

Aristotle

You were probably astonished by Plato's theory of ideas. You are not the only one! If you did have and criticisms, you can be sure that the self-same criticism was raised by Aristotle (384-322 b.c.), who was a pupil at Plato's Academy for almost twenty years.

Aristotle was not a native of Athens. He was born in Macedonia and came to Plato's Academy when Plato was 61. Aristotle's father was a respected physician and therefore a scientist. This background already tells us something about Aristotle's philosophic project. What he was most interested in was nature study. He was not only the last of the great Greek philosophers, he was Europe's first great biologist.

Taking it to extremes, we could say that Plato was so engrossed in his eternal forms, or "ideas," that he took very little notice of the changes in nature. Aristotle, on the other hand, was preoccupied with just these changes—or with what we nowadays describe as natural processes.

To exaggerate even more, we could say that Plato turned his back on the sensory world and shut his eyes to everything we see around us. (He wanted to escape from the cave and look out over the eternal world of ideas!) Aristotle did the opposite: he got down on all fours and studied frogs and fish, anemones and poppies.

While Plato used his reason, Aristotle used his senses as well.

We find decisive differences between the two, not least in their writing. Plato was a poet and mythologist; Aristotle's writings were as dry and precise as an

encyclopedia. On the other hand, much of what he wrote was based on up-to-the-minute field studies.

Records from antiquity refer to 170 titles supposedly written by Aristotle. Of these, 47 are preserved. These are not complete books; they consist largely of lecture notes. In his time, philosophy was still mainly an oral activity.

The significance of Aristotle in European culture is due not least to the fact that he created the terminology that scientists use today. He was the great organizer who founded and classified the various sciences.

Since Aristotle wrote on all the sciences, I will limit myself to some of the most important areas. Now that I have told you such a lot about Plato, you must start by hearing how Aristotle refuted Plato's theory of ideas. Later we will look at the way he formulated his own natural philosophy, since it was Aristotle who summed up what the natural philosophers before him had said. We'll see how he categorizes our concepts and founds the discipline of Logic as a science. And finally I'll tell you a little about Aristotle's view of man and society.

No Innate Ideas

Like the philosophers before him, Plato wanted to find the eternal and immutable in the midst of all change. So he found the perfect ideas that were superior to the sensory world. Plato furthermore held that ideas were more real than all the phenomena of nature. First came the idea "horse," then came all the sensory world's horses trotting along like shadows on a cave wall. The idea "chicken" came before both the chicken and the egg.

Aristotle thought Plato had turned the whole thing upside down. He agreed with his teacher that the particular horse “flows” and that no horse lives forever. He also agreed that the actual form of the horse is eternal and immutable. But the “idea” horse was simply a concept that we humans had formed after seeing a certain number of horses. The “idea” or “form” horse thus had no existence of its own. To Aristotle, the “idea” or the “form” horse was made up of the horse’s characteristics-which define what we today call the horse species.

To be more precise: by “form” horse, Aristotle meant that which is common to all horses. And here the metaphor of the gingerbread mold does not hold up because the mold exists independently of the particular gingerbread cookies. Aristotle did not believe in the existence of any such molds or forms that, as it were, lay on their own shelf beyond the natural world. On the contrary, to Aristotle the “forms” were in the things, because they were the particular characteristics of these things.

So Aristotle disagreed with Plato that the “idea” chicken came before the chicken. What Aristotle called the “form” chicken is present in every single chicken as the chicken’s particular set characteristics-for one, that it lays eggs. The real chicken and the “form” chicken are thus just as inseparable as body and soul.

And that is really the essence of Aristotle’s criticism of Plato’s theory of ideas. But you should not ignore the fact that this was a dramatic turn of thought. The highest degree of reality, in Plato’s theory, was that

which we think with our reason. It was equally apparent to Aristotle that the highest degree of reality is that which we perceive with our senses. Plato thought that all the things we see in the natural world were purely reflections of things that existed in the higher reality of the world of ideas-and thereby in the human soul. Aristotle thought the opposite: things that are in the human soul were purely reflections of natural objects. So nature is the real world. According to Aristotle, Plato was trapped in a mythical world picture in which the human imagination was confused with the real world.

Aristotle pointed out that nothing exists in consciousness that has not first been experienced by the senses. Plato would have said that there is nothing in the natural world that has not first existed in the world of ideas. Aristotle held that Plato was thus “doubling the number of things.” He explained a horse by referring to the “idea” horse. But what kind of an explanation is that? Where does the “idea” horse come from, is my question. Might there not even be a third horse, which the “idea” horse is just an imitation of?

Aristotle held that all our thoughts and ideas have come into our consciousness through what we have heard and seen. But we also have an innate power of reason. We have no innate ideas, as Plato held, but we have the innate faculty of organizing all sensory impressions into categories and classes. This is how concepts such as “stone,” “plant,” “animal,” and “human” arise. Similarly there arise concepts like “horse,” “lobster,” and “canary.”

Aristotle did not deny that humans have innate reason. On the contrary, it is precisely reason, according to Aristotle, that is man's most distinguishing characteristic. But our reason is completely empty until we have sensed something. So man has no innate "ideas."

The Form of a Thing Is Its Specific Characteristics

Having come to terms with Plato's theory of ideas, Aristotle decided that reality consisted of various separate things that constitute a unity of form and substance. The "substance" is what things are made of, while the "form" is each thing's specific characteristics.

Imagine a chicken is fluttering about in front of you. The chicken's "form" is precisely that it flutters – and that it cackles and lays eggs. So by the "form" of a chicken, we mean the specific characteristics of its species – or in other words, what it does. When the chicken dies – and cackles no more – its "form" ceases to exist. The only thing that remains is the chicken's "substance" but then it is no longer a chicken.

As I said earlier, Aristotle was concerned with the changes in nature. "Substance" always contains the potentiality to realize a specific "form." We could say that "substance" always strives toward achieving an innate potentiality. Every change in nature, according to Aristotle, is a transformation of substance from the "potential" to the "actual."

I'll explain what I mean – see if this funny story helps you. A sculptor is working on a large block of granite. He hacks away at the formless block every day.

One day a little boy comes by and says, "What are you looking for?" "Wait and see," answers the sculptor. After a few days the little boy comes back, and now the sculptor has carved a beautiful horse out of the granite. The boy stares at it in amazement, then he turns to the sculptor and says, "How did you know it was in there?"

How indeed! In a sense, the sculptor had seen the horse's form in the block of granite; because that particular block of granite had the potentiality to be formed into the shape of a horse. Similarly Aristotle believed that everything in nature has the potentiality of realizing, or achieving, a specific "form."

Let us return to the chicken and the egg. A chicken's egg has the potentiality to become a chicken. This does not mean that all chicken's eggs become chickens – many of them end up on the breakfast table as fried eggs, omelettes, or scrambled eggs, without ever having realized their potentiality. But it is equally obvious that a chicken's egg cannot become a goose. That potentiality is not within a chicken's egg. The "form" of a thing, then, says something about its limitation as well as its potentiality.

When Aristotle talks about the "substance" and "form" of things, he does not only refer to living organisms. Just as it is the chicken's "form" to cackle, flutter its wings, and lay eggs, it is the form of the stone to fall to the ground. Just as the chicken cannot help cackling, the stone cannot help falling to the ground. You can, of course, lift a stone and hurl it high into the air, but because it is the stone's nature to fall to the ground, you cannot hurl it to the moon. (Take care when you perform

this experiment, because the stone might take revenge and find the shortest route back to the earth!)

Before we leave the subject of all living and dead things having a “form” that says something about their potential “action,” I must add that Aristotle had a remarkable view of causality in nature.

Today when we talk about the “cause” of anything, we mean how it came to happen. The windowpane was smashed because Peter hurled a stone through it; a shoe is made because the shoemaker sews pieces of leather together. But Aristotle held that there were different types of cause in nature. Altogether he named four different causes. It is important to understand what he meant by what he called the “final cause.”

In the case of window smashing, it is quite reasonable to ask why Peter threw the stone. We are thus asking what his purpose was. There can be no doubt that purpose played a role, also, in the matter of the shoe being made. But Aristotle also took into account a similar “purpose” when considering the purely lifeless processes in nature. Here’s an example:

Why does it rain? You have probably learned at school that it rains because the moisture in the clouds cools and condenses into raindrops that are drawn to the earth by the force of gravity. Aristotle would have nodded in agreement. But he would have added that so far you have only mentioned three of the causes. The “material cause” is that the moisture (the clouds) was there at the precise moment when the air cooled. The “efficient cause” is that the moisture cools, and the

“formal cause” is that the “form,” or nature of the water, is to fall to the earth. But if you stopped there, Aristotle would add that it rains because plants and animals need rainwater in order to grow. This he called the “final cause.” Aristotle assigns the raindrops a life-task, or “purpose.”

We would probably turn the whole thing upside down and say that plants grow because they find moisture. You can see the difference, can’t you? Aristotle believed that there is a purpose behind everything in nature. It rains so that plants can grow; oranges and grapes grow so that people can eat them. The belief and study of a “final cause” to natural phenomena would be referred to as *teleology*—the study of design or purpose in natural phenomena.

That is not the nature of scientific reasoning today. We say that food and water are necessary conditions of life for man and beast. Had we not had these conditions we would not have existed. But it is not the purpose of water or oranges to be food for us.

In the question of causality then, we are tempted to say that Aristotle was wrong. But let us not be too hasty. Many people believe that God created the world as it is so that all His creatures could live in it. Viewed in this way, it can naturally be claimed that there is water in the rivers because animals and humans need water to live. But now we are talking about God’s purpose. The raindrops and the waters of the river have no interest in our welfare.

Logic

The distinction between “form” and “substance” plays an important part in Aristotle’s explanation of the way we discern things in the world.

When we discern things, we classify them in various groups or categories. I see a horse, then I see another horse, and another. The horses are not exactly alike, but they have something in common, and this common something is the horse’s “form.” Whatever might be distinctive, or individual, belongs to the horse’s “substance.”

So we go around pigeonholing everything. We put cows in cowsheds, horses in stables, pigs in pigsties, and chickens in chicken coops. The same happens when you tidy up your room. You put your books on the bookshelf, your schoolbooks in your schoolbag, and your magazines in the drawer. Then you fold your clothes neatly and put them in the closet – underwear on one shelf, sweaters on another, and socks in a drawer on their own. Notice that we do the same thing in our minds. We distinguish between things made of stone, things made of wool, and things made of rubber. We distinguish between things that are alive or dead, and we distinguish between vegetable, animal, and human.

Aristotle wanted to do a thorough clearing up in nature’s “room.” He tried to show that everything in nature belongs to different categories and subcategories. (Your pet is a live creature, more specifically an animal, more specifically a vertebrate, more specifically a mammal, more specifically a dog, more specifically a Labrador, more specifically a male Labrador.)

Imagine going into your room and picking up something, anything, from the floor. Whatever you take, you will find that what you are holding belongs to a higher category. The day you see something you are unable to classify you will get a shock. If, for example, you discover a small whatsit, and you can’t really say whether it is animal, vegetable, or mineral, I don’t think you would dare touch it.

Saying animal, vegetable, and mineral reminds me of that party game where the victim is sent outside the room, and when he comes in again he has to guess what everyone else is thinking of. Everyone has agreed to think of Fluffy, the cat, which at the moment is in the neighbor’s garden. The victim comes in and begins to guess. The others must only answer “yes” or “no.” If the victim is a good Aristotelian the game could go pretty much as follows:

Is it concrete? (Yes!) Mineral? (No!) Is it alive? (Yes!) Vegetable? (No!) Animal? (Yes!) Is it a bird? (No!) Is it a mammal? (Yes!) Is it the whole animal? (Yes!) Is it a cat? (Yes!) Is it Fluffy? (Yeah! Laughter ...)

Aristotle was a meticulous organizer who set out to clarify our concepts. In fact, he founded the science of Logic. He demonstrated a number of laws governing conclusions or proofs that were valid. One example will suffice. If I first establish that “all men are mortal” (first premise), and then establish that “Socrates is man” (second premise), I can then elegantly conclude that “Socrates is mortal.”

The example demonstrates that Aristotle’s logic was based on the correlation of terms, in this case “man”

and “mortal.” Even though one has to admit that the above conclusion is 100% valid, we may also add that it hardly tells us anything new. We already knew that Socrates was “mortal.” (He is a “man” and all men are “living creatures” – which are “mortal,” unlike the rock of Mount Everest.) Certainly we knew that. But the relationship between classes of things is not always so obvious. From time to time it can be necessary to clarify our concepts.

For example: Is it really possible that tiny little baby mice suckle just like lambs and piglets? Mice certainly do not lay eggs. (When did I last see a mouse’s egg?) So they give birth to live young – just like pigs and sheep. But we call animals that bear live young mammals – and mammals are animals that feed on their mother’s milk. So – we got there. We had the answer inside us but we had to think it through. We forgot for the moment that mice really do suckle from their mother. Perhaps it was because we have never seen a baby mouse being suckled, for the simple reason that mice are rather shy of humans when they suckle their young.

Nature’s Scale

When Aristotle “clears up” in life, he first of all points out that everything in the natural world can be divided into two main categories. On the one hand there are *nonliving* things, such as stones, drops of water, or clumps of soil. These things have no potentiality for change. According to Aristotle, nonliving things can only change through external influence. Only *living things* have the potentiality for change.

Aristotle divides “living things” into two different categories. One comprises plants, and the other creatures. Finally, these “creatures” can also be divided into two subcategories, namely animals and humans.

You have to admit that Aristotle’s categories are clear and simple. There is a decisive difference between a living and a nonliving thing, for example a rose and a stone, just as there is a decisive difference between a plant and an animal, for example a rose and a horse. I would also claim that there definitely is a difference between a horse and a man. But what exactly does this difference consist of? Can you tell me that? When Aristotle divides natural phenomena into various categories, his criterion is the object’s characteristics, or more specifically what it can do or what it does.

All living things (plants, animals, humans) have the ability to absorb nourishment, to grow, and to propagate. All “living creatures” (animals and humans) have in addition the ability to perceive the world around them and to move about. Moreover, all humans have the ability to think – or otherwise to order their perceptions into various categories and classes.

So there are in reality no sharp boundaries in the natural world. We observe a gradual transition from simple growths to more complicated plants, from simple animals to more complicated animals. At the top of this “scale” is man – who according to Aristotle lives the whole life of nature. Man grows and absorbs nourishment like plants, he has feelings and the ability to move like animals, but he also has a specific

characteristic peculiar to humans, and that is the ability to think rationally.

Therefore, man has a spark of divine reason. Yes, I did say divine. From time to time Aristotle reminds us that there must be a God who started all movement in the natural world. Therefore God must be at the very top of nature's scale.

Aristotle imagined the movement of the stars and the planets guiding all movement on Earth. But there had to be something causing the heavenly bodies to move. Aristotle called this the "first mover," or "God." The "first mover" is itself at rest, but it is the "formal cause" of the movement of the heavenly bodies, and thus of all movement in nature.

Ethics

Let us go back to man. According to Aristotle, man's "form" comprises a soul, which has a plant-like part, an animal part, and a rational part. And now he asks: How should we live? What does it require to live a good life? His answer: Man can only achieve happiness by using all his abilities and capabilities.

Aristotle held that there are three forms of happiness. The first form of happiness is a life of pleasure and enjoyment. The second form of happiness is a life as a free and responsible citizen. The third form of happiness is a life as thinker and philosopher.

Aristotle then emphasized that all three criteria must be present at the same time for man to find happiness and fulfillment. He rejected all forms of imbalance. Had he lived today he might have said that a

person who only develops his body lives a life that is just as unbalanced as someone who only uses his head. Both extremes are an expression of a warped way of life.

The same applies in human relationships, where Aristotle advocated the "Golden Mean." We must be neither cowardly nor rash, but courageous (too little courage is cowardice, too much is rashness), neither miserly nor extravagant but liberal (not liberal enough is miserly, too liberal is extravagant). The same goes for eating. It is dangerous to eat too little, but also dangerous to eat too much. The ethics of both Plato and Aristotle contain echoes of Greek medicine: only by exercising balance and temperance will I achieve a happy or "harmonious" life.

Politics

The undesirability of cultivating extremes is also expressed in Aristotle's view of society. He says that man is by nature a "political animal." Without a society around us, we are not real people, he claimed. He pointed out that the family and the village satisfy our primary needs of food, warmth, marriage, and child rearing. But the highest form of human fellowship is only to be found in the state.

This leads to the question of how the state should be organized. (You remember Plato's "philosophic state"?) Aristotle describes three good forms of constitution.

One is monarchy, or kingship – which means there is only one head of state. For this type of constitution to be good, it must not degenerate into "tyranny" – that is,

when one ruler governs the state to his own advantage. Another good form of constitution is aristocracy, in which there is a larger or smaller group of rulers. This constitutional form must beware of degenerating into an “oligarchy” – when the government is run by a few people. An example of that would be a junta. The third good constitutional form is what Aristotle called polity, which means democracy. But this form also has its negative aspect. A democracy can quickly develop into mob rule. (Even if the tyrannic Hitler had not become head of state in Germany, all the lesser Nazis could have formed a terrifying mob rule.)

Views on Women

Finally, let us look at Aristotle’s views on women. His were unfortunately not as uplifting as Plato’s. Aristotle was more inclined to believe that women were incomplete in some way. A woman was an “unfinished man.” In reproduction, woman is passive-and receptive whilst man is active and productive; for the child inherits only the male characteristics, claimed Aristotle. He believed that all the child’s characteristics lay complete in the male sperm. The woman was the soil, receiving and bringing forth the seed, whilst the man was the “sower.” Or, in Aristotelian language, the man provides the “form” and the woman contributes the “substance.”

It is of course both astonishing and highly regrettable that an otherwise so intelligent man could be so wrong about the relationship of the sexes. But it demonstrates two things: first, that Aristotle could not have had much practical experience regarding the lives

of women and children, and second, it shows how wrong things can go when men are allowed to reign supreme in the fields of philosophy and science.

Aristotle’s erroneous view of the sexes was doubly harmful because it was his – rather than Plato’s – view that held sway throughout the Middle Ages. The church thus inherited a view of women that is entirely without foundation in the Bible. Jesus was certainly no woman hater!