ON ABSTRACTIVE HIERARCHIES

"ETIAM CAPILLUS UNUS HABET UMBRAM SUAM."

In the chapter "Abstraction," in *Science and the Modern World*, Whitehead puts forward what he calls "the first chapter in metaphysics." This gives an "account of an actual occasion in terms of its connection with the realm of eternal objects" and harks back to the "train of thought" in a previous chapter "where the nature of mathematics was discussed." More specifically, what Whitehead calls the "analytical character of the realm of eternal objects," which is "the primary metaphysical truth concerning it," is characterized in this chapter in quasi-mathematical terms. We seek in vain in later writings for a more detailed and careful statement as to how eternal objects are interrelated amongst themselves. Therefore this chapter on "Abstraction" seems to contain the key to understanding one very important aspect of the later cosmology. In fact, it has been called "the basic text for the doctrine of eternal objects." Unfortunately this difficult chapter is usually neglected by commentators, and some of Whitehead's ablest followers say that they have not understood it.

Let us examine the text of this chapter in detail (especially pp. 236-248), bearing in mind the doctrine of types in *Principia Mathematica*. We shall see that there is a close formal affinity between type theory and the "analytical character of the realm of eternal objects." This suggests that Whitehead very likely was presupposing type theory as the underlying logic for his later cosmology, even though he makes no essential use of it there.

By the "analytical character of the realm of eternal objects ..."
Whitehead says, "is meant that the status of any eternal object $A$ in this realm is capable of analysis into an indefinite number of subordinate relationships of limited scope. For example if $B$ and $C$ are two other eternal objects, then there is some perfectly definite relationship $R(A,B,C)$ which involves $A$, $B$, $C$ only, as to require the mention of no other definite eternal objects in the capacity of relata. Of course, the relationship $R(A,B,C)$ may involve subordinate relationships which are themselves eternal objects, and $R(A,B,C)$ is also itself an eternal object. Also there will be other relationships which in the same sense involve only $A$, $B$, $C$. We have now to examine how, having regard to the internal relatedness of eternal objects, this limited relationship $R(A,B,C)$ is possible.

"The reason for the existence of finite relationships in the realm of eternal objects is that relationships of these objects among themselves are entirely unselective, and are systematically complete. We are discussing possibility; so that every relationship which is possible is thereby in the realm of possibility. Every such relationship of each eternal object is founded upon the perfectly definite status of that object as a relatum in the general scheme of relationships. This definite status is what I have termed the 'relational essence' of the object. This relational essence is determinable by reference to the object alone, and does not require reference to any other objects. ... The meaning of the words 'any' and 'some' springs from this principle — that is to say, the meaning of the 'variable' in logic. ..." \(^3\)

One interpretation of these remarks allows us to envisage the realm of eternal objects in terms of the (simplified) theory of types. Given $A$, $B$, and $C$ as eternal objects (of given type) there exist triadic relations $R$ (of appropriate relative type) having $A$, $B$, and $C$ as relata (in this order). Any such $R$ itself is an eternal object, relationally contained in or "involving" some triadic relation $S$ also holding among $A$, $B$, and $C$. Further, these various relations are "entirely unselective" and the totality of them is "systematically complete," in the sense that they are all available as objects (values for variables) of appropriate type.

Eternal objects are possibilities in the sense that they may or may not be exemplified in specific instances. A property may or may not "ingress" into some actual occasion and is thus a possible for that

\(^3\) *Science and the Modern World*, pp. 236-237. All subsequent quotations are from this work.