

THE UBICATION OF THE PHYSICAL UNIVERSE

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It is not only astronomers who have been wondering about what lies beyond the planetary system and the extent of that reality in terms of the space it occupies. Philosophers have equally been baffled by this same question even though it may not be fair to draw a sharp distinction between philosophy and astronomy in certain material respects of inquiry. For, many classical or even modern astronomers were as much astronomers as they were philosophers. Galileo Galilei is a good example of that. Indeed the Greek Ionian School, in trying to unravel the mystery of the earth's constitution and, by implication, the essence of reality, was not merely philosophizing but also astronomizing. As a matter of fact it would seem to be an idle question to try to contrast philosophy with astronomy since the two are intimately connected and imply each other resting as they do on a common cognitive condition that compels the mind to unravel the enigma of the cosmic reality.

Astronomers and philosophers alike have been puzzled by this unpleasant enigma down the years. They have for instance been wondering where this thing we call the universe is situated. Is it contained in one huge receptacle or is it an infinitely extended reality that defies the confines of space and thus bursts out of any physical delimitations? This is one of the most intractable questions in philosophy. It is also a perennial question in that so far no adequate or satisfactory answer has been found to demystify the secret of creation. This mystery notwithstanding, the human mind will never stop to inquire since the object of rationality, and indeed of active human reason, is precisely to pry into the unknown and to devote itself to the problem of questioning the question. The physical universe is one such question that the mind must grapple with.

Cosmologists and Metaphysicians alike have always attempted to discern the nature of the physical universe, and to propose a rational explanation or theory that can facilitate a relative comprehension of the problem. However the problem is still as intractable as it is elusive. What they consider as an answer is still a wishful speculation

designed to remove any form of diffidence about the dominion of human reason over nature.

The question that we first of all want to address ourselves to is: where is the physical universe or, to be tautological, where is the 'ubication'¹ of the universe? This may look like an innocent question at face value, but it is very complex, uncanny and elusive more especially because it raises all kinds of assumptions with regard to our knowledge of the reality supposedly antecedent to that 'ubication' or whereness itself. For to raise the question of 'where,' it is metaphysically imperative to know what 'where' is and where to locate it. If I am sitting in my office at the University of Nairobi, I am quite aware that my specific whereness has been clearly determined and demarcated by my relative position to the objects immediately surrounding me such as the four walls, the ceiling and the floor below my feet. These things happen to be a **conditio sine qua non** as far as my determinability as a being that is located goes. My whereness therefore seems to emerge out of a preceding reality of which I may not be aware, and which is itself determined by yet another antecedent reality which confers its relative whereness in a spatio-temporal context. This already raises or at least adumbrates the issue of infinite regress which, if rigorously pursued, should either nullify the very concept of whereness or at least expose its absurdity as a concept. As a matter of fact, on the basis of the stipulation of the doctrine of **reductio ad absurdum**, reinforced by the principles of economy on Occam's razor, it would make better sense to eliminate altogether any concept which calls for a futile exercise of infinite regress. Maybe that is one of the reasons why many philosophers have ignored the question of 'ubication', and preferred to focus their reflection on the nature of the physical universe only.

The question we are introducing really demonstrates the elusive nature of the concept of 'ubication' in respect of the physical universe. As long as we maintain that 'ubication' is determined only on the strength of several things standing contiguously to each other, it becomes impossible to locate the universe without suggesting that there may be more than one physical universe for purposes of definition. Hence the question of the possibility of multiplicity of universes is not altogether an unfounded one. Small wonder then that eminent philosophers have been speculating that there might be alternative universes

in the immensity of creation. However none has really come up with an answer backed by logic because many answers seem to encroach upon the stipulation of the vital principles which govern scientific knowledge and indeed all cognitive claims, namely, the principle of contradiction, the principle of excluded middle and the principle of sufficient reason. As a matter of fact one eminent German philosopher, Leibniz, seems to have recognized this danger fairly early in his metaphysical speculations on the possibility of the multiplicity of universes. He argued that if there was anything like a possibility of many worlds conceptually existing, then it had to be equally possible that the author of them could have decreed that the best possible of them actually came into being. And in respect of the actual universe, he argued that the author would have had no sufficient reason to effect several universes of the same identical material composition.² And he probably could not juxtapose two or more distinct but identical universes in the same spatio-temporal context without breaching the principle of contradiction according to which a thing either **is** or **is not**. Thus if the universe **is** then it is impossible to regard it as existing and at the same time not existing. It must be one and the same thing identical with itself. And anything that is the universe but identical with the former cannot be in effect distinct from the other. It must be one and the same universe that we are really talking about. The same conclusion can also be inferred on the basis of the principle of identity; for nothing can both be identical to itself and to another under one and the same respect. Moreover, identity is an intrinsic immanent reality and not an extrinsic transient feature.

Certain philosophical speculations on the possibility of a second universe have tended to produce counter-productive results, forcing some philosophers to adopt the theory of mono-cosmism. In their reasoning, they have argued that if two universes are juxtaposed as a reality and engulfed in the sea of ether, then it should be possible to arrive at the edge of one or the other since they would have to be two distinct realities actually specified. And that must be so purely on the basis of the logic of distinctness. Thus Achilles, the greatest runner, is able to sprint right to the edge of the universe and back to announce that he could go no further. But as it is, Achilles would probably never return. He will wander through the planets and stars **in saecula saeculorum**. Furthermore, if there were two universes with distinct edges, it would not be difficult to

envison a situation where an archer or javeline thrower might wander to the edge and decide to hurl his javelin or rocket across the mass of ether filling the whole of the two separate universes. Were this to be possible then it should be possible for the javelin or the rocket to travel to the adjacent edge, hit there and either bounce back or ricochet towards a different direction, most likely towards the direction of the origin since there would be no other body anywhere to either obstruct or attract it to that direction. Moreover, disintegration of the object would be impossible since we assumed that the material composition of the second universe is identical to the first.

This then is to say that the principles and characteristics of matter applying in this universe would also be applicable and valid in the second universe. One of those principles is that matter can never be destroyed even though it could change its form. Consequently then the matter or stuff that the javelin or rocket is made of would not be destroyed upon crashing on the edge of the second universe. It should be able, albeit in a different form, to boomerang back to the point of origin. But is this possibility realisable? Maybe the Super-powers could tell us the answer based on their inter-planetary and stellar missions. I do not know their capability to retrieve rockets that are on a mission to Mars or Jupiter. Most likely they are irretrievable and, **ceteris paribus**, they will keep on travelling in **sempiternum**. From the above we can infer that the universe is one and infinitely expansive.

If the universe is one, expansive, and all-embracing, where is it to be placed then? Where exactly is its **locus** in the context of time and space? Is it a still or floating reality in a huge vacuum? What contains this thing that is either still or floating? In other words, is the universe in some kind of space? The answer is probably yes and no. If we are taking space to mean the highest extension of all the physical objects, there is room to say that such a space physically exists. But then this would not be the kind of space that is the object of metaphysical speculation. Similarly, if space is taken to indicate the tridimensional extension abstracted from physical objects and as such limited, it may be real indeed. This we could call mathematical space. However, the kind of space envisaged by Metaphysics must relate to something of an immense vacuum which would remain in the event of all bodies being destroyed and therefore

itself persisting as an indestructible reality. This kind of space moreover must be a reality that is infinitely inexhaustible, infinitely inconsumable; in other words, it must possess the unique quality of an illimitable receptive potentiality so as to be able to cope with the multiplication of physical objects in the event of any future additions that our mind can possibly grasp and which can be effected without exhausting the spatiality of the universe. Indeed such a space must possess an inexhaustible receptive potentiality since if it were an exhaustible reality, containing an inexhaustibly extended universe, it would be a contradiction of predication. It would almost be tantamount to asserting that from a non-being a being can emerge or that from a non-denomination a denomination can subsist. This is a curious antinomy that repugnates not only ordinary experience but also the logic of human reason.

Moreover were the receptive vacuum to attain some point of saturation, then it must certainly burst out of itself and, in turn, postulate yet again an extrapositional vacuum that could rightly be denoted as **vacuum vacui**. And once it has burst out of itself there is no reason why it should stop bursting since under that respect it must be assumed to possess the qualities of a 'mobile'. Consequently as a mobile, it cannot stop or refrain from transiting because it would then cease to be a mobile. Hence the mobile, the **vacuum vacui** rendered, must of necessity transit on the principle that that which is moved will be moved necessarily or, in our metaphysical jargon, whatever is essentially **ton movetur** must of necessity be rendered **ton movebitur**. This happens to be a metaphysical necessity which cannot be contradicted even by the greatest reason.

The idea of **vacuum vacui** certainly evokes the unpleasant situation of what we referred to as **reductio ad absurdum** because of its inherent, inevitable and infinite regress implications. It would be entirely upon our minds either to pursue it as an inevitable reality at the expense of attaining no new knowledge or to abandon it altogether as a possibility at the expense of totally negating the idea of vacuum or space as a real existent. Many philosophers have tended to embrace the latter possibility. Philosophers of the rationalistic tradition, especially Descartes and Leibniz, have come very close to denying the reality of a vacuum. Descartes specifically asserts that an empty extension is

metaphysically repugnant since the essence of all physical objects consists in the very extension itself. According to him, space is nothing but an imaginary thing (being) of the mind with a good objective foundation in the actual physical phenomena.³ This position seems to have been inherited from the Scholastics who also held that space is not a real thing that can exist independently of the physical objects. Indeed that was generally the opinion of the majority of philosophers until Kant came along and contradicted it by insisting that spatiality in the sense of extension is a mere **a priori** subjective category by which, as it were, our senses are inundated long before we experience anything.⁴ Kant is not alone in this position since the entire Empirical School of thought would probably have reduced the idea of space to some kind of subjective category that emanates from belief or custom deriving its force from many individual instances of association.

Whatever the eminent philosophers of modern philosophy have to say about space, the general consensus among philosophers is that the space into which the mind would like to place the universe is really non-existent. It is merely imagined on the basis of everyday analogies fashioned by the human mind in the course of imbibing experience. This, in effect, is to say that the universe as the totality of physical objects available or can possibly avail to the human intellect, is not in space. It is itself either the basis for the concept of space or it is itself space confounded in the process of trying to draw a distinction that rightly ought to be made between the concept of the common locus and proper locus. It is a metaphysical fiction which derives a certain amount of objectivity from the analysis of human analogies. The universe is neither here nor there. It is neither anywhere nor somewhere. It is a paradoxicality whose reality is derived from its own manifest reality in the course of our mental gymnastics on what there is and what there is not. Space **simpliciter**, or space **qua** space does not exist. Consequently the universe cannot be in space which is itself non-existent.

NOTES

1. Ubication is derived from the Latin word 'ubi', meaning 'where'. In its substantive form it means 'whereness' in terms of locus of a situated object.

2. See, for instance, Leibniz's 5th Letter to Clarke in **Leibniz: Philosophical Writings**, translated by M. Morris & G.H.R. Parkinson and edited by G.H.R. Parkinson, London: Dent & Sons, 1973, pp. 223-224.
3. See **Philosophical Writings of Descartes**, Vol. 1 Cottingham, J. **et al** (trans), Cambridge: The University Press, 1985, p. 195.
4. See Kant's **Critique of Pure Reason**, N. Kemp Smith (trans.), London: MacMillan, 1964, pp. 67-74.