

The Concept of Nature

A.N.Whitehead

April 3-8, 2008

Whitehead is known for having claimed that all of Western Philosophy is but a series of footnotes to Plato. Maybe this quote will be his lasting contribution to posterity. His monumental work with Russell on the foundations of mathematics remains but yet another heap to be properly disposed of, having been rendered irrelevant by history. He was ambitious and sincere and turned in his later years to philosophy having abandoned mathematics and logic. As a meta-physicist, Popper among others found him obscure, not to say incomprehensible, maybe even nonsensical. It is reported that Whiteheads later work is imbued with Christian mysticism. You cannot pursue meta-physics as you pursue mathematics or science. The chains of arguments you employ are, as Peirce has noted, far simpler than those you need to string up in mathematics. Logic is not the driving force in a calculus of argumentation, evocation and appeal are instead the methods of persuasion to which resort is made. An attack of persuasion directed also against yourself. Thus wishful thinking turns out to be not only a threat but a guide. Thus surely there is no greater inducement to nonsensical babble than that provided my metaphysical reflection. Still we do not entirely evade it, just as we are all forced to dwell in physical space.

The 'Concept of Nature' is formed out of a series of lectures Whitehead gave to some chemists, trying to elucidate the method of thinking about nature as well as to explain the real ideas of Einstein and relativity, which were still very recent and revolutionary at the time, and to present some minor disagreements he had with Einstein.

The lectures, without having a specific audience in mind, only intermittently rise to an effort of genuine communication, instead the reader most of the time is exposed to the stream of consciousness of the author, who is employing home-spun terminology with such consistency that the reader either suspects being confronted with a foreigner speaking a incomprehensible tongue or a madman. Either conclusion invites skimming. Are we being made privy to the closed world of a solipsist endlessly turning onto itself?

What are the aims of Whitehead really? He does not want to discuss meta-physical issues, even if he admits that he is very close to doing that, he wants to show how to build up the four-dimensional space-time continuum from logical principles. The problem is that he does not employ any mathematics, nor any formulas. In spite of how incomprehensible not to say terrifying mathematical formulas may appear to the layman, they are at least sure to bring about communication with those very people most liable to prove sympathetic to the ambitions. By eschewing mathematics and its aids, the author in fact loses the very audience he is set to capture.

Whitehead starts out to remind the reader that we do not know the world through its simplest components, in fact we only know the world from snatches of a very complex sense-awareness. Simplicity is a scientific stratagem, and the reduction to which is by most people seen as threatening. In fact what is materialism but the reduction of the complex multifarious world which is our most intimate experience to simpler abstractions out of

which everything in principle can be constructed? Our own thoughts, our own sense of self, our consciousness, are highly complex phenomena into which we are inextractibly embedded, and the idea that those can indeed in principle be constructed, and thus explained, from simple abstractions, mere figments of our imagination so to speak, is one from which we instinctively recoil.

How do we experience time? Augustinus famously claimed that he perfectly well understood time as long as he was not asked to explain it. The very act of reflecting on it makes it disappear into a cloud of internal contradictions. We do not experience instances of time, if we did so our finite lives would be infinite. Thus the evanescent presence is indeed in the nature of a chimera, what we can experience are durations, containing within themselves the memory of the past and the anticipation of the future partially fulfilled. Particularly interesting to the student of consciousness are the momentary durations which are the best approximations of the instant we are psychologically able to perceive, and such instants are indeed very complex things. The problem of solving the continuous nature of time, as well as its relation to space, is an ancient problem, popularized by Zeno in his paradoxes. The problem can be made precise into a mathematical problem, and as such it has been beautifully solved by the mathematicians. In fact for the working mathematician, the notion of the continuum of the real line(time), and by extension of the multi-dimensionality of space is so well digested that he needs not to reflect on it. Whitehead in his exposition pretends that he has not yet digested it and presents a sketch of how to do it. Basically he sets himself a mathematical-logical question arguing from first principles using precise definition of objects and relations between them, revealing his professional background. An instant is simply the intersection of an infinite sequence of durations, one included in the other, such as that no duration is contained in all. He calls such a sequence, of which the intersection is just an idealization, an abstractive set. What he does sketchily, with some gaps, is to recapture the line of real numbers. After that he tries to do the same with extensions, talking about 'events', such things involving during some duration various happenings. An event could be somebody being run over, involving the process and everything that had direct relevance to it, the person being run over, the vehicle doing the running over, the road on which it happened, the slippery surface of the same, the momentary blindness of the driver, the crucial distraction of the victim, the horror of the onlooker, the indifferent twittering of the bird in a nearby tree oblivious of the whole thing; but it could also be something like the presence of Cleopatra's needle on the bank of the Thames during noon, something we may not usually think of as an event but more as a more or less permanent fixture. When he considers abstractive sequences of events, ordered by sub-events (the twittering of the bird, ruffling its feathers on the branch is clearly an event which is bit a component of the more complex event we have just indicated) and their idealized intersections he runs into some technical problems when trying to define a point (as being covered by everything it covers). The ultimate feat is to work out the 4-dimensional continuum and to solve the problem of congruence. Congruence being what we know from elementary geometry. How can we compare two distances? If we use some measuring rod, how can we be sure that it does not shrink or expand when we move it? An elastic thread obviously will do so, but a rigid ruler? How do we know that the latter is rigid and not the former? We cannot prove my measuring. The

very act of measuring presupposes congruency. Here we have a rare instance of Whitehead being interesting, but unfortunately the train of thoughts provoked is allowed no outlet in the readers imagination. Instead he uses the notion of uniformly moving systems to exhibit the notions of parallels out of which he can make sense of congruence. What follows is a technical account conducted in a vague and untechnical language, which essentially is a mathematical account, of no little interest. Who could understand it by his listeners? Did he write some figures on the blackboard? It is a pity. Maybe with some care the mathematical content can be extracted from the verbiage?

What is a body, a physical body? It is a special kind of object. Objects are what somehow remain fixed in linked events, while a physical body, something more firmly placed in reality, unlike a figment of the imagination fooling the senses, by being part of an indeterminate number of events, thus enjoying some kind of consistency. This in fact points to the difference between the fictional and the real. Both are presented to us as sense-objects. If we read about somebody we cannot tell whether it refers to a real person or a fictional one, the way we conceive of him is the same, and if we are forced to make a decision we have to trust the authority of the writer supplying us with the information. But with a fictional person, the only kind of information there is, is of that limited kind. We can ask all kinds of question about that person, say about Sherlock Holmes, what was the name of his maternal grandmother, what was his shoe number, did he miss a toe, did he like whipped cream, where was he exactly on the 4th of June 1892. Some answers to such questions can of course be deduced logically from other information supplied, and such information is known as tautological and hence assumed to be of less interest; but the majority of ones have no meaningful answer whatsoever. With a real physical object though, there is an infinite number of questions which can be asked and in principle be empirically addressed. A physical object is well-rounded, it has properties that exist, although we cannot see them, while a fictional object only exists in so far as we look at it, a fictional cat ceases to exist when people stop thinking of it. A fictional object has no back, only a front; in short it is an illusion only bothering to be manifest exactly where it makes a difference. One can of course ask whether the image of an object in a mirror is fictional, of whether the fictional character of Sherlock Holmes is fictional. As to the former, it is fictional as an object, it does not have a rear, but as an object in a mirror it is not fictional, because objects in the mirror are not supposed to have a rear. Also in the same way the fictional character of Sherlock Holmes is not fictional. Of a fictional character we ask completely different questions that we ask about real characters. We ask what kind of books it occurs in, who was its author, with which other fictional characters it engages. Of a fictional character its author has complete control, as a character, but not as a fictional character, because the latter is some kind of real object, although we would be loath to classify it as physical. This is part of the confusion in the mind of an author, whether or not his characters pursue independent lives in their novels.

But those are just scattered thoughts provided by an impenetrable prose that provides few incitements for probing.