Chapter 1

SOME KEY MOMENTS IN THE HISTORY OF THE CONCEPT OF CAUSATION

> Those who make causality one of the original uralt elements in the universe or one of the fundamental categories of thought, - of whom you will find that I am not one, - have one very awkward fact to explain away. It is that men's conceptions of a cause are in different stages of scientific culture entirely different and inconsistent. The great principle of causation which, we are told, it is absolutely impossible not to believe, has been one proposition at one period in history and an entirely disparate one [at] another is still a third one for the modern physicist. The only thing about it which has stood [...] is the name of it. (C.S. Peirce, RLT, 197, 1898)

Philosophical theories, obviously, are always answers to questions that are raised within certain historical contexts, which involve the common presuppositions of an era. A thorough insight into a particular philosophical problem therefore requires a historical perspective. In order to better understand the contemporary approaches to causation, and the problems they raise, some important historical moments in the evolution of the concept of causation will be briefly considered in this chapter.

I will restrict the exposition primarily to four aspects of the problem of causation: (i) necessity, (ii) the nature of the causal relata, (iii) teleology, and (iv) the distinction between primary and secondary causes. The reason for selecting *necessity* is obvious: not only is it the most important issue in the contemporary debate, but the concept of causation has, in some way or another, always been associated with necessity. The issue of the *relata* has been selected because it is of decisive importance for a proper elucidation of this problem. My selection of the problem of *teleology* may seem strange at

first, because according to the current view, the idea of final causation is obsolete. However, my selection is motivated by the fact that Peirce's conception of teleology is of permanent importance to his theory of causation. Finally, I choose to select the issue of *primary* and *secondary causes*, not only because of its importance for medieval philosophy, but also because the modern idea of (secondary) efficient causes as involving determinism was rooted in the medieval idea of God's omniscience and omnipotence. Thus, the distinction between primary and secondary causes had a profound and lasting influence on the evolution of the concept of cause.

I shall focus my attention upon the conception of cause in, successively, Ancient Greek Philosophy (Aristotle and the Stoics), the Middle Ages (Thomas Aquinas), and the Modern period (Descartes, Hobbes, Leibniz, Locke, Newton, Hume, Kant, and Mill).

1. CAUSATION IN ANCIENT GREECE

The philosophical concept of causation has a long history. The early Milesians, for example, were concerned primarily with material causes, believing they could explain the world by identifying some basic stuff - water, air, or the like - which all things are composed of. The first intimation of an explicit need for the concept of an efficient cause is to be found in Empedocles's notion that besides the elements of earth, air, fire and water, two further elements, 'Love' and 'Strive,' were needed for drawing the elements together or keeping them apart.

Plato was probably the first to state the principle of causality: "everything that becomes or changes must do so owing to some cause; for nothing can come to be without a cause" *(Timaeus* 28a). But, Plato emphasized the causal importance of formal causes. Nothing can be unless there be a changeless pattern of which the individual sensible phenomenon is a mere appearance.

Aristotle, who considered Plato's approach highly one-sided, said that forms were put forward by Plato to be what in Aristotle's terms are 'efficient causes,' sources of change or movement.[1] Since Aristotle was the first philosopher to give an extensive account of causes, I will start with a discussion of his theory.

1.1 Aristotle: four types of explanation

Though Aristotle discussed his theory of 'causation' in many places, the most important passages are to be found in his *Posterior Analytics,* his *Physics,*

and his *Metaphysics*. The context always concerns both a certain being and the conditions of knowledge of that being. Thus, Aristotle said, for example, in his *Posterior Analytics* that knowing a thing involves knowing its *aitiai*.[2]

Until recently, Aristotle's theory of the four *aitiai* was commonly understood as a theory of *causation*. But many of his examples of *X's* standing in a relation of *aitia* to *Y's* cannot be called *causes* in the sense of being entities bringing something about or producing a change. We cannot say, for example, that bronze produces a statue, or that the ratio of 2:1 produces the octave (see quote further on). It is therefore important to realize that *aitiai* are 'prerequisite conditions' rather than causes.

Aristotle introduced his theory of *aitiai* as manners of answering the question, *dia ti*?, why? He recognized four ways of answering the question why something is the case. These quite different modes of explanation he called respectively, the material, formal, efficient, and final *aitia*:

> In one way, then, that out of which a thing comes to be and which persists, is called an *aitia*, e.g. the bronze of the statue, the silver of the bowl, and the genera of which the bronze and the silver are species.
>
> In another way, the form or the archetype, i.e. the definition of the essence, and its genera, are called *aitiai* (e.g. of the octave the relation of 2:1, and generally number), and the parts in the definition.
>
> Again, the primary source of the change or rest; e.g. the man who deliberated is an aitia, the father is *aitia* of the child, and generally what makes of what is made and what changes of what is changed.
>
> Again, in the sense of end or that for the sake of which a thing is done, e.g. health is the *aitia* of walking about. ('Why is he walking about?' We say: 'To be healthy', and, having said that, we think we have assigned the *aitia*.) The same is true also of all the intermediate steps which are brought about through the action of something else as a means towards health. All these things are for the sake of the end, though they differ from one another in that some are activities, other instruments. (*Physics* II.3, 194b23-195a3)[3]

Thus, the *material aitia* of a statue, for instance, is that from which (*hyle*) it is built, say marble;[4] the moving or *efficient aitia* is the sculptor, more exactly, the form in the builder's soul. The *formal aitia* is its pattern or form (*eidos*); and the *final aitia* is its purpose or end (*telos*); for instance, the possession of a beautiful object. The complete explanation of the coming to be of a statue will take into account all of these explanatory factors, because without them the statue would not have existed.

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