The Quest for a Sure Foundation of Cognitive Beliefs: Karl Popper's Fallibilist Critique of Rationalism and Empirisism

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Abstract
The question of sure foundation of cognitive beliefs is a problem in epistemology and has defied solution. Both rationalism and empiricism lead to a common philosophical dead end: all we know is idea so that the existence of the external world remains an unjustifiable posit. This realization unleashed epistemology from its foundationalist moorings and occasioned theoretical renunciations. Karl Popper is one of the formidable contemporary thinkers to break ranks with foundationalism. He abandoned the search for proof which is a fundamental assumption of foundationalism and asserted that such rejection is necessitated by virtue of the fallibility of human knowledge. He therefore held that our problem is to find better and bolder theories; and that critical preference counts, but not belief. The upshot is that the search for a sure foundation or certainty of our cognitive belief is a philosophical will o' the wisp. All we need is a pragmatic choice of methods and theories to get on in the world.

Introduction

Sure Foundation (Foundationalism)

When a philosopher talks about 'a sure foundation' for our knowledge-claims or beliefs, he also means certainty or indubitability of our knowledge. It is part of the intellectual mandate of the philosopher to probe the certainty or sure foundation of knowledge. In fact, an important component of the raison d'être of philosophy is this quest after certainty or

sure foundation, although it is unfortunately not the case that philosophers are agreed on what sure foundation or certainty of knowledge consists in (Ayer,1956:41). The concept of 'certainty' or 'sure foundation' of knowledge has different connotations for the empiricist and the rationalist. For the rationalist, certainty or sure foundation of knowledge is a synonym for 'necessary' or 'a priori'. In this light, it is said, for example, that no empirical statements are certain. What is meant by this is that they are not necessary in the way a priori statements are. They can all be denied without contradiction. Hence rationalists take a priori statements as their ideal and from these they build alleged sure foundation for knowledge. Meanwhile, empiricists regard sense experience as certain. They pin on sense-data as the ultimate basis for knowledge and spawn their epistemology on such foundation.

Cognition

It is important for the proper analysis of the concept of 'cognition' to differentiate it from its associated concept, *perception*. Perception can be defined as the processes of immediate experience in an organism. This links perception with sensation. Perceptual processes include such primitive acts as 'seeing', 'tasting', 'smelling' and 'feeling' (Koch, 1959: 402). Perception is differentiated from cognition first, by the etymological origin of the latter. Cognition is derived from the Latin word 'cognoscere'. Secondly, the *Dictionary of Philosophy and Psychology* defines cognition as 'the being aware of an object' (Baldwin, 1960: 102). Further analysis proffers that the predicate 'being aware' involves both presentation of object and the concomitant judgment. Hence, the definition runs in step with the inherent constituent elements of the concept of cognition, that is, presentation of an object to the senses and the concomitant inference.

Beyond this definition of cognition, there are further illuminating empiricist and rationalist accounts. The empiricists maintain that all knowledge is acquired through experience (sense-data information) and explain this cognitive process by their theory of associationism. On the other hand, the rationalist account of cognition finds its clearest expression in Kantian thesis that the process of cognition is regulated by *pure concepts of the understanding* (*the categories*) not given in experience. The categories are pre-existing structures of the mind according to which sensory material is ordered and organized into consciousness. The empiricist and rationalist accounts of cognition are nevertheless reconcilable. In the final analysis, our cognitive structure depends upon both 'nature' (our innate endowment or the Kantian categories) and 'nurture' (the Lockeian associationism)

Belief

Belief is such a dynamic concept that it does not have a fixed and all-time meaning. In some of its uses, the word has an emotive overtone, for example, when a person speaks of belief in God, indicating thereby an element of trust in and esteem for the object. But in most cases belief becomes the acceptance of something as being the case. (Benton, 1973: 929). Conceived in this way, it is a species of knowing that is not certain but probable.

Further elucidation of the nature of belief is aptly given by F.P. Ramsey's picturesque characterization. For him, belief is 'a map of neighboring space by which we steer'. (Amstrong, 1973: 3). What Ramsey means to convey is that it is action-guiding as well as being an interpretation of reality. It is in this light that belief is distinguished from mere thought, the latter of which is a mere entertaining of a proposition. It was David Hume in his Treatise who became the first

philosopher to point out that believing something should be marked off from merely entertaining that thought. (Quoted in Hendel, 1995: 70).

Cognitive Belief

Cognitive belief is a synonym for 'knowledge-claim'. Any justified belief is indeed a *cognitive belief;* cognitive, because it makes knowledge –claims about the world which can be appraised true or false depending on whether or not there is evidence supporting them. Whatever cognitive belief we may hold can ultimately be reduced to either a position in empiricism or rationalism which are the theoretical spectacles with which we see the world and comprehend it. By questioning whether there is a sure foundation for cognitive belief, we are paradoxically questioning the reliability of our conceptual tool by which we begin to know in the first place. We appear to be trying to lift ourselves by our epistemological bootstraps.

Fallibilism

This is a philosophical position which holds that, as human beings, we are liable to make mistakes or be wrong in what we claim to know. The concept as employed here is the conclusion of Karl Popper's philosophy of science arising from his abandonment of the quest for proof and the consequent rejection of the verification principle of Rudolph Carnap.

Rationalism and Empiricism as Fundamental Theories of Knowledge

The point has been made in the foregoing analysis of cognitive belief that whatever knowledge-claim we may entertain can ultimately be reduced to a position in either

empiricism or rationalism or a combination of both. It is so because all epistemological theories are basically classified into empiricism and rationalism. They are the two basic ways of knowing and both have had a long and chequerred history during which various versions of each have developed. Meanwhile, it is proposed here to interrogate these versions to determine how they fare in meeting the skeptic's quest for a sure foundation of cognitive beliefs.

Rationalism

This is an epistemological theory which maintains that, in addition to what we know by experience, there are certain innate ideas or innate principles, which we know independently of experience and which do not only organize or regulate the latter but are also prior to it. The first explicit expression of rationalism in Greek philosophy was made in Plato's doctrine of *forms* or *ideas* which are not known by the senses, but by reason alone. In the Phaedo, Plato explains how the sense may show things to be more or less equal, though equality itself (the just equal) is not seen or felt but known independently of sense.

The rationalist innate ideas or innate principles are epistemological equivalents of Platonic *forms* which, according to Plato, may be recalled from knowledge that the soul possessed prior to its union with its present body or may be directly apprehended. The resume of Plato's account of rationalism which, unequivocally, is the mainstream rationalism is that:

i. Whereas sensory experience is superficial and deceptive, the soul or reason nevertheless is able to know, and know infallibly, the immutable, and the essential forms that exist separated from the phenomenal world.

ii. The senses do not reveal the true structure of the world but reason reveals it.
iii. A universal science that is eternally true is possible.

These three fundamental tenets of traditional rationalism are as far-reaching in their implications as they are controversial. Nonetheless, the subsequent continental rationalists, Descartes, Spinoza, and Leibniz sought to lay down an all-time foundation for knowledge upon these tenets and, particularly, on the mathematical fabric. Their efforts at proffering a sure foundation of our knowledge were, however, fraught with problems. Beginning with Descartes, it is notable that his chain of epistemological deductions crumbled in the circularity of his argument. He qualified the absoluteness and finality of *intuitus* (intuition) by appeal to God as the final guarantee of the truth of what is known clearly and distinctly (Benton, 1973: 931), but his argument about his own existence from his consciousness that he thinks and, subsequently, of God's existence rests on intuition; the latter of which he first set out to prove.

Continental rationalist thesis that knowledge is essentially an intuitive apprehension of simple, axiomatic truth is also mired in difficulties which have to do with how to relate or couple the complex structure of deduction to such simple, intuitive truth. The continental rationalists argued that deduction is mediate knowledge of the complex and can be known in the strict sense because, according to them, each implication in the deductive process is intuited, but it should be noted that the implication cannot be that simple. It is only in the sense of a simple relation. This qualification of 'simple' raises the further difficulties: this 'simple relation' is not simple in the sense assumed and required by rationalism; and if deduction lives on these simple relations, then it has to be confined to the reasoning of pure mathematics and not venture

into inferences about the natural world which are neither simple nor clear and distinct.

Reflecting further on the difficulties arising from the continental rationalist attempt to proffer sure basis for knowledge, it is important to consider Leibniz's Calculus project. Leibniz sought a new symbolic logic that would ease the burden of philosophical speculation and at the same time ensure accuracy. Given such logic, he believed that philosophers could settle their differences with the ease of an accountant, merely by calculating. The failure of Leibniz logical and epistemological calculi lay in its failure to couple contingent or general facts to the slim skeleton of necessary truths. It is noteworthy that Bertrand Russell's attempt to carry a head Leibniz's program in his (Russell's) logical atomism also met similar frustrating difficulties.

The difficulties of continental rationalism discussed above can be summed up thus: it was built upon a mathematical model which emphasized the relation of ideas to each other and, therefore, had no clear connection with things as they really are. It was a mere logico-mathematical account of reality and not a verifiable or concrete account of reality as such. This is why Kant criticized traditional rationalism for 'intellectualizing appearance'.

More problems of rationalism will emerge after the consideration of Kantian and post-Kantian rationalism. Kantian rationalism is a peculiar form of rationalism in the sense that it is a critical rationalism; 'critical' in the sense that it consists in the inquiry into the facility of reason with reference to all the knowledge which it may strive to attain independently of all experience. In other words, it asks and answers the question 'what and how much can 'understanding' and reason know apart from all experience?'(Stumpf, 1977: 304) To answer this question, Kant had to direct criticism against the faculty of reason itself,

dismissing as 'dogmatic rationalism' the attempt to interpret and summarize the natural on the pattern of logical analysis and relation of ideas.

Kant's argument against 'dogmatic rationalism', as he described traditional rationalism, is predicated on his view that whereas the mathematician constructs his own concepts, defines for himself what a triangle is, sets down axioms, and draws chains of inferences with exactness, the philosopher deals with concepts of metaphysics, such as space, time, substance, and causality, or of morals or aesthetics and does not construct his concepts but has to wait on experience and then seek concepts that appear to explain it. It is on this view of the process of human knowledge that Kant laid the foundation of his program to build a bridge between rationalism and empiricism: that is, that knowledge must involve the operation of two distinct faculties, sensibility and intellect. In other words, Kant argued that knowledge cannot come from sensory input alone; there are certain pre-existing 'categories' according to which this sensory material is ordered and organized. Examples, according to him, are space, time, and causality. These 'categories' are a priori and inherent in the mind. In Kant's view, there is no way to see the world except in terms of these categories. It is as if we looked at the world through colored spectacles that we can never take off. If these spectacles are red, then redness is necessarily a part of everything we see. (Gleitman, 1983: 112)

Kant's program, no doubt, has its own flaws as part of the general problems of rationalism. But before considering these, digest of Hegel's rationalism is apt since it remains the most famous rationalism after Kant. On account of its grandiose postulations, Hegel's rationalism came upon the 19th century intellectual world like a big deluge. Known as the Absolute Idealism, it maintains that the fundamental reality is not

matter but mind, of which matter is one manifestation. Absolute Idealism is a bogus and hydra-headed thought system expressible in many and various areas of thought and practice. Here, it is proposed to only nibble at its epistemological margin. Kant had shown that knowledge is possible because the mind itself produced the forms of knowledge through its various categories. But while Kant assumed that these forms of knowledge received their material content from the 'given' of experience, Absolute Idealism argues that the content as well as the forms of knowledge must be the product of the mind. In this way, Hegel came to his famous conclusion that 'what is rational is real, and what is real is rational'.

To see the full meaning and consequence of Hegel's rationalism, the following reflection is necessary: we do experience a world of things external to us which we recognize as existing independently of us and which we did not create. If all objects of our knowledge are the products of Mind, but not our minds, it must be assumed that they are the products of intelligence other than that of a finite individual. Therefore, all objects of knowledge and all objects, and indeed the whole universe, are the products of an Absolute Subject, an Absolute Mind. Following absolute idealism, man's knowledge is participation in the Absolute's knowledge of Itself. In this light, F.H. Bradley whose idealism bears a strong imprint of Hegelianism posits that: "Reality was known always, and now (in me) its knowledge occurs. My contribution leaves it unincreased, and yet is indispensably requisite" (Quoted in Benton, 1973: 936)

Apart from the difficulties discussed in the foregoing which make it impossible for rationalism to furnish a sure foundation of cognitive belief, there are other problems which arise from Kantian and Post-Kantian rationalist programs. Kant and Hegel set out to elucidate the problem about the

origin, nature, and operation of human knowledge but they hardly left matters clearer. In the first place, Kant proved his genius in conceiving an original anatomy of reason and knowledge but it is an incomplete anatomy with the way he failed to prove, as he said, that there is a rule, an innate order, the transcendental unity of apperception, which organizes the medley collection of sensuous data. He assumed this synthetical order and operation which detracts from his critical program.

Another frustrating difficulty in Kantian anatomy of reason and knowledge is his position on the relation between reason and *noumena* (things-in-themselves). This difficulty was of much concern to the German idealists especially Fichte. The difficulty then, is: if reason has no access to the world of *noumena*, that is, cannot know that world, how does one come to know that it exists? Besides, Kantian rationalism which converts regulative concepts like duration, space and relation into metaphysical existents (things-in-themselves) has not increased our knowledge but merely bloated ontology. The difficulty of the rationalist program is made worse by Hegel's thesis that 'what is rational is real, and what is real is rational'. This thesis is frustratingly circular and does not help the epistemologist in knowing certainly what exists. It is no credit to Hegelian rationalism that it is characterized by the belief that logic alone can tell us a great deal about the world. Hegel's flight to pure logic is mainly because he contends that the world as it seems to be is self-contradictory and, therefore, illusory; while the real world, since it must be logically self-consistent, is bound to consist of a single Absolute. But logicians have faulted this Hegelian consistent Absolute because, according to them, relations and plurality, space and time, are in fact not self-contradictory.(Russell, 1935: 57)

Furthermore, one is in full agreement with William

James and Henri Bergson in their rejection of a rationalist epistemology (such as Hegel's) founded on the regimentation and orderliness involved in a world created by logic. Faulting Hegelian idealism, William James writes:

> The "through-and-through" Universe seems to suffocate me with its infallible and impeccable all-pervasiveness. Its necessity, with no possibilities; its relations, with no subjects; make me feel as if I had entered into a contract with no reserved rights, or as if I had to live in large seaside boarding-house with no private bedroom in which I might take refuge from the society of the place…. It seems too buttoned-up and white-chokered and clean-shaven a thing to speak for the vast slow-breathing unconscious Kosmos with its dread abysses and its unknown tides. (Quoted in Russell, 1935: 56)

One agrees with William James in the above quote that Hegel's rationalism is too logical and all-encompassing to meet the search for adequate knowledge of ourselves and the world.

In the light of the above difficulties of traditional, Kantian and post-Kantian rationalism, a dismal, though compelling, conclusion stares us in the face: rationalism cannot proffer a sure foundation of cognitive beliefs. Almost every truth concerning the real world that has been held by rationalists to be self-evident has proved to be open to some question or doubt. Even in mathematics, an area of human knowledge that various rationalists have used as a model, there is basis for disputing claims of certainty. The history of mathematics indicates that developments and changes have taken place in mathematical knowledge up to the extent that

some theorems that were regarded as true have had to be modified or discarded. There is no doubt that there has been less diversity of opinion in mathematics than in any other area of human inquiry, but the fact that disputes and revisions are possible casts shadow on rationalists' claim to indubitable or sure foundation of knowledge. Nonetheless, rationalism can be saved from its epistemological strait. We will turn to this after equally examining whether empiricism can proffer indubitable or sure foundation of knowledge.

Empiricism

Empiricism as a theory of knowledge maintains that sense experience is the source and basis of knowledge. In what follows, we will treat a little bit of the history of empiricism, it's naïve and critical versions as well as the attendant difficulties.

It is possible to trace empiricist tendencies as far as the early beginnings of philosophy. At least, empiricist elements are discernible in the pre-Socratics although it is in Aristotle's philosophy that empiricism was first systematically formulated. (Benton, 1973: 937). The pre-Socratics have a right to be regarded as empiricists although they were not consciously so. Their empiricism lay in their curiosity to fathom the nature of the external world, and also in their bid to solve the problem whether the apparently different objects in it are ultimately composed of one material, for instance, water, air, or fire. Their concern was with what exists and not with the knowledge of it or with the mind that knows.

It is interesting to note that the debate between empiricism and rationalism began in the dispute between Leucippus (an empiricist) and Parmenides (a rationalist) over whether the world can, in its ultimate constitution, be described as monistic or pluralistic. Leucippus, whom

Aristotle said was the first to put forward the atomic theory, opposed Parmenides' monist theory which was built on rigorous, though thin, logic. By his criticism, Leucippus adjudged the monist theory false and put forward in its place a pluralistic atomic theory, asserting the existence of a void between the particles of reality.

Democritus took over the atomic theory and defended it in very strong terms. He gave the first empiricist account of knowledge by his view that sensation is due to the passage of atoms from outside objects through the sense organs into the soul which, like all else, is material and consists of atoms. Though images are left in the soul, they are inevitably distorted in the process and likewise the knowledge gained. No matter how crude Democritus theory of knowledge may seem, it is significant that the tall structure of empiricist theory of knowledge in modern and contemporary philosophy rose from such humble Democritean beginnings.

Systematic formulation of empiricism began with Aristotle who rejected Plato's general mistrust of sense perception. Sense perception, Aristotle argued, provides the starting point of learning; hence, his popular statement that 'without sense-perception there can be no learning and no understanding'. These ancient rumbles about the source and nature of knowledge were to shape the concept of empiricism in modern philosophy. Modern empiricism is epitomized by the epistemological theories of John Locke, George Berkeley and David Hume. These philosophers' positions on the basic tenets of empiricism are common: that our mind is, at birth, like white paper, void of all characters. It lacks innate ideas though it does possess innate powers. Ideas come to be written upon our mind through sensation of the external world. Locke speaks for traditional or mainstream empiricism when he writes that, "These two (sensation and reflection) are the fountains of knowledge from whence all the ideas we have or

can naturally have, do spring". (Benton, 1973: 937)

Problems of modern empiricism including its inadequacies as a sure foundation of knowledge began with Locke himself acknowledging the difficulty involved in the interpretation of 'having an idea', whether it is the same as 'knowing' in the strict sense. Locke, in Book IV of his *Essay Concerning Human Understanding*, acknowledged that 'knowing' in the strict sense cannot be identified with 'having an idea' as in the sense of perceiving, but with intuiting that ideas are, or are not, related in certain ways. Nevertheless, Locke concluded that this 'having an idea' is 'sensitive' knowledge that is more than merely probable. A man cannot deny that the sun that he now sees exists. Sense perception is knowledge of existents. This view that what the senses give are the representations of objects in the world is called representationalism (representational theory of perception). This is a form of naïve empiricism.

Locke's theory of representationalism generated heated philosophical controversies about the relationship between sense data and objects in the world, that is, the relationship between the mind and the external world. These controversies led to a phase of empiricism described as critical or rigorous empiricism. George Berkeley, who was one of Locke's foremost critics, regarded representationalism as a millstone around Locke's neck. In faulting Locke's representationalism, Berkeley argued that an idea may possibly represent another idea: A could be like B (in which case, A and B are ideas), but A can never be like a material thing and cannot represent it. Berkeley, therefore, rejected the widespread assumption that a material world exists beyond the veil of ideas but, even if it were true, Berkeley would still hold that having ideas would throw no light on its nature.

Following Berkeley in plumbing the certainty and

adequacy of Lockean epistemological foundation, it could be seen that Locke reduced all cognitive ideas to their barest, 'the simple ideas'. This reduction helped Locke to show that the most complete ideas had reference, however remote, to what really existed since they are reducible to simple ideas which, Locke assumed, resembled real things. Simple ideas, according to Locke, are the most basic elements of knowledge. Locke sees simple ideas as the 'primary qualities' of objects which are known immediately or directly. Reflection on primary qualities produces what Locke called 'secondary qualities' which, according to him, "in truth are nothing in the objects themselves, but powers to produce various sensations in us by their primary qualities" (Popkin and Stroll, 1969: 194)

Contradiction in sensory experience (like hallucination and color perception) forced Locke to doubt whether the ideas of secondary qualities do resemble the qualities of real things. In view of this, one sees that Locke's quick and labored distinction between ideas of primary and ideas of secondary qualities does not help him or any other person in solving the problem of representationalism. Yet, for the empiricist, the origin of knowledge lies in the gaining of ideas and it would, in the light of the running argument, appear to follow that the knower cannot really know his world because, apparently, the only means of doing so is through the discredited representations. Berkeley's answer is that ideas do not represent a material world and that this need not disturb the would-be knower who knows only ideas because, as he says, there is no material world. Berkeley adopted this position in his effort to solve the difficulties of Locke's representationalist theory. To Berkeley therefore, what exists and what is real is solely mind having ideas, either the mind of man or the mind of God to ensure the continuity of the world when the mind of man is not there to perceive things.

It would be noted that the uncertainty and skepticism which discredited the representationalist theory and renders empiricism unable to proffer sure foundation of knowledge were already potent in Locke; for Locke warned that "certainty and demonstration are things we must not in these matters pretend to". The Scottish philosopher, Hume, turned this potent skepticism to express actuality and thereby pushed the frontiers of rigorous empiricism to dizzying limits as he maintained that we are only aware of 'impressions', to use Hume's term for what can be called sensuous ideas. He also maintained there is no *cause* because, according to him, when we examine the anatomy of knowledge-frame we do not *see* cause. By denying causality and a world beyond what the senses present, Hume set the stage for phenomenalism. Hume agreed with Berkeley's diagnosis of Locke's failure but rejected the idealism proposed as remedy by Berkeley. Idealism, Hume says, is unacceptable. Instead, he maintains that human experience was of the phenomenal only and no one could say what lay behind the veil of phenomena. Hume, therefore, offered a phenomenalist account of human knowledge that enabled one to speak significantly of continuing identity of things and persons and of changes in and between them but, according to him, it was a knowledge that arose from familiarity with the phenomenal and from inductions based on this familiarity. As for sure knowledge of what exists other than phenomena, Hume strongly concluded that there is no such knowledge.

It is noteworthy that Hume took refuge in the theory of phenomenalism to shield himself and his followers from the embarrassing fact of the impossibility of strictly deriving the science of the external world from sensory evidence which is the hope of empiricists. Unfortunately, phenomenalism is a wrong choice of refuge for Hume and those who travel with

him. It amounts to abandoning of the quest for sure foundation of knowledge for two reasons: first, phenomenalism is built ultimately not by the cascade of sensuous impressions (as the empiricist argues) but by logical construct of these impressions for the sake of accounting for the conjunction, connection, and continuity of the external world. Second, phenomenalism, by restricting itself to what appears to the senses, rules out mathematical knowledge and the like.

It is also to be noted that Hume had pressed rigorous empiricism to its farthest logical limits and this radicalism loosed a wave of crisis in the epistemological world particularly in the epistemology of science where it became logically and epistemologically impossible to ground science on sense data. Attempt by Rudolph Carnap in his *Der logische Aufbau der Welt (Logical Structure of the World)* to account for the external world of science as a logical construct of sense data by reduction of theories to observation terms, logic and set-theory proved unsuccessful because of the problems of irreducibility of theoretical terms to observational terms and the concomitant indeterminacy of translation as pointed out by Quine and Duhem. The failure of empiricism to furnish an epistemology of science particularly and proffer a sure foundation of knowledge generally led to epistemological nihilism and the resulting pragmatism evident in Quine, Mach and Feyerabend.

Ernst Mach, in his theory of sensationalism, was of the view that all factual knowledge consists of a conceptual organization and elaboration of what is given in the data of immediate experience. Just as Mill in the nineteenth century considered ordinary physical object as 'permanent possibilities of sensations,' so Mach construed the concepts pertaining to what the ordinary man regards as the objects of the real world as 'complexes of sensation'. Following Machian position, a stone, for example, is no more than a

collection of such sensory qualities as hardness, color, and mass. The traditional assumption that there must be an underlying substance that has these properties was repudiated by Mach. If one asks Mach the question 'what would be left over if all of the perceptible qualities were striped (in thought) away from an observable object?', he says 'precisely nothing'. Thus, to him, the concept of substance was not only superfluous but meaningless as well.(Benton, 1973: 878)

W.V.O. Quine's epistemological nihilism looms large in his famous essay, "Two Dogmas of Empiricism" contained in his important book, *From a Logical Point of View*. Quine, although writing under the influence of Hume's radical empiricism, was directly reacting to Rudolph Carnap's magisterial book, *The Logical Syntax of Language*. In this book, following the running controversies over the epistemic status of the existence of objects outside the self and, consequently, the logical and epistemic basis of science, Carnap made intricate distinctions between material and object language, and between analytic and synthetic language, having as his aim, the demarcation (both on epistemological and methodological grounds) between science and metaphysics. What Quine describes as 'the two dogmas of empiricism' are: on the one hand, the distinction between analytic and synthetic statements and, on the other hand, the methodological doctrine of reductionism.

The summary of Quine's position in the two dogmas of empiricism is that there is no distinction between synthetic statements and alytic statements by virtue of the logical and linguistic problems involved in making such demarcation. Also reductionism is impossible because of the indeterminacy involved in the translation of a theoretical term to observational term. Quine's clearest argument in the direction of consistent or radical empiricism is borne in his statement

that physical objects are mere 'posits' just as the god Homer is a mere 'posit'.

Here, Quine is, in effect, saying that the consistent empiricist does not experience physical objects but sensuous impression. Based on this construal of the knower and the external world, Quine regards scientific laws and theories, mathematics and logic as mere heuristic devices to order the barrage of series of sensations. In fact, Quine described the entire gamut of knowledge, science and non-science as 'a man-made fabric which impinges on experience only along the edges'.(Quine, 1961: 45). In his nihilism, Quine pitches tent with Russell who had argued in his important book, *Problems of Philosophy*, that knowledge of the external world is impossible, that all we know of the external world is sense data.(Russell, 1967:9-10)

The foregoing exposition and critique of the basic tenets of empiricism have demonstrated unequivocally that empiricism cannot proffer a sure foundation of knowledgclaims. Earlier on, rationalism was also found to be unable to furnish a sure foundation of our knowledge-claims. It then becomes obvious that neither empiricism nor rationalism exclusively meets the desire of one in search of the epistemologist's stone. This surmise bears out the Kantian warning to philosophers on either side that 'concepts without percepts are empty and percepts without concepts are blind" (W.T. Jones, 1981:65) The morale of Kantian warning informed the attempt in the next section of this paper to show how empiricism and rationalism need to accommodate each other in the task of explaining the nature, content and limit of human knowledge, leaving aside the issue of sure foundation of cognitive beliefs which has remained elusive.

Epistemological Twine of Empiricism and Rationalism

A perspicuous review of the debate between

rationalists and empiricists shows that the differences between rationalism and empiricism are exaggerated. For there are few empiricists, if any, who do not have some place for 'reason' in their theory of knowledge and few rationalists who are not prepared to acknowledge the contribution of 'sense experience'. A harmonization of the two positions seems to be that the part played by experience is more important in the empiricist's mind, and the part played by reason is more important in the rationalist's mind. Thus, the view that human knowledge is dependent on both experience and reason: experience provides the material or what Kant called the 'manifold' of knowledge, while reason provides the principles for organizing this manifold. This informs the description of the interaction between reason and experience in the phenomenon of knowledge as an epistemological twine.

In the history of philosophy, the boldest and plausible attempt at accounting for the epistemological mutualism between rationalism and empiricism was made by the German philosopher, Immanuel Kant in the eighteenth century. It has been shown in the foregoing how consistent empiricism and rationalism both ran into a dead end: The rationalists aimed at certainty and, because they held that mathematical knowledge is certain, they regarded mathematics as the ideal of all knowledge. However, they failed to see that, as David Hume pointed out, the alleged indubitable knowledge obtained consisted merely of implicatory relations held among propositions. To obtain knowledge of matters of fact, they needed perception, but these rationalists had written off perception as mere confused thinking, that is, as no more than degenerate conception. Hence their theories remained only speculation, incapable of being verified or refuted.

The empiricists, on the other hand, pursued an exactly opposite course but, like the rationalists, ended in the same

frustrating conclusion. The empiricists were less concerned with certainty than with the actual world-the shoes, ships, and sealing wax of experience. They recognized, of course, that we have access to the actual world in sense perception, but they held that what we perceive are ideas caused in us by things outside us. Unfortunately, as Hume pointed out, if we start from the assumption that what people are aware of are their own mental states, this is precisely where we remain: we do not know an external world; we know only our own ideas.

Thus, in a curious way, by following very different paths both the rationalists and the empiricists reached the same skeptical dead end: the former were confined to tracing out implicatory relations among ideas; the latter, to recording relations of co-existence and succession among ideas.

It is in the face of this frustrating end to which consistent empiricism and rationalism lead that the truth of the matter becomes clearer: that knowledge necessarily involves empirical and rational elements. In other words, knowledge is a cooperative affair between the two elements. Both mind and object make a contribution. Mind contributes the relations while the object contributes the *relata*. Despite Hume's attack, there does exist a 'necessary connection' among matters of fact-not a necessary connection between this particular fact 'A' and that particular fact 'B' (the type Hume attacked), but a necessary connection, or structure, that organizes experience into an 'A – is –B' type.

To illustrate the epistemological twine between empiricism and rationalism germane to give an example cited by W.T. Jones of California Institute of Technology. He suggests for our consideration, the process by which crude oil is refined into various petroleum products-kerosene, gasoline of various octane numbers, and so on.

The refining process corresponds, in this analogy, to the standard forms of judgment in terms of which, according

to Kant's hypothesis, mind organizes experience. If we know that such- and- such steps have been built into the refining process, we can say with confidence that gasoline of such-and- such an octane number will issue from the refinery. The 'necessary connection' (mind structure) is not found in the crude oil (object or experience); it is supplied by the refining process (the transcendental unity of apperception). (Jones, 1981:36-7)

This example of the mutualism between mind and object, between rationalism and empiricism, depicts the condition that makes knowledge possible. In this light, mind and object should not be seen as independent entities but reciprocal elements in the knowledge acquisition process.. If we start from object, we are led to mind; if we begin with mind, we are led to object. The experience of either one involves the experience of the other, and the experience of both depends on the prior occurrence of certain synthetical acts. Kant called these synthetical acts 'transcendental' because, though never themselves experienced, they have to be presupposed to account for the existence of those empirical unities that are experienced, namely, 'self' and 'object'. They have to be pre-supposed in order to account for the existence of experience as we know it. Kant tells us in his own words:

> There can be in us no modes of knowledge, no connection or unity of one mode of knowledge with another without that unity of consciousness which precedes all data of intuitions, and by relation to which representation of object is alone possible. This pure original unchhangeable consciousness I shall name transcendental apperception. (Quoted in Jones, 191: 38)

Kant argued most rigorously for the presupposition of 'transcendental unity of apperception' as the basis for

knowledge of any kind. The presupposition, according to him, is necessary because, if connections between self and object are real, the conditions that make them possible must also be real even though they are not themselves encountered or verified in experience.

There is no doubt that in the history of philosophy, there are few who can measure to Kant in the way he plumbed most rigorously and significantly the depths of human knowledge. Such inquirer realizes the hopelessness of the search for sure foundation of knowledge. A glimmer of hope that seemed to shine for the epistemologist in Kant's mediation gets extinguished in the face of the non-justifiability of the transcendental apperception. This collapse of foundationalism has let loose a wave of epistemological nihilism leading to cultural relativism as seen in contemporary philosophy, particularly, in the works of Polanyi, Kuhn, Feyerabend, Hanson, Russell and a host of others. Another incisive result of the collapse of foundationalism is the development of Popper's fallibilist epistemology which abandons the quest for justification as pursued by rationalism and empiricism.

Popper's Fallibilist Critique of Rationalism and Empiricism

In his "William James Lecture" at Columbia University in March, 1968, W. V. O. Quine declared emphatically that epistemology is concerned with the foundations of science (Quine, 1968: 69). Karl Popper who is regarded as England's most important philosopher

of science after Bertrand Russell declared, in his *Objective Knowledge (1972)*, with some magisterial airs that "Epistemology I take to be the theory of scientific knowledge" (Popper, 1972: 108). Taking his bearing from science, Popper

described epistemology pursued under the theories of rationalism and empiricism as traditional epistemology which, he held, studied knowledge or thought in a subjective sense- in the sense of the ordinary usage of the words 'I know' or 'I am thinking' . As the title of his book suggests, Popper's aim was to study objective knowledge and he took science as the ideal of such knowledge. For him, subjective knowledge had come into dispute as Hume's radical empiricism above has shown. This would make him spurn philosophers like Descartes, Locke, Berkeley, Hume, Kant and Russell who probe the basis and origin of subjective beliefs as 'belief philosophers'. Popper declares that, "Against such belief philosophers I urge that our problem is to find better and bolder theories; and that *critical preference* counts, but *not belief*". *(*Popper, 1972:107)

Popper's formulation of critical preference is a consequence of his rejection of the quest for proof or justification and this rejection drew the line of the long, and sometimes hostile, debate between him and Rudolph Carnap, the author of "verification principle" which is a principle that the truth of any claim is a function of its logical or empirical proof. In opposition, Popper maintained that nothing can be proved conclusively. Not even the simple statement: 'This is piece of glass' can be proved conclusively. This is because proving that will involve many assumptions and laws of nature which, as general statements, cannot be inductively justified by experience. Thus, Popper maintained that, in the absence of proof or justification and, therefore, certainty, our knowledge is fallible. Popper arrived at this notion of fallibility of human knowledge as a conclusion of his logic of scientific discovery which is the hallmark of his philosophy of science. The upshot of Popper's logic of scientific discovery is that knowledge is of its nature, provisional and permanently

so and grows by constant criticism (critical tests) and revision. This accounts for his core faith in fallibilism (Popper, 1992: 36). This logic, Popper formulates in his following intellectual account of scientific rationality, growth of knowledge and critical method:

> Knowledge can grow, and science can progress-just because we can learn from our mistakes. The way in which knowledge progresses, and especially our scientific knowledge, is by unjustified (and unjustifiable) anticipations, by guesses, by tentative solutions to our problems, by conjectures. These conjectures are controlled by *criticism,* that is, by attempted refutations which include several critical tests. They may survive these tests; but they can never be positively justified: they can neither be established as certainly true nor even as "probability" (in the sense of probability calculus). (Popper, 1963: VII)

Popper has reduced the implicit logic of scientific discovery in the above quote to his now famous and venerable schema: $P_1 \longrightarrow TT \longrightarrow EE \longrightarrow P2$ (Ndianefoo, 2008: 90) in which P_1 is the initial problem, TT is the trial solution or tentative theory, EE the process of error elimination applied to the trial solution and P_2 the resulting situation, with new problems. It is essentially a feedback process. It is not cyclic, for P2 is always different from P1. Even complete failure to solve a problem teaches us something new about where its difficulties lie and what the minimum conditions are which any solution for it must meet and, therefore, alters the problem situation. Nor is it dialectical (in any Hegelian or Marxist sense) since it regards contradiction (as distinct from criticism) as something that

cannot be accommodated on any level, and still less welcomed. Thus, Popper held that all we can do is to cultivate a culture of criticism and, with this, try to make critical preference between theories and, by extension, between options and situations in our daily life.

Conclusion

The failure of empiricism and rationalism as independent accounts of indubitable knowledge together with the implausibility of Kantian transcendental apperception operate as exemplification of the skeptical maxim that "it is undesirable to believe a proposition when there is no ground whatever for supposing it true". It also underlines the pungency of Bertrand Russell's query: "Is there any knowledge in the world which is so certain that no reasonable man could doubt it?" (Russell, 1967: 9-10). We see that the professional epistemologist is forever lost in the wilderness of interminable debate. His plight is that there is no knowledge which is so certain that no reasonable man could doubt it. Every proposition has a counter proposition. Hence, absolute and indubitable truth is not attainable by man. This realization, perhaps, explains why Popper had, as one of his favorite quotations in later life, the poetic evocations of a pre-Socratic philosopher, Xenophanes, to the effect that if such indubitable truth exists, it is only known by the gods. And even if this truth is revealed to man, he cannot comprehend it, and even if he comprehends it, he cannot utter it. (Magee, 1973: 21)

Nonetheless, this utter inaccessibility of truth need not disturb man. For man never needs or uses absolutely certain knowledge. The information that we employ for ordinary purpose is not indubitable. We manage to live our lives without indubitable truths. With the aid of scientific

information about the visible world, which may someday prove false or inadequate, we resolve the questions which confront us. All that we seem to possess and employ is *probable knowledge*. If there is really 'certain' knowledge, it does not appear to be required for the ordinary purpose of life, nor does it even seem to be sought by people in the quest for answer to questions.

On these premises, it could be submitted that the idea of 'a sure foundation for cognitive belief' is a mere hope, a postulate, an ideal. It is as much an altar to an unknown god as the one that Saint Paul found at Athens. In the words of Williams James, "all our scientific and philosophic ideals are altars to unknown gods" (Quoted in Jones, 1981: 314) or, as W.V.O. Quine would say, "these philosophic and scientific ideals are posits, on the same epistemological status as the gods, homer" (Quine, 1961: 44). Since we cannot prove our beliefs, one may choose to either follow Charles Sanders Pierce in his doctrine of 'fixation of belief' or Williams James in his doctrine of 'the will to believe'. Peirce and James came to adopt their doctrines after the frustrating realization that nothing can be conclusively proved one way or the other. While Peirce admonished the reiteration of our habit of belief to ourselves and turning away from contrary opinion, James maintained one is entitled to believe what one wants to believe. I am completely in agreement with James that:

> We all, scientists and non-scientists, live on some inclined plane of credulity. The plane tips one way in one man, another way in another; and may he whose plane tips in no way be the first to cast a stone.(Quoted in Jones, 1981: 323)

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