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Research Article

THE RELATIONSHIP OF PHYSICS AND ART IN ARISTOTLE'S SYSTEM

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ABSTRACT

In the Aristotelian system, knowledge is divided into three types: productive knowledge, which is a means of producing results for the benefit of mankind, practical knowledge, which guides behavior, and theoretical knowledge, which cannot be used as a tool for any purpose. These types of information are usually seen as unrelated and independent information fields. This article argues that this notion is not correct and tries to explain the relationship between the mentioned fields of knowledge by revealing the relationship between theoretical knowledge and productive knowledge. For this, first of all, the subject of physical science should be determined, and then the connection of natural art (non-practical art) with physics should be determined. By explaining this law, the concepts of "productive knowledge", "productive art" and "theoretical knowledge" and the relationship between these concepts are intended to be made clear and clear. Clarification of these concepts and the relationship between them also shows the debt of the modern classification of sciences to Aristotle; It provides a theoretical framework for understanding the relationship between modern engineering sciences and the basic sciences (physics, chemistry, and biology).

KEYWORDS

Aristotle, art, technique, theoretical science, physics.

INTRODUCTION

Aristotle begins Book I of Metaphysics with the fact that man has a natural desire to know. Although there is no reason in this phrase, there is a sign: the use of senses, which are the source of knowledge, gives people pleasure. Aristotle then begins to explain the levels of knowledge in a hierarchical manner: at the bottom is intuitive perception (aisthêton), above it is the recall of repeated perceptions (mnêmê),

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experience resulting from accumulation in memory (empeiria), art formed by knowledge (tekhne) added to experience, and at the bottom is metaphysics, pure knowledge of first principles and causes. But metaphysics is not only concerned with first principles and causes; It is also a science that examines existence not in terms of being mobile or alive, but in terms of being itself. However, not intelligent mortal or immortal beings (heavenly spheres) are inaudible, but only thinkable (noeta) and eternally real beings (pure forms), which cannot exist, that is, God, the general shape (generic shape is not possible). cut off from existence).) examines the heavenly minds and the intuitive mind (nous) in man.

Aristotle's Metaphysics, Chapter VI. In his book, he distinguishes these research topics from other theoretical disciplines of physics and mathematics. Accordingly, physics is the theoretical science that studies primary substances that are subject to formation and decay, have independent existence and forms inseparable from matter; Mathematics is a theoretical science that studies bodies that are motionless, but cannot exist independently of matter (numbers and spatial forms that describe primary substances); Metaphysics is the theoretical science that deals with entities independent of matter and inert. Theoretical sciences differ from arts (techn e) , which use knowledge to produce profit, and applied sciences, which use it to direct action; they don't use knowledge for the sake of using it. it is a means to any end. They seek knowledge for its own sake. Moreover, applied and productive sciences deal with the contingent, and theoretical sciences deal with the necessary, in other words, with things that cannot be otherwise. Hence, the knowledge produced by the theoretical sciences must be exact knowledge, or at least aspire to exact knowledge.

Physics, in general, considers the general nature of objects with the principles of motion and stability, and the immediate and remote causes of the changes of these objects under the category of necessity. But metaphysics II. In his book, Aristotle states that mathematical precision should be sought not in everything, but only in non-matter. Therefore, in the study of nature, one should not strive for such accuracy. Mathematical accuracy can be used to make judgments about the properties of non-matter bodies. The study of nature (physics), then, by definition, cannot have such precision; because its object includes matter. Then does physics become the knowledge of natural laws that occur in most cases, except for exceptions? If so, how can it achieve the precision common to theoretical sciences? Aristotle says: “Every science deals with things that either always happen or often happen (otherwise what would we learn or teach others?). In science, something must be defined as something that always or often happens."

Because in the true sense there is only the science of eternal, immutable and necessary beings, but in a broad sense we can also talk about the science of things that often happen. the science of things that happen" physics ?? It seems to us that art, not physics, is meant; because the arts, not the theoretical sciences, deal with the contingent, which means it can be different. Theoretical sciences investigate their objects under the category of necessity, and this is the reason and condition of their being a priori. Here it is necessary to clarify the topic of physics. For this reason, Aristotle discusses whether physics studies nature as matter or as form. Physics is not pure matter or pure form; He studies forms that cannot be

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separated from matter, quantity, quality and spatial changes in this unity of matter-form, the causes of these changes within the framework of the potential-actual doctrine.

On the other hand, if form is the ultimate cause of all change, then physics is essentially the study of general form (nature or essence). But as it was said above, general form is one of the eternal, unchanging pure forms because it does not cease to exist. For this reason, Ross says that the distinction between Aristotelian metaphysics and physics is very vague, and that physics should be described as "the metaphysics of nature" because it examines a priori the forms that are inseparable from matter. The framework speaks of necessary, not conditional, relations and is therefore specific. Suppose an observation is made and a dwarf is encountered to see the experimental counterpart of the process predicted in the theory of physics regarding the physical transformation of humans. The form of the human species includes a telos (goal) for physical perfection and personal growth.

According to physical theory, this is necessary, but according to observational data, the theory has not been implemented. Based on this, it is necessary to explain; In other words, the "natural process" conceptualized as "what should have happened" did not occur, and this must be the reason for the failure. This is the subject of medicine, which is an art. In general, physics deals with natural motion, while art deals with supernatural motion. The first claim of this article is that the mentioned physical theory constitutes the theoretical component of art. From this theoretical framework, there must be procedural knowledge about "how" to do certain activities because the arts produce results for the benefit of humanity. Such knowledge of the process is called the practical component of art. In our opinion, Aristotle defined the difference between the theoretical component and the practical component of art as "epistêmê poiêtikê" and "tekhn e poi e tik e ". This is the second claim of this article. That is, the "known" part of the production activity arising from the physical theory and the "contingent" part of the production based on experience.

According to the distinction we have made, if the physician is interested in an obstacle to an unrealized goal and in removing that obstacle, he must first know what the goal is, and therefore "natural process" or "what should have the concept of "must have". This concept of a "natural process" gives him an idea of what can stop or disrupt this natural process and limits its effectiveness by regulating the way the treatment is administered. In other words, this physical theory determines which of the doctor's procedures are legal and which are illegal.

In this sense, the theory of physics, which is the criterion of the legality of artistic activity, is the arch of that art, that is, its starting point: the beginning of thinking, but the natural state that is the goal (last stage). about the activity. Since the absence of such a criterion means that the artist does not have a starting point for action and does not have a limiting and regulating principle (arkh e), in this case the activity does not have a purpose, and the artist does it without knowing why. In this case his activities will not be legal; This situation creates disorder, that is, anarchy (an-arkh e). The reason why some traditional treatments are not legal in today's medicine is because these treatments are unprincipled.

Aristotle is opposed to pure mechanism, arguing that the whole is greater than the sum of its parts and that

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the parts should be studied in terms of the whole. Within this principle, Aristotle establishes regularity in the relationship between art and physical theory. We will try to make this regularity clear here.

Art Theory: Physics

Natural entities are always mobile because they are material, but physics investigates these objects not in the category of possibility, but in the category of necessity. What could otherwise be is not necessary: the phenomena that physics deals with are those that must happen. are events that occur. Otherwise, possible (contingent) events are related to art related to physics. Therefore, art is knowing how one of the things that may or may not have happened has happened. The principle of these products, which do not necessarily exist, but are possible, lies not in the object itself, but in the artist who produces it. In the case of objects whose existence is necessary, a principle or purpose is inherent in that object. However, chance should not be confused with an unforced natural phenomenon, because chance is not the subject of any science. Therefore, its principle of action (form) is physics, the universal and necessary knowledge of the entities and facts that exist within it, and the principle of action is the knowledge of conditional facts and entities that exist outside of it (art). For example, "The form is definitely directed to its entelechy." "Where there is materiality, there is bound to be formation and destruction." Such suggestions are absolutely correct. On the other hand, just as stone and iron have the ability to become a house, no medicine cures the disease to which it belongs, but cures it. Aristotle explains this in the Nicomachean Ethics:

"The subject of art is always creation, and the giving of oneself to art is one of those things which may or may not exist, but the principles of existence exist in the artist, not in the artist. is to think about a way of being. a created thing. "As art does not concern itself with things that actually exist or do not exist, it does not concern itself with natural entities whose principles are in themselves."

Imitation and printing:Plato said that art imitates nature. The god Timaos also imitates ideas. However, in the Republic, art looks for ways to manage the processes in natural moving things, in other words, in objects that are material and subject to formation and decay, in a way that benefits man. Art for Aristotle. not only imitates nature, but imitates it in general. Nature also completes the unfinished work. Aristotle explains his position on art and imitation in physics with the following sentences: "Now, if there is no obstacle, every thing has its own nature as it is made; it is realized as its nature is increased.

However, it is done "because of something, for something"; So, naturally, it's "for something". For example, if the house were one of the objects of nature, it would be shaped as it is by modern art; Objects from nature are formed in the same way as they are natural, even if they are formed not only by nature, but also by art. So one exists because of the other. In general, art finishes what nature could not finish, and sometimes imitates them. Therefore, if the things related to art are for the sake of something, so are the things related to nature. Indeed, what comes before and what comes after is equally related in objects of art and in objects of nature." Art and nature are goal-directed: Every the steps to be observed in both formations are the same, the formation of natural things and the formation of artificial things. Art goes

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beyond imitating it and completes the work left unfinished by nature. Completing the work left unfinished by nature means going beyond the imitation of nature and the natural processes in the object to the goal requires a corresponding reorganization. Two situations are at play here, conceptualized as the theoretical component and the practical component of art. In this sense, Aristotle says that the theoretical component is the founding element, and the practical component is the productive element. Here is the source of the theoretical component physics, and the source of the practical component is experience.

The art of mathematics:The art of medicine is not a mathematical art and consists of a theoretical component provided directly by the physical sciences and a practical component provided by experience. In other words, the science on which the art of medicine depends is physics. But the Aristotelian line characterizes some arts as mathematical; Because these arts are between physics, which deals with real things, and mathematics, which deals with abstract things, such as optics, mechanics, astronomy, and music. Physical objects have surfaces, volumes, lines, and points that mathematics deals with, but mathematics does not examine these qualities as the boundaries of physical objects.

Mathematics studies these properties by abstracting them from physical objects and motion. Mathematical art, on the other hand, examines mathematical objects physically rather than mathematically. Aristotle argues that optics, which is a mathematical art, works on mathematical lines in a physical sense, not a mathematical sense. In the Second Analytics, Aristotle makes a hierarchical classification of science: The lower arts present empirical facts; These are the arts of optics, mechanics, music and stargazing. The higher arts are geometry, geometry of solids, arithmetic and astronomy; They explain their objects through mathematical proofs. Optics is lower than geometry, mechanics is lower than geometry of solids, music is lower than arithmetic, stargazing is lower than astronomy. The first classifies phenomena, and the second mathematically explains "how" that phenomenon occurred. According to Aristotle's philosophy, these arts can be used to mathematically describe physical objects and processes. Every proposition in these arts is based on mathematical principles and theorems, principles of that art, and theorems previously proved in that art. Geometrical lines used in optics may facilitate calculations by representing light rays, but they are not able to answer questions such as "What is the nature of light?", "What are the causes of optical phenomena?" cannot answer physical questions like.

CONCLUSION

To verify the validity of the above conclusions, the following question can be asked: What is health? Whatever the answer, what gives legitimacy to the definition of achieved health? In the Aristotelian system, health is defined as the balance of the four elements in the human body, namely heat, cold, moisture and dryness. So, did Aristotle arrive at this definition through experience? To deepen the tension, one may go beyond the Mediterranean basin and ask about the definition of health in classical Indian medicine. As you know, in classical Indian medicine, health is defined as the openness of the seven chakras.So, did the Indian doctors arrive at the concept of health through experience? The science that gives legitimacy to these definitions is physics; that is, "why is nature the way it is and not otherwise?", which

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presents the common nature and common causes of individual observed phenomena as a whole. It is physics that answers the problem. Going back to Aristotle, this physical science consists of subtheories such as matter-form theory, potential-actual theory, and soul theory. These theories emphasize such doctrines as "natural earth", "closed universe", "imperishable sky", "four elements", "organic nature", and "immovable mover". In the philosophy of science, this set of doctrines, which is the basis of science, is called a paradigm. When this paradigm changes, only the practical component based on experience remains, because the physics that gives legitimacy to the theoretical parts of art also changes. A new physical science based on a new paradigm can give new reasons to the practical components of art; He can declare illegal what he cannot give. Legitimate treatments, justified by the theoretical component that Aristotelian physics provides to the art of medicine, are positioned as "alternative" treatments for modern medicine. No modern medical school conducts research on these treatments; These procedures are not used in modern hospitals. What justifies a medical procedure, then, is not that it works, but that it is justified by an existing physical theory. An unreasoned activity, that is, an activity that is guided by knowledge of "how" without a theoretical component, is an activity that does not know why it is doing it. Since the successes he achieves are random, they are closed to development. The reason why justification by physical theory is preferred over derived benefits is that the former is open to development.

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