in the manner of something constant in the standing-reserve that positionality orders (Heidegger; 2012, p.42). With this argument, Heidegger shows that nature is not a limit to technology rather it is the fundamental standing-reserve. It shows that das Ge-stell is universal phenomenon that transforms everything, including nature and man into standing-reserve.

DAS GE-STELL AND DASEIN:

Dasein (man) according to Heidegger is not in control of technology. However, he establishes that Dasein has a relationship with technology. Heidegger argues:

> Who accomplishes the challenging setting-upon through which what we call the real is revealed as standing-reserve? Obviously, man. To what extent is man capable of

> such a revealing? Man can indeed conceive, fashion, and carry through this or that in one way or another. But man does not have control over unconcealment itself, in which at any given time the real shows itself or withdraws (Heidegger; 1977, p.18)..

This statement unveils that man is not in absolute control of technology. He is involved in the production of the technological but he is not in control of the essence of technology, which is the way the real reveals itself as standing-reserve. This means that " the thinker only responded to what addressed itself to him" (Heidegger; 1977, p.18).

Heidegger further posits, " The human is thereby an employee of requisitioning. Humans are thus, individually and in masses, assigned into this. The human is now the one ordered in, by, and for the requisitioning" (Heidegger; 2012, p.29). Hence, this implies that human beings like other things are thrown into the uncontrollable wheel of das Ge-stell.

Nevertheless in most spectacular manner, he is the mediator through which the work of das Ge-stell is accomplished. Heidegger elucidates: " Yet the human belongs in positionality in a wholly other way than the machine does. This way can become inhuman. The inhuman, however, is ever still inhuman. The human never becomes a machine. The inhuman and yet human is admittedly more uncanny, while more evil and ominous, than the human who would merely be a machine" (Heidegger; 2012, p.37). The inhuman (inhuman) suggests not being human being while inhuman (inhumane) entails not being compassionate like human being should be. Human being in the age of technological dominance is placed into das Ge-stell and the human is a piece of the standing-reserve in the strictest sense of the words " piece" (Heidegger; 2012, p.35) and " standing-reserve" (Heidegger; 2012, p.35).

Technology as a way of revealing the real, presupposes that man only responds to and not create the mode of revealing. To substantiate this fact of man responding to the essence of technology, Heidegger enunciates:

> Only to the extent that man for his part is already challenged to exploit the energies of nature can this ordering revealing happen. If man is challenged, ordered, to do this, then does not man himself belong even more originally than nature within the standing-reserve? The current talk about human resources, about the supply of patients for a clinic, gives evidence of this (Heidegger; 2012, p.37).

Man, therefore, is challenged, not forced but factically framed or condemned to order nature and everything including himself as standing-reserve. Furthermore, Heidegger describes the relationship between man and technology as a sort of destining and not fate. By destining he means not fatalism or determinism, rather a framework of viewing reality.

Heidegger explains: " Always the destining of revealing holds complete sway over man. But that destining is never a fate that compels. For man becomes truly free only insofar as he belongs to the realm of destining and so becomes one who listens and hears [Horender] , and not one who is simply constrained to obey [Horiger]" (Heidegger; 1977, p.25). This implies that man is not determined by technology rather through intelligent questioning and critical relation to das Ge-stell he will be freed from the dangers of, and accrue the promise of, technology.

THE SUPREME DANGER OF DAS GE-STELL:

Heidegger shows that when destining reigns in the mode of Enframing, it is the supreme danger. This danger attests itself to us in two ways; namely: whatever that is unconcealed does not concern man as object, but exclusively as standing-reserve, and man in the midst of this objectlessness is nothing but the orderer of standing-reserve (Heidegger; 1977, p.27). Furthermore Heidegger argues: " But Enframing does not simply endanger man in his relationship to himself and to everything that is. As a destining, it banishes man into that kind of revealing which is an ordering. Where this ordering holds sway, it drives out every other possibility of revealing" (Heidegger; 1977, p.27).

Enframing not only endangers things and man as standing reserve, it also affects the possibility of revealing. Thus, enframing leads to one dimensional view of reality which is contrary to truth as concealing and unconcealment. This suggests that enframing views reality as mere standing-reserve and not as possibilities. Furthermore, Heidegger highlights: " What is dangerous is not technology. There is no demonry of technology, but rather there is the mystery of its essence. The essence of technology, as a destining of revealing, is the danger" (Heidegger; 1977, p.28). Hence, Rojcewics explains: " Here lies the prime danger, the one posed not by technological things but by the disclosive looking that constitutes the essence of modern technology" (Rojcewiez; 2006, p.142). What is most dangerous is that the danger does not show itself as danger. Heidegger posits: " The rule of Enframing threatens man with the possibility that it could be denied to him to enter into a more original revealing and hence to experience the call of a more primal truth" (Heidegger; 1977, p.28).

THE SAVING POWER:

Heidegger strikes a note of technological optimism when he laconically invokes the words of Holderlin, " But where danger is, grows the saving power" (Heidegger; 1977, p.28). The saving power' is not so much technology or bringing up technological solution to the problems of technology. Far from that, the saving power lies in considering deeply the essence of technology since in the essence roots and thrives the saving power. It is when we open ourselves to the essence of technology that we find ourselves taken unexpectedly into a freeing claim (Heidegger; 1977, p.26).

Developing a free relationship to technology does not suggest detaching ourselves from technology; rather it is leading a lifestyle that is not pervasively dominated by technology (Cerbone; 2008, p.153). It is about change in the mindset or approach to reality, not in technological devices.

In his address, Gelassenseit translated as Discourse on Thinking, he describes the free relationship with technology as follows:

> We can use technical devices, and yet with proper use also keep ourselves so free of them, that we may let go off them any time. We can use technical devices as they ought to be used, and also let them alone as something which does not affect our inner and real core. We can affirm the unavoidable use of technical devices, and also deny them the right to dominate us, and so to warp, confuse, and lay waste our nature (Heidegger; 1966, p.54).

The saving power can be described as Heideggers technological reformation which can be subdivided into two recommendations; releasement towards things and openness to mystery.

Releasement towards things is that comportment toward technology which expresses "yes" and at the same time "no" ; while openness to mystery is comportment which enables us to keep open to the meaning hidden in technology (Heidegger; 1966, p.54-55). Heidegger recaptures the complementality between releasement towards things and openness to mystery as follows: Releasement toward things and openness to the mystery belong together. They grant us the possibility of dwelling in the world in a totally different way. They promise us a new ground and foundation upon which we can stand and endure in the world of technology without being imperiled by it" (Heidegger; 1966, p.55). The saving power also lies in questioning, which is the piety of thought. That is questioning the ways in which science and technology frame us to conceive and describe our world (ourselves included) (Cerbone; 2008, p.154).

CALCULATIVE THINKING AND MEDITATIVE THINKING:

Heidegger paints the situation of his epoch which is not too different from the 21st century thus: The growing thoughtlessness must, therefore, spring from some process that gnaws at the very marrow of man today: man today is in flight from thinking. This flight-from- thought is the ground of thoughtlessness" (Heidegger; 1966, p.45). Heidegger, however, argues that man on the account of development recorded in research will flatly deny the claim of flight from thinking. On this note, he identifies two kinds of thinking, calculative and meditative; each justified and needed in its own way.

Heidegger describes them thus: " Calculative thinking computes. It computes ever new, ever more promising and at the same time more economical possibilities. Calculative thinking races from one prospect to the next. Calculative thinking never stops, never collects itself. Calculative thinking is not meditative thinking, not thinking which contemplates the meaning which reigns in everything that is" (Heidegger; 1966, p.46). Joan Stambaugh highlights the characteristics of calculative thinking thus; " representational, calculative, logical, rational, conceptual and one-track. We can rephrase these characteristic as objectifying, reifying, substantializing and conceptualizing. Briefly stated, this kind of thinking distorts and manipulates what is. It perpetrates the activity of enframing" (Stumbaugh; 1991, p.125). Calculative thinking deals with quantification, objectification, optimization and transformation of everything into standing-reserve nature.

On the other hand, meditative thinking deals with qualification, valuation and evaluation. In the words of Heidegger meditative thinking has the following attributes; " At times it requires a greater effort. It demands more practice. It is in need of even more delicate care than any other genuine craft. But it must also be able to bide its time, to await as does the farmer, whether the seed will come up and ripen" (Heidegger; 1966, p.27).

Calculative thinking is also called representative thinking, technological thinking and it deals with question of what and how; while meditative thinking is also called reflective thinking, contemplative thinking and concerns itself with unity and asks the question of why. By flight from thinking, Heidegger has in mind meditative thinking. Heidegger warns sternly against the domination of calculative thinking as the modus vivendi and modus operandi of our time.

Meditative thinking, however, prepares the way for eradicating the dangers of the essence of technology; it catalyses the practice of openness to mystery and releasement towards things. In

this sense, Heidegger advices that meditative thinking should be pit against calculative thinking (Heidegger; 1966, p.52-53)..

From the above exposition, we observe that the key to unlock Heideggers critique of technology is Das Ge-stell, the essence of technology. We pinpoint: " The 'revealing' of the Being of beings through poiesis (gentle revealing) has been displaced by the enframing of technology which 'challenges forth' and 'demands' entities to conform to the ordering of consumerism" (Ruth; 2005, p.263).Das Ge-stell is propelled by calculative thinking and has even turned man like every other thing into a standing reserve.

SUMMARY OF THE FINDINGS:

In the light of Heideggers critique of Modern technology, we observe that the essence of technology is not technological. This implies that technology is not about technological gadgets, devices, procedures, processes and operation. Technology is a mode of revelation of reality in our age. The essence of technology is das Ge-stell which forcefully reveals every reality as piece of standing-reserve, for manipulation and optimization. In this sense, technology leads to objectification, desecration, demystification of reality- every aspect of reality is subjected to optimum violent investigation, manipulation and optimization. This mode of revealing, das Ge-stell, which is violent challenging-forth of revealing everything (man included) into standing-reserve, is opposed to Greek way of understanding reality, poiēsis which is broader form of revealing than techne. Das Ge-stell obscures other ways of seeing things; hence, it is one dimensional. Das Ge-stell is the way of understanding reality in our contemporary world.

RECOMMENDATIONS:

One of the relevant lessons from Heideggers thesis is the need for critical questioning. The danger of technology is the reduction of every reality to standing-reserve. This is motivated by calculative thinking, which evaluates every reality with the litmus test of utility, profitability and quantity. However, like Heidegger, we recommend that calculative thinking and meditative thinking should work hand in hand. Reality is not a mere collection of facts; it has symbols and meanings. The import of this is that reality should not be subjected only to human exploitation; we should exercise openness to mystery and releasement toward things so as not to endanger our life and the universe.

We recommend that man should not allow technologies to take absolute place in his or her life. Hence, this calls for releasement towards technological devices. Sometimes one can consciously decide to perform some tasks without using the devices. For instance, one can practice making simple calculation off head, preferring physical and real presence discussion with friends to chatting on the virtual world, which often leaves one lonelier and emptier. Furthermore, in our technological practice, we should not pursue technology for technology sake. We should know that technology is for man and not man for technology. Hence, every technological development should aim at human development.

CONCLUSION:

Heideggers philosophy of technology spurs one into intelligent questioning and critical relation to technology. His diagnosis of das Ge-stell as the source of technological danger and promise is quite apocalyptic; and also his prescription of meditative thinking, which prepares the ground for openness to mystery and releasement towards things, is redemptive and practical. Questioning

technology means seeking for the relevance of technology to man. This questioning is a philosophical attempt to promote the dignity and integrity of man amidst technological development. And all are invited to this questioning which constitutes the piety of thought.

REFERENCES:

Arrington, R. L. ed. (2003) "The World's Great Philosophers", Blackwell Publishing Ltd., Oxford.

Cerbone, D. R. (2008) "Heidegger: A Guide for the Perplexed", Continuum International Publishing Group, New York.

Heidegger, M. (2012) "Bremen and Feinberg Lectures", trans. Andrew J. Mitchell, Indiana University Press, Indiana.

Heidegger, M. (1966) "Discourse on Thinking ", trans. John M. Anderson and E. Hans Freund, Harper and Row Publishers, New York.

Heidegger, M. (1977) "The Question Concerning Technology and Other Essays", trans. William Lovitt, Harper & Row Publishers Inc., New York.

Mitchell, A. J. (2019) "The Question Concerning the Machine: Heidegger's Technology Notebooks in the 1940s-1950s", in Heidegger on Technology, ed. Aaron Wendland, Christopher Merwin, Christos Hadjioannou 115-135, Routledge, New York.

Rojcewiez, R. (2006) "The Gods and Technology", State University of New York Press, Albany.

Ruth, I. F. (2005) "Heidegger's Threshold: Philosophy of Environment and Education", PhD thesis, University of Glasgow.

Stumbaugh, J. (1991) "Thoughts on Heidegger ", University Press of America Inc., Maryland.