

It was necessary for Newton to build upon Aristotelian nature by narrowing the scope of the Four Causes to examine a world where it was possible to experimentally determine how nature behaves. Aristotelian nature concerns itself with funneling the universe into a taxonomic structure capable of exhaustively explaining all 'Why ?'s that may arise in the study of nature. Aristotle uses his Four Causes as a tool of inquiry to expose the history, actions, and nature of things while answering the aforementioned question. Though many state that Newton openly rejected Aristotelian thought, a filtered sample of Aristotle's Causes can be found in Newton's *Philosophiæ Naturalis Principia Mathematica*, in the context of Newton's Rules of Reasoning in Philosophy. Newton's Principia laid the foundation for experimental philosophy, the scientific method, and modern physics by examining mechanical interactions in the physical world through the obscured eyes of Aristotle.

Aristotle's Four Causes are dependent on his taxonomy of nature, so an understanding of the taxonomic structure in Aristotle's Physics is necessary to examine the path between Aristotelian and Newtonian nature. At the top, there is a division between things that exist by nature (*physis*) and things that are products of art (*techne*), or man-made things (artificial). The distinction between the two arises from their origins, but also from the way in which they behave over time and space. Things of nature have innate principles of motion (*kinesis*) and rest (*stasis*) by which their state inherently evolves over time (*metabole*). *Techne* lacks this *metabole*; however, it is clear that *techne* still has *kinesis* and *stasis* from simple observation of the behaviors of man-made objects. The *kinesis* and *stasis* that is observed in *techne* can be attributed to the substances of which the *techne* is composed, assuming that all *techne* can be decomposed into some set of natural materials (*prote hyle*). Thus, the *prote hyle* (material substrate) brought about by the same sort of decomposition of any thing can be seen as the essence or nature of that thing. Though, once can imagine applying the aforementioned decomposition to natural materials, dividing them down to further isolate the essence (*ousia qua substance*) of natural materials. This decomposition would boil down to the few kernels of natural essence (*atomos*) that compose the universe; the form of the universe would then be attributed to the state and arrangement of conglomerations of these *atomos*. Further, the behavior of the universe could then be attributed to the superposition of the nature and arrangement of *atomos* in space and time. Or, as Carl Sagan puts it, "The beauty of a living thing is not the atoms that go into it, but the way those atoms are put together." Thus, nature may also be identified in the form (*eidos*) or temporal form (*morphe*) of a thing. This can be found in the first chapter of *Physics*, "This then is one account of 'nature', namely that it is the material substratum persisting through changes in things which evidence a principle of motion or change. But another account is that 'nature' is identified with the *eidos* of something, with its *morphe* by definition."

From the identifiers of nature, Aristotle was able to construct a method for determining the cause of an object: the Four Causes. Of the three identifiers – *hyle* (matter), *eidos* (form, *logos*), and *morphe* (teleological shape), the latter two have a *metabole*. By definition, *eidos* and *morphe* rely on *kinesis* and *stasis* to exhibit themselves. So, *kinesis* and *stasis* must also be taken into account when examining the causes of natural things. [It is important to recognize that Aristotelian *kinesis* encompasses change in three facets: quantity, quality, and space.] The construction of the Four Causes from here seems purely logical; each cause is attributed to each identifier with the addition of *kinesis*. Aristotle's Four Causes are: The material cause, concerning the natural substances of which a thing is composed (*hyle*); the formal cause, concerning the essence of the form of which a thing has (*eidos*); the efficient

cause, concerning the external influence on the kinesis of an object; and the final cause, concerning the purpose for which a thing exists (morphe). From chapter 3 of Aristotle's Physics, “All the causes now mentioned call into four familiar divisions. The letters are the causes of syllables... the parts causes of the whole... , in the sense of 'that from which' (*hyle*). In each of these pairs, the initial item is a cause in the sense of substratum, the other item in the sense of the essential character – the whole, or combination or form (*eidos*). Just so, the seed and the doctor and the advisor, and generally the maker, are all propelling factors originating from change or cessation (*kinesis*) and finally there are causes in the sense of the end or the good which things tend to; for 'that for the sake of which' (morphe)... “. The Four Causes provided Aristotle with