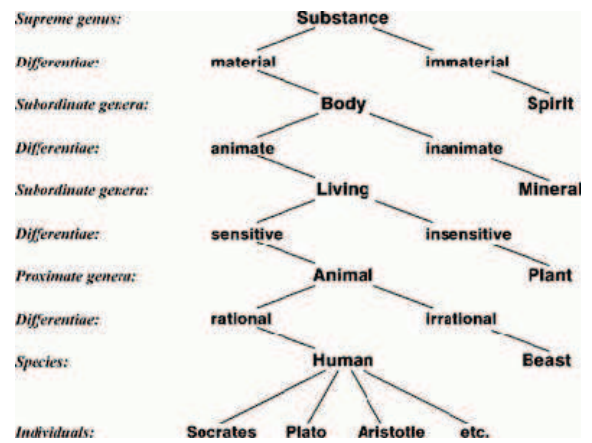


Aristotle can be considered as the *world's first "professor"*: he systematized all natural and social phenomena in a huge amount of observations and books, partly lost, and *gathered* the entire human knowledge into a well organized system of science, part of which still holds today, being referred to as the first *Encyclopedia* of human knowledge and sciences.

Aristotle's approach to science differed from Plato's. He agreed that the highest human faculty was reason, and its supreme activity was contemplation. However, in addition to studying what he called "*first philosophy*" - metaphysics and mathematics, the things Plato had worked on, Aristotle thought it also very important to study "*second philosophy*": *the world around us, from physics and mechanics to biology*. Philosophy can unify the common fundamentals of any science.



Plato's Theology vs. Aristotle's Science. Aristotle was highly interested in living things and phenomena: substance was no more to be sought in a separated universe of ideas, like Plato meant it. Substance was instead to be sought inside matter itself. So, matter became worth to be studied, classified, defined, systematized by means of logical inference (deduction) and empirical proofs (induction). No more platonic Essence, virtue and true meaning of life or Man as a philosopher were the objects of philosophy but the project of an objective science of nature. The science of all sciences is Metaphysics, but any different science turns itself to be a separated area of knowledge, well identified from the others. This happened for the very first time only with Aristotle's thought. He recognized that the idea of a unique absolute form of knowledge had to be abandoned in favour of the concept of many specialized forms of knowledge: *taxonomy* as the art of classifying any object and the differentiation of autonomous science areas and the idea of encyclopedic knowledge were born.

Foundation of modern science. What he achieved in those years in Athens was to begin a school of organized scientific inquiry on a scale far exceeding anything that had gone before. He first clearly defined what was scientific knowledge, and why it should be sought. In other words, *he single-handedly invented science* as the collective, organized enterprise it is today. Plato's Academy had the equivalent of a university mathematics department: Aristotle had the first science department, truly excellent in biology, although a bit *weak* in physics: part of his methodology still holds today as a reference model of any scientific inquiry.

This point is very important: the fact that cosmology, physics and many other theories by Aristotle, grounding on the principles of **QUALITY**, have been contradicted by the next evolution of scientific-mathematical thinking does not allow us to trivially conclude that Aristotle's general method was completely wrong: it wasn't. He discovered the role of empirical observation, analysis and construction of a theory based upon logical systematization of not self-contradictory statements, hypothesis building and its factual confirmation.

After Aristotle, there was no comparable professional science enterprise for over 2,000 years, and his work was of such quality that it was accepted by all, and had long been a part of the official orthodoxy of the Christian Church 2,000 years later. Only when Galileian science had to reject **QUALITY** in favour of **QUANTITY** in scientific descriptions Aristotle's old fashioned physical theories became rejected. Yet not his general method.

Again, this is the pattern modern research papers follow, Aristotle was *laying down* the standard professional approach to scientific research. The arguments he used were of two types: *dialectical*, that is, based on logical deduction; and *empirical*, based on practical considerations. Aristotle aimed to form a whole encyclopedia of the entire human knowledge: no single aspect of reality had to be ignored. There is one single world. We must use philosophical thinking for organizing all observed phenomena into a system of different specialized sciences: they can be labeled first as theoretical, then as practical and finally as poetic.

***Aristotle (384-322 B.C)** Born in Stagira, a little village in the Chalcidice peninsula, close to the modern Thessaloniki, was a student of Plato and teacher of Alexander the Great. His writings covered all possible subjects of the known ancient world, including physics, metaphysics, poetry, theater, music, logic, rhetoric, politics, government, ethics, biology, and zoology. Together with Plato and Socrates (Plato's teacher), Aristotle is one of the most important founding figures in Western philosophy. Aristotle's writings were the first to create a comprehensive system of Western philosophy, encompassing morality and aesthetics, logic and science, politics and metaphysics.

- Difference Platos Theology vs Aristotle's Science.
- Science of Science is Metaphysics: yet there is no more a unique superscience saying anything about life, as Plato meant to research. This was more the older Aristotle, yet. The younger one still was in love with Philosophy as the science of all sciences. The absolute knowledge is instead more the sum of particular independent sciences. Plato wanted to be "philosophizing" about things: object of research is the philosopher himself, as man: there is no research for a foundation of philosophy: this is the sheer dialectical method. Aristotle just wanted "Philosophy" to become a systematic construction of all sciences. The more sciences, the more complete would be the idea of real world around us.
- Philosophy can **unify** all other sciences in one because it finds all common structures of thought in everyone of them: the common grounding of any separated science can be only sought and found by philosophy, the first science. It co-ordinates and understand the operational modi of each other science. It is no more the unique form of knowledge as Plato wanted it to be.
- The method still holds: the old fashioned physical theory not. We mustn't throw away the child with the dirty water: Aristotle's general methodology of science still is acceptable for us, whereas the quality principles are not.
- Taxonomy-Encyclopedia: Porfirios Tree. Genus Proximum et Differentia Specifica.
- Philosophy must understand the natural world: causes and logical consequences are to be observed and described. There is no alternative theoretical world to be created instead of this one, with its human, natural and social phenomena.
- So philosophy is not anymore separated from the world: it comes back into the world, leaving the highest skies of a metaphysics which was by Plato meant to be the unique guarantee for truth and value. Truth and value can be discovered down here, into the natural world. This is a less ambitious task than that of Plato: it is more humble, balanced and sober.
- Plato: **hierarchy** and **verticality**. Aristotle (less the young one...): every discipline has right to its own **ontological recognition**. All ontological levels are equal for any science. Same **dignity for any science** and discipline. The world is divided into "**regions**" of knowledge: these are aimed by any single area of study (sciences).
- Many multiple sciences in strong expansion during the IV century b.Ch.: not a **pyramidal** conception in the style of Plato, but on the contrary, a **horizontal landscape of different disciplines**, which have in common the **grounding fundamentals discovered by philosophy**.