the process, and it was what Aristotle called *entelechy*, the end or goal in the beginning and in the process.

Thus Aristotle tried to overcome the problem of change that had plagued the atomists--how anything could be one thing and at the same time change, become something it was not before. For Aristotle, the thing that changed was matter, which was shaped into one thing or another, and the varying shapes it assumed in change, e.g., a tadpole becoming a frog, or a tuber becoming a begonia; and what was constant was the becoming, the process to an immanent end or goal.

According to Aristotle, knowledge of this process and the end toward which it moved gave us knowledge of the nature of things. There was an inner natural tendency to all things. This nature was also known by the use or purpose of a thing. For instance, we might be puzzled by the general design or the parts and pieces of an airplane, but if we once see it in use, then we know its nature; we understand why it is the way it is, and understand that everything has been fashioned through a long, difficult process to fulfill a certain end, or goal, and to serve a purpose. Thus knowledge involves understanding the process and how the parts and stages of the process are related to each other and to the final result. Knowledge of the forms illuminates the matter and the process of change.

Thus to understand anything--a copper pot or a person--we need to know what Aristotle called its "causes." He named four causes: (1) the material cause, which was the stuff or matter that was shaped (such as the copper for the pot); (2) the final cause, which was the goal or end or purpose and use that determined how the matter would be shaped; (3) the efficient cause, which was the direct and immediate factor that precipitated the process of change; and (4) the formal cause, which was the process itself.

It is important to observe another difference between Plato and Aristotle. Plato believed that true knowledge was knowledge of the pure forms freed of all matter and unchanging in their nature. Aristotle believed that true knowledge was knowledge of the substance--the concrete individual and its process of becoming, which combined form and matter--and finally, of course, how all these individual substances made up an ordered universe.

We have said that Aristotle overcame the problem of change in his principle of entelechy, but this only explained change in particular things and processes. It was still necessary to explain the existence of the change in the process of things from form to form, i.e., how motion occurred at all. In this Aristotle took essentially the same position as Plato in arguing the necessity of an uncaused cause, an unmoved mover, a something which itself was unmoved and uncaused but which caused all other motion and change. This unmoved mover, uncaused cause, he called God.

God, he said, must be a cosmic mind which was pure actuality, not having any unfulfilled potentiality. That is to say, that if he possessed

some lack, some unfulfilled possibilities, there would still be motion toward their fulfillment, which is self-contradictory, as pure actuality cannot lack anything. God's activity, therefore, must be pure thought and must really be pure self-contemplation, because to comtemplate the world and its processes would be to think something imperfect and contrary to his nature. God, therefore, while being the cause of all the world process, and in this sense its creator (though not out of nothing, because the world for Aristotle was eternal) was quite unconscious of the world and the process which he caused in it.

In astronomy, Aristotle believed that the earth was fixed at the center of the universe and around it revolved fifty-five solid spheres having the earth as a common center. In each sphere was fixed one of the planets or other heavenly bodies, and each sphere had its own inner principle of motion, i.e., a god. Each motion affected every other motion, and the whole was originally set in motion by the absolute Unmoved Mover.

In biology, Aristotle put together a tremendous collection of data about living species and even classified them. He described the anatomy of many life forms and many growth processes.

In psychology, Aristotle began with the obvious distinction between what had life and what had not. What had life in it had psyche, soul. Furthermore, soul was not distinguishable from from. Soul was, in fact, the inner power which guided the process of becoming. We must be careful to distinguish his idea of soul from the later Christian idea. For Aristotle, soul was a natural part of and continuous with the concrete individual; it was not a separate and alien resident of the body.

For Aristotle, there were three kinds of soul: the nutritive, possessed by all living forms; the sensory and appetitive, possessed by animals and people; and the rational, possessed by people and perhaps by some of the higher animals and other higher beings. The nutritive soul directed the processes that built the matter received into the body into the shape--form--to be achieved. The sensory soul was responsible for the perception of the particles of matter that affected the sense organs. Obviously the same kinds of particles were impinging on other bodies without producing sensation; it was then the presence of the sensory soul that made the difference. At the level of rational soul, it was the activity of thought itself that set the rational soul apart from the soul knowing only nutrition or sensation. There could, of course, be no knowledge without physical sensation, he said, because matter and form were never separable except in the mind of God. It was in the matter and the sensation that the mind recognized the forms. Thus the rational mind was nothing other or more than the forms that the mind thought and the power to think them; i.e., to perceive them.

Thus in knowledge there was a continuity that never destroyed nor lost the unity of reality between the material object, the sensory form of the object received from the sense organ, and the intelligible form received in the mind from the sensory form. Reality always remained a unity in the concrete particular thing.

This organic unity of reality attempted by Aristotle certainly appears to have overcome two major difficulties of earlier philosophies. It seems to have overcome the major difficulty of Plato's philosophy which divided the world into eternal ideal forms with separate reality on the one hand and their temporary copies on the other hand. It seems also to have overcome the difficulty of the monism of the atomists in which matter was one thing, not capable of change. With Aristotle, to be sure, reality was one thing, but it was a complex one, an organic one, and its principles of thought and change were essential aspects of its reality and oneness.

A difficulty arises, however, when we observe that sometimes thought is in error, and so Aristotle turned his attention to establishing criteria or rules by which we could distinguish correct from incorrect reasoning. This study and the rules that grew out of it have come to be known as logic, and while much has been learned about logic since Aristotle, he did give us a substantial beginning, the soundness of which remains today.

What Aristotle demonstrated in his logic was that some things could be known with certainty, an important rebuttal to the position of the skeptics. The form of reasoning where conclusions can be known with certainty, under certain conditions, is known as deduction. It may be defined as a form of reasoning in which we know with absolute certainty that if the premises are true, the conclusion cannot possibly be false, and therefore it is a form of reasoning in which we do not have to go outside the premises to know with certainty that if the premises are true, the conclusion must be true also. In induction, the other form of reasoning, the premises do not provide conclusive proof of the conclusion but only the probability of its being true.

This form of deduction Aristotle called the syllogism, an argument having three propositions (statements that can be either true or false), two of which are the premises and the other the conclusion, which is claimed to follow from the premises. If the premises are true and the terms within the premises are related to each other and the premises to each other correctly, then the conclusion is said to "follow," i.e., to be true because the premises are true. For example, we may argue that

All citizens of California are citizens of the U.S.A.
All citizens of Monterey are citizens of California.
Therefore, all citizens of Monterey are citizens of the U.S.A.

The terms and premises are obviously related in such a way that the conclusion cannot possibly be false if the premises are true, which they are. And it becomes obvious that any argument in this form must be valid no matter what we substitute for the subjects and predicates of the propositions. We may argue that

All turtles are giraffes.
All philosophers are turtles.
Therefore, all philosophers are giraffes.

It remains true that *if* the premises are true, the conclusion has to be true. Thus we see that the necessity of the conclusion lies in the form and not in the content of the argument. But we also have to remember that the truth of the conclusion depends also on the premises being true to begin with.

On the other hand, we may argue that

All citizens of San Francisco are citizens of the U.S.A.
All citizens of Monterey are citizens of the U.S.A.
Therefore, all citizens of Monterey are citizens of San Francisco.

In this case, we have a syllogism with two true premises and a false conclusion, which can only mean that the reasoning is in error.

This is clear enough, and we may wonder how anyone could make so elementary a mistake. But look at what happens if we take the same form of reasoning, always equally fallacious, and argue that

All citizens of California are mortals.
All citizens of Monterey are mortals.
Therefore, all citizens of Monterey are citizens of California.

We make the same mistake, even though it may appear to be valid to the careless thinker because both the premises and the conclusion are all true. But it is not a valid argument. The point is that all citizens of Monterey are not citizens of California *because* the citizens of both Monterey and California are mortal but for quite some other reasons.

We cannot go into the reasons that make one form of reasoning demonstrably and certainly invalid and another one certainly valid. It is sufficient for our purposes to have shown how in Aristotle's system the mind is capable of perceiving intellectual forms, and of distinguishing between valid and invalid forms, and thus of guaranteeing some forms as conveying necessary conclusions if we allow either the scientific or intuitive truth of the premises.

We have pointed out earlier that Aristotle believed that knowledge of the form of anything was the key to knowledge of its nature because the form was the actuality toward which the matter and inner process moved. Making actual and complete the natural inner possibilities of anything was, according to him, the natural good of that thing. The determination of the ethical good, therefore, was a matter of discovering what it was that fulfilled the natural inner nature and tendency of the human being. Because this was a determination of the nature of a human being as human being and not of the whims and fancies, opinions and taste of the individual's psychology, it was an objective and not a subjective matter. We must, of course, remember that for Aristotle there was no such thing as the "nature of human beings" apart from the nature of people one by one; reality was always the concrete individual. Yet there was a universal form common to all human beings, which made each human being a human being and not a caterpillar in ways much more important than their

differences of shape and physical organs. It was in this sense then that Aristotle sought the "natural inner nature of human beings," the fulfillment of which would constitute the good for all human beings.

Ethics, of course, has to do with human action, as our efforts are aimed at the achievement of something we consider good, even though we might be mistaken, or we would not seek it. An examination of "goods," however, reveals that there are some things we pursue as means and some things we pursue as ends in themselves. Money is commonly sought only for what we can do with it; money is good as a means to other goods. But pleasure is usually considered a good in itself and not sought for any other thing beyond itself. At the same time, many things we seek both for their own good and as means to other goods. We seek food because the pleasure of eating and drinking is good in itself, but we seek the food also because it is good for our health; and health in itself is good because pleasant, but it is good as a means to efficient performance of the daily task and the making of a livelihood, to fulfilling our need to be successful at something, and so on. Thus one good leads to another.

These many goods, Aristotle pointed out, we deal with in some sort of hierarchy; some are less valuable to us than others, and we will differ from each other in personal taste, but there are some goods that are common to people--pleasure in some food, in some recreation, satisfaction in some sort of power, in some approval by both ourselves and others, and so on. If there is some sort of ordering of goods from lower to higher, less valuable to more valuable, it would seem that finally there must be a one good that is above all other goods, that is sought solely for itself and never as a means to some other good higher than itself. There is common agreement among people, Aristotle thought, that this final good is happiness. Whatever the means or the activities or objects that we individually use or seek to achieve happiness, it is really happiness and nothing else that we all aim at and that is then the final and self-sufficient good, the good for a human being as a human being.

The question is: What is happiness? And here people differ in their answers. The solution, thought Aristotle, was to find the function of the human being that fulfilled his nature, for happiness really lay in the fulfillment of the inner nature; in any case, the good was so defined. The good physician was one who practiced the art of medicine with perfection. The good musician was one who practiced the art of music with perfection. Surely, then, as people had functions natural to their activities, human beings must have a function as human beings, and so Aristotle was concerned to find what it was that was peculiar to human beings as human beings distinct from other forms of life. Nutrition was shared by all forms of life, including vegetables, and sensation and passion were shared by all animal life. These aspects of human life, therefore, were not peculiar to human beings and could not constitute their natural good by themselves. The activity that was peculiar to human beings as distinct from all other forms of life, said Aristotle, was reason. The fulfillment of this then was the good for all human beings.

Happiness--the good for human beings--then turned out to be the

excellent fulfillment of the rational function of human beings. But it was not to be expected that people would achieve the good of life easily or quickly. Aristotle said it must be understood in terms of a "complete life" for the whole person, in the long run. The incidents and activities of daily life were the "matter" which might finally emerge in the actual human form of character in accordance with reason, and unhappiness was the result of a life in which people failed to achieve character in accordance with reason.

But what was a life lived in accordance with reason?

When people were faced with the need for decision as to what action to take, reason, he said, gave them a rule by which to distinguish right from wrong: the rule of "mean" in matters which affected character. In situations of danger, for instance, character was destroyed by either extreme of fear on the one hand or recklessness on the other. The mean was courage, which avoided the extremes and produced character in accordance with reason. So there was a mean in sensory appetites leading to eating and drinking, etc. In such actions the extremes that destroyed were gluttony and deprivation, the mean being temperance, producing character in accordance with reason. So, in the giving of gifts the mean of liberality lay between the extremes of extravagance and miserliness; in dealing with wrong-doing, justice as a mean lay between the extremes of being punitive and indulgent and excusing. So also self-respect lay between false humility and conceit. The mean then--sometimes called the Golden Mean--was the rational principle that produced character, and character led to happiness, or it certainly fulfilled the natural good of human beings.

Aristotle knew, of course, that not all things were subject to the mean, because it was a qualitative and not a quantitative measure. There is no virtue in a mean between stealing a lot and no stealing. A little bit of stealing is not a mean or a good. But here we have missed the element of quality and the key idea that the mean is a mean between excess and defect of a quality. In the case of property we might say the mean is proper respect for and care for property, our own and others, where the excess would be covetousness and avarice and the defect would be neglect and despise of property.

The question might properly be raised as to whether or not this kind of virtue was merely a reflection of an aristocratic Greek view of the fourth century B.C. and hence to be dismissed as pure cultural relativity, to be replaced by any other view, such as our own, for instance, which certainly does not put a high value on temperance in indulging our appetites. But to make such a challenge would certainly involve us in having to assert the view that people by nature realize their highest potential as sensory beings rather than as rational beings, and that satisfaction of appetite is more fulfilling of our humanity than is the satisfying of intelligence, and in having to deny that the nature of the human being remains pretty much the same even when his cultural mores and folkways change.

We also must recognize that the Aristotelian principle of rationality allows for taking into account all the special circumstances that exist in a given situation, in the "concrete individual" moment. Yet it is the function of reason to recognize in it the rational form that transcends the circumstances and the moment.

It is in these terms that motive becomes important for Aristotle. There was no virtue, he said, in doing what appeared virtuous out of bad motive--fear, conceit, desire for applause--but virtue flowed from the motive to do what was fitting to the noblest possibilities of humanity because it was rational to fulfill the nobler possibilities of our nature, and to do otherwise was not rational, and so self-defeating of our rational natures. In all of this, of course, Aristotle knew that he was not describing how people in fact did behave but how they ought to behave, and that a person's higher rational nature often was at variance with his lower appetitive nature.

But people were not merely individuals fulfilling their private possibilities and creating a state as an artificial thing. People were, claimed Aristotle, also political by nature. There was a good for people in society that transcended the good of individual persons, and this, too, was according to nature. The proof of this, he said, was that the individual when isolated was not self-sufficient. By nature he was fulfilled even as an individual only in association with others in the family and in the state. He was by nature uniquely capable of ethics, and ethics was possible only in the family and the state, so that we could not fulfill our nature by ourselves.

The question arose then: What forms of government were possible and which was best? To answer the second question first, let us observe that Aristotle held that the "best" must be understood as the best possible under the circumstances, even though we might describe an ideal state.

Broadly considered, there were three kinds of states with their true and perverted forms. A state with one ruler found its true form in a benevolent monarchy and its perverted form in a tyranny. A state with a few rulers was ideally an aristocracy and at its worst an oligarchy. A state with many rulers found its true form in a polity and its perverted form in a democracy.

He rejected the monarchy on the grounds that it was very rare indeed for one person to be so supreme in wisdom or virtue as to be qualified to rule all others. In most cases there was more wisdom in the many than in the one, for they offset each other's shortcomings. The many were also less subject to corruption. A tyrant, of course, was a single ruler who ruled solely in his own interests and was doubly subject to the same criticisms as the monarch.

Aristocracy was better. The basic difference between an aristocracy and its corrupt form, oligarchy, was that in an aristocracy rulers were elected from all those qualified by virtue of high, ideal qualifications, and in an oligarchy they were elected out of a privileged class such as

property owners or holders of some other form of wealth or power.

Democracy, the corrupt form of polity, was characterized by the majority constituting the government. At its best the majority was subject to the laws it enacted, but the trouble was that the masses were too easily and commonly swayed by demagogues, who became the real rulers, and the law was no longer supreme. In such a state the will of the masses, swayed by the demagogues, became despotic and tyrannical over and above the law and supplanted the will of the better citizens. In such cases the government ceased to be a democracy and became a tyranny of the majority.

Over against this, polity was the golden mean. It was a balance between the rule of the few (the rich) and the rule of the many (the poor). It was the rule of the middle class. The rich did not know how to obey, and the poor did not know how to rule. Thus the larger the middle class the better off and the better ruled the state would be.

In all of this, Aristotle upheld the idea that law and constitution were essential elements in a good state. Even the best of people were subject to be swayed by self-interest and passion, which the law was free from. The law, thus, was the rational statement of the fundamental forms, or universals, immanent to the good society, which then the judges must apply in particular circumstances. Aristotle thus differed quite a bit from Plato in the theory of politics. Plato left ruling to the people who were philosopher-kings, without providing for a written law or constitution.

We must remember that all of the different forms of states discussed by Aristotle were not mere theorizings in a vacuum. They were all forms existing in Aristotle's world and competing for people's loyalties, so that his analysis was a clinically realistic and urgent concern. We must remember also that his ideal of a state was a city-state, and it would have been almost impossible for him to think in terms of a state such as ours with over 200,000,000 people, with thousands of cities, in many of which Athens could have been no more than a local precinct. Yet it is sobering to observe how much of what Aristotle said about the corruption of democracy holds true for us.

In aesthetics--the theory of art, the nature of the beautiful--Aristotle confined himself to dramatic poetry and thus gave us a theory inadequate for art in general. He believed that the function of art was to imitate reality and thus it was a form of knowledge, i.e., a way of communicating about reality. It was like science as a form of knowledge which established universals and drew attention to necessary connections between character and its consequences. It was like history as a description of the concrete individual life and its circumstances. It was thus a sort of combination of science and history revealing the universals in the particulars, the perennial theme of Aristotle.

Aristotle agreed with Plato that art had a strongly emotive aspect, but while Plato believed this to be dangerous and, therefore, that art should be seriously censored, Aristotle believed it was a healthy thing

because it provided a kind of emotional-moral catharsis through pity for the victims and fear of repeating their error and thus sharing in their tragedy.

R.J.M.
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FOR FURTHER READING

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ART

It is difficult, if not impossible, to underestimate the impact Classical Greece has made on the Western world. Unfortunately, in the past (in the nineteenth century especially) much of what was called "Greek" in art had come from clouded and erroneous Roman, Renaissance, and eighteenth century interpretations. Actually, distressingly few examples of pure Greek sculpture exist. No painting, except on pottery, is extant. We are a bit more fortunate in the area of architecture, but here again most people's notion of Greek architecture has been formed by exposure to superficial elements elaborated upon from the time of the Romans until the advent of modern architecture in the 1890's. H. W. Janson puts it beautifully:

> *We would do well to keep in mind that the continuous tradition which links us with the Greeks is a handicap as well as an advantage. If we are to get an unhampered view of Greek architecture, we must take care not to be swayed by our memories of the First National Bank, and in judging Greek sculpture we had better forget its latter-day descendants in the public park.*[1]

Another part of the problem is that until the late nineteenth century no real effort was made by art historians to separate the pure Greek (Classical) from the Roman and Renaissance manifestations of their ideas. We now believe, with some confidence, that the artist or architect of the fifth century would have been quite shocked and rather uncomfortable with the grandiose flamboyance of most Roman adaptations of his styles. Knowing more about the fifth century Greek as we do, we could be suspicious about what he would think of the exuberance of Renaissance buildings or of the unresolved tensions in the sculpture of Michelangelo. The excesses of the Baroque style in the name of Classicism would have shocked the Greek fifth century artist beyond belief. As marvelous, beautiful, and representative of their age as this later art and architecture are, they are not Greek. The great taste and restraint--the seemingly inborn need to delineate within carefully defined boundaries and then to refine and excel within those rigorous restrictions--is Greek. Beginning in the late seventh century B.C., this remarkable characteristic, uniquely Greek it would seem, began to develop and is evident in all of the arts by the fifth century B.C.

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[1] H. W. Janson, *History of Art* (Englewood Cliffs, New Jersey: Prentice-Hall, Inc. and New York: Harry N. Abrams, Inc., 1969), p. 76.