

THE INTERPLAY OF ETHICS AND APPLIED SCIENCE: A DIALOGIC

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Abstract

The rise of applied science was interpreted as the end formal philosophy. Ethics, understood as the sphere of moral philosophy, was one of the major branches of formal philosophy feared to have been rendered invalid as a result of the inventions of applied science. A study of the writings of Hume, Marx, Nietzsche, and other modern philosophers reveals a tacit agreement on the uselessness of philosophy in general and ethics in particular. Construed as incapable of serving as an agent, of change, as inculcating a servile attitude that is inimical to progressive change, and of projecting unverifiable claims, ethics was surely on the way to its grave, to be buried alongside Nietzsche's dead god. The new prediction was that applied science, with its assurance of verifiability and its toga as an agent of universal change and control would dictate the pace and fate of humanity. This paper adopts the dialogic method as it seeks to investigate the status of ethic in a world dominated by inventions of applied sciences. Its finding is that applied science has not caused the death of ethics. It is rather strengthened it. The study equally reveals a sort of symbiotic relationship that exists between ethics and applied sciences. In this sense, ethical questions are understood to have, originally, given rise to applied sciences while scientific sustain the relevance of ethics in today's world.

Keywords: Ethics, Applied Science, Dialogics

Introduction

Ethics, since the period of the ancients, has been classified as one of the major branches of philosophy. As a branch of philosophy, ethics has enjoyed unparalleled attention from philosophers as they consider it necessary for human flourishing and for the maintenance of the social contract upon which society rests. According to Lacey (1996), Ethics is defined simply as "an enquiry into how men ought to act" (p.102). Immanuel Kant gives us an inkling into what

constitutes this ought of ethical conduct. According to Kant as cited in the *Blackwell Guide to Kant's Ethics*, one should only act in such a way that one's manner of acting can be universalized (p.19). This is the kernel of what he calls the categorical imperative. The categorical imperative rests on the assumption that men will always want to do good. Up to this point, ethicists are all agreed. However, controversy begins to emerge when they want to conceptualize the good, and how to arrive at the good. An interesting position about what is good and how to arrive at the good is presented by the pragmatists. According to pragmatists, all eternal values upon which other philosophers built their concept of good are proscribed as non-existent. The pragmatist paradigm constructed a notion of value and the good that, even though they exist are temporary. In this regard, what is good or valuable does not have eternal existence. Its goodness or value is a subject of time.

Indeed, for James (1975), what the pragmatist merely did was to give a new name to an old way of thinking. This way of thinking at a time in the history of thought. Proscribed the whole philosophic edifice, including ethics, as valueless. Jacques Derrida (1994) reckons the preponderance of this proscription in the 1950s. He writes that: "in the 50sthe eschatological themes of the "end of history... of the 'end of philosophy,'"..... of the 'end of man,.... And so forth were our daily bread". (p.4). Derrida's account was far from being historical, he merely reported what he observed in his own era since what he reported had been a major factor in the history of ideas since the 18th century. If anything, we are led by him to observe that the practice continued till the 1950s. Daniel Bell regards the whole practices as it relates to ethics as "the mockery of ethics". (p.68).

This proscription of philosophy in general, and ethics in particular, has gone hand in hand with the promotion of science in general and applied sciences in particular. It was as if the world intellectual system interpreted ethics and applied science as contradictions that could not co-exist. Thus, because it was the era of pragmatism, when whatever had value acquired it because of its well-demarcated practical utility, it was easy to sacrifice ethics in the name of promoting applied sciences.

Applied sciences, as a branch of science, entails the concrete application of abstract scientific principles, theories and laws, in the production of material goods. The application is responsible for the emergence and growth of industries. Applied sciences made it possible, for the first time, to station some scientists outside the walls of the universities. The back and forth collaboration of the ivory tower scientists with the scientists of the engine mill ensured the steady growth, progress and refinement of modern day technology. This paper undertakes a stock-taking. It examines the state of applied sciences and ethics in our contemporary world, the paper argues that the mockery of ethics has not led to its death. It shows how the foundation of ethics is being strengthened by events necessitated by applied sciences.

On the Method of Dialogics

Dialogics is a relatively new method. Its adoption in this paper stems from the understanding that it is a method that will best capture the relationship between ethics and applied science. In the words of Ike Odimegwu (2010), dialogics:

... is the mode of being as well as method of knowing of integrative personhood. It is the art and science of dialogue, the mode of being founded on the relatedness of or communality of being. It is the method of knowing that grows by acceptance and mutual integration, the method of discussion or discourse characterized by the intercourse of complementarities. It is a mode of relation based on dialogue, i.e., the collecting and holding together of various persons, arms, stages and facets of a relationship, conversation or investigation in a harmonious whole by virtue of comprehensiveness and reciprocal dialogics conceptualizes the phenomenon of gaining by giving of meaning and being.

Odimegwu's definition emphasizes the following as prominent points of dialogics: integrativity, dialogue, relatedness, communality, acceptance, mutuality, intercourse, complementarity,

reciprocity, appreciation, gaining and giving. These are interrelated words and they create powerful images about what dialogics aims to achieve. However, the definition seems to restrict dialogics to person. Even the allusion to ‘arms,’ ‘stages’ and ‘facets’, can be interpreted as abstracted human persons. We can easily show that as a mode of being, dialogics can be extended to every reality in as much as every reality has this integrative tendency. In this way, the dialogue which is envisaged in dialogics is natural at every level of the being of every reality. The most visible of this can be noted in the mutually advantageous exchange of air between plants and animals, and indeed man. This way, dialogics thrives on the plurality of being and complementariness of being.

The definition of dialogics given above seems to have taken its meaning from the two root words **di** (two) and **logics** (science of correct reasoning) from which it emerged. Thus, what is achieved in the method of dialogics is correct reasoning between two or more entities. From this perspective, we understand dialogics as reasoned argumentation with emphasis on mutual understanding. This presupposes openness for understanding can only thrive in a state of openness where differing forces bare themselves to each other. Understanding entails accommodation and assimilation. An important aspect of understanding is the containment of the objective of understanding in the subject of understanding. When understanding is mutual, it means that both subject and object have assumed identity as one leaves a piece of itself in the other. Odimegwu expresses this powerfully in his poem *A Piece of Me*. What this means is that one is always present even in a situation of physical absence in so far as the other with whom it is engaged in dialogics relationship is present.

Ethical Influences on the Emergence of Applied Science

As the history of thought reveals, the disciplines of philosophy and science emerged as speculative and contemplative subjects. Taking delivery directly from the hand of the gods, Prometheus, the early recipients of the gifts of philosophy and science felt, justifiably too, that both philosophy and science would provide insight about the mysterious sunny and starry heavens. The strictly abstract nature of

early philosophy and science can only be explained from this perspective. Both Pythagoras and Plato excelled in this. Following from this lead, science was wholly natural, concerned with just arriving at systematic and theoretic knowledge much as philosophy did.

The quest to bring science to the study of the earth and service of man was a relatively late endeavor championed by Francis Bacon. Bacon's strategy which sought to establish new heaven on earth was based on a new interpretation of the Bible based on the belief that nature could be manipulated in ways that are advantageous to the human beings. For Rutherford (2007), Bacon begins this by a radical transformation of the Christian virtue of hope which was built on the belief that better things lay ahead of the believers and the highest of these being eternal life after death. Bacon's own interpretation was so closely related to the belief of the modern day Jehova witnesses. He held that the ultimate eternal life which a Christian hoped for was re-establishment of the Garden of Eden here on earth deprived man as a result of Adam's fall. The establishment of Eden can only be actualized only when one assumes his rightful place as master of nature, possessing the ability to transform it. The transformation of earth was construed the true task of science.

We intend at the end (like honest and faithful guardians) to hand men their fortunes when their understanding is freed from tutelage and comes of age, from which an improvement of the human condition must follow, and greater power over nature. For by the fall man declined from the state of innocence and from his kingdom over the creatures. Both things can be repaired even in this life to some extent, the extent, the former by religion and faith, the latter by the arts and sciences. For the curse did not make the creation an utter and irrevocable outlaw. In virtue of the sentence 'In the sweat of thy face shalt thou eat bread' (Genesis 3: 19), man, by manifold labours (and not by disputations, certainly, or by useless magical

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ceremonies), compels the creation, in time and
in part, to provide him with bread, that is to
serve the purposes of human life.(II.52)

The restoration of the Garden of Eden which Bacon anticipated could not be achieved by relying on the old Aristotelian deductive reasoning.

It is futile to expect a great advancement in the sciences from overlaying and implanting new things on the old: a new beginning has to be made from the lowest foundation, unless one is content to go round in circles for ever, with meager, almost negligible, progress. (I. 31)

What follows was Bacon's immediate rejection of deduction and introduction of induction as new method that would aid in the restoration of man dominion over nature to be championed by the new science which was expected to be experimental as opposed to the old which was speculative. The above represent some of the metaphysical and epistemological background that led to the emergence of applied science. However, our ultimate concern is to show the role played by ethics in this emergence. This could be seen by deciphering the background theory that influenced both the metaphysical and epistemological background to the theory. On this note, Donald Rutherford (2007) is right in pinpointing epicurean atomism as the moral theory upon which Bacon rested his position. Epicurean atomism is based on the moral doctrine of hedonism which holds "that pleasure is the only non-instrumental good and pain the only non-instrumental evil". (P.20)

Thus the dominion over nature which Bacon advertised was conceived as a way of increasing pleasure and decreasing pain. Adam's fall brought about pain in the world as man was banished from the Garden of Eden as he lost his authority and dominion over nature. Science held the only hope for restoration. Much as Bacon

advocated experimental science his own approach to science can be said to be majorly speculative like that of his predecessors. The credit for the practical the actualization of Bacon's projections was left to his contemporary, Galileo Galilee. Galileo began his vocation in science as a natural scientist as was obtainable with his contemporaries and all others before them. For Russell (1996), Sponsored by the famous Medici family in honour of whose sons he would later name four of his discoveries, Galileo's scientific knowledge soon yielded the following discoveries and studies: "the importance of acceleration in dynamics, the law of falling bodies, the study of heliocentricism, and of projectiles". (pp. 489-492). In all of the these studies and discoveries Galileo was not quite different from his contemporaries whose scientific works were still speculative in nature.

The speculative nature of natural science had taken the discipline beyond the reach of ordinary men and non-scientists. The topics which formed the basis of discussion in the field, as far as a non-scientist was concerned were majorly 'occultic' reserved only for the initiated. Nudged by a personal feeling of guilt that the practice of natural science was permeated through and through by the ethical principle of egoism as the public viewed the scientists as people interested only in satisfying their personal curiosity, Galileo persevered to show that his research and studies can be demonstrated to the ordinary man. The countless experiments which were carried out before an advertised public, was to purge himself of guilt and prove the relevance of his Endeavour. In time, the experiments proved very important as they saved him from losing the sponsorship of the Medici and other patrons. The highest point of his experimental activities was the viewing of the outer space with the telescope which he had earlier constructed. The construction of the telescope, one of the earliest applications of scientific knowledge in the production of material goods, was also influenced by the ethical demand to prove the practical utility of his endeavour.

The success achieved in science, in making it experimental, and in applying it to solve concrete problems in the world was phenomenal. In a matter of time, what started as a mere construction of telescope

to view the celestial bodies led to the establishment of new economic and technological world order, among others. The increasing gains of technological and economic system entrenched by applied science are captured thus by Douglas Dowd.

For the first time in history, existing resources and technology taken together had made it possible for all 6 billion of the earth's inhabitants-now or within a generation-to be at least adequately fed, housed, clothed, education, and their health cared for.

The Mockery of Ethics

This success of applied science in meeting human needs, and making life easier on earth influenced the demand made on ethics to prove its own practical utility. It is not surprising that the first of this demand arose in the heat of the industrial revolution in the writings of David Hume. Hume sought the practical utility of ethics in the great world that was unfolding before him. Aubrey Neal (2007) writes that Hume holds the opinion that metaphysical speculation and moral abstractions about duty and conscience are unnecessary in the real historical world reason has opened up before us. This is the natural consequence of Hume's (1988) division of knowledge into two namely, relations of Ideas and Matters of Fact.

As conceived by Hume, Ideas are the truth of mathematics and logic. These can be approached and understood theoretically. Facts on the hand are truth about human behavior and the workings of physical nature, and they combine to form what he called natural sciences. As opposed to mathematics and logic, natural sciences cannot be understood theoretically. Only empirical observation can yield knowledge about the natural sciences. Aubrey Neal (2007), Hume placed ethics on the scales which he has created. It became clear that since ethics is neither logic nor mathematics it cannot be classified in the realm of ideas. He holds that it can also not be graded in the realm of natural sciences since ethical claims as constituted cannot submit to empirical observation.

Take any action allowed to be vicious: Willful murder, for instance. Examine it in all light, and see if you can find that matter of fact, or real existence, which you call vice. In whichever way you take it, you find only certain passions, motives, volitions and thoughts. There is no other matter of fact in the case. The vice entirely escapes you, as long as you consider the object. (p.23)

Hegel's own mockery of ethics was built on his critique of Immanuel Kant's categorical imperative. Hegel (1977) holds that it is a historical fact that God is dead. The consequence of this, therefore, is that ethics has become useless. The idea of the death of God celebrated by German philosophers has its origin in Martin Luther's theology. Luther had argued against Nestorius heresy that even though Christ was God and man that it was the man aspect of Christ that was crucified. In countering Nestorius, Martin Luther held that death on Calvary was 'God's martyrdom, God's blood, and God's death' Hegel and Nietzsche after him seized on this position that the death of God has rendered ethics bunkum. This death of God, according to Hegel, implies that history should be left to unfold on its own, without any attempt ever to control it. Thus for Aubrey Neal (2007), 'no idea or constellation of ideas could possibly mount a resistance to history because the only force powerful enough to give history a moral purpose had been eliminated from the universe. What Hegel desired was that the industrial revolution should be allowed to run its course. It is a moment in history and it comes with its own demands, exploitation, slavery, and colonialism. In Hegel's view, these represent clear, upward and progressive unfolding of history moderated only by the state which has taken over the role of God.

The idea of the death of God did not stop with Hegel. Indeed, it became more popular in Fredrick Nietzsche that many students of philosophy easily point at Nietzsche and credit him with originating the idea. Nietzsche arrived at the same conclusion as Hegel that the death of God entailed the death of morality. Unlike Hegel, it is to

individual man that Nietzsche would give the type of rein which Hegel gave to history and the State. The superman who has taken over the place of God is henceforth the ultimate ruler, he decrees what is good and what is bad. The traditional ethics is made useless because the ideals prescribed like virtue, patience, humility, and so on would not permit free expression to the superman

The writings of Karl Marx represent another instance of subversion of ethics in philosophical literature. In open adulation of the inventions of modern science, a factor that must have influenced Roger Scruton's classification of Marx as pseudo scientist, "Karl Marx had sought the material value of philosophy". (p.193). Applied science had yielded the steam engine, it had yielded a new form of production and commerce, and by extension a new form of social and economic relation. In more historical circumstance, it also transformed the prevailing feudal society into a capitalist society, and Marx had hoped that it would also be responsible for the transformation of the capitalist society into a communist one. Marx had tried in vain to locate the contributions of philosophy in the face of these visible changes. His own frustration is exhibited in the famous saying that philosophers had understood the world, but the problem remained to change it. Marx did not deny the influence of philosophy in society, rather he viewed change as instant of positive progress of history. Thus, philosophy, if it has had any effect, as Marx was sure it has had, was nothing positive. Richard Norman (2003), in the case of ethics Marx viewed ethics "as a typical examples of ideology, implying that moral beliefs are by their very nature a product of class interests and class standpoints, that they are relative to particular social and historical condition and that they can have no independent rational validity". (p.469). In the capitalist society, morality becomes an instrument in the hands of the propertied class for the exploitation of the masses. In the proper Marxian understanding, alienation is conceived as the greatest of crimes, and the harsh criticisms which he doled out to ethics is because of his judgment that ethics is one of the systems that engender alienation of the masses.

Applied Science in the Re-emergence of Ethics

What has been portrayed so far seems to give the impression that the mockery of ethics is sanctioned by applied science. According to J. Kekes (2006), the freehand given to applied science stems from the tacit agreement that its outcomes have “changed human lives to the better” (p.469). The philosophers considered above seemed to have viewed ethics and applied science as two contradiction that cannot coexist. In the proper Hegelian concept of dialectics, ethics becomes the minor term in the dialectics and it is surprising that it was swallowed up in the logic of the dialectics.

The unfolding of history has shown that past philosophers were wrong in interpreting the relationship between ethics and applied sciences in dialectical terms. This interpretation was responsible for the failure to develop a system of ethics that would go hand in hand with developments in applied science. As a result of this, applied sciences had the whole field to itself. However, the discovery that applied science, promoted for its promise to ensure human flourishing and progress, was the background cause of slavery, colonialism, two world wars, and so on, seemed to have opened the people’s consciousness to the fact that applied science has been turned into an instrument of profits and human destruction rather than for ensuring human flourishing. In the work of Dowd (2000), this scenario had influenced Albert Einstein’s proclamation that applied science, particularly as it pertains to technological progress “could be compared to an axe in the hand of a pathological criminal”. (p.19). Einstein’s outcry was not an isolated case. It was made at the back of the general public distrust of science and the promises it holds out.

This called up the necessity for instrument to regulate applied science in such a way that it would remain helpful to the human course especially for the most elementary of it all, self-preservation. According to Albritton (2009), one suggestion put forward was that of Sir David King, the chief science adviser to the UK government, who advocated a “universal code of ethics for scientists much like the Hippocratic oath for doctors in order to rebuild trust between science and the public” (pp.193-194.). For Haldane (2003), the state of affairs has come as a scandal to philosophers in general and ethicists in particular as it has discovered that professional moral

philosophy has had nothing to say in the face of the enormous ethical challenges thrown up by development in applied science.

The period from the 1950s has seen concerted efforts by philosophers in general and ethicists in particular to face these challenges thrown up by applied science. Indeed, philosophers had worked with unmatched zeal with the aim to gain lost times. Their efforts have yielded a new type of ethics known as applied ethics that responds to challenges thrown up in the field of applied science. As a new system of ethics, applied ethics has responded well to those scientific and medical questions as euthanasia, weapon production, stem cell research, cloning, business, environment, and so on.

Conclusion

This paper has shown that applied science and ethics are not contradictory disciplines. Rather, the two are complimentary, engaged in dialogic relationship with each other. The paper has also shown how the germ for the emergence and continuation of one lies in the other. The emergence of applied science in the first instance was made possible by certain ethical consideration. Reciprocally, despite the views held by some philosophers in the past that the emergence of applied science meant the death of ethics, applied science has provide the impetus for the revitalization of ethics in our own days. As could be expected, people's confidence and trust that were eroding in the sciences have been restored due mainly to the intervention of ethics.

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