AN INTRODUCTION
TO
PHILOSOPHY

THE PERENNIAL PRINCIPLES
OF THE CLASSICAL REALIST TRADITION

By

Daniel J. Sullivan

TAN BOOKS AND PUBLISHERS, INC.
Rockford, Illinois 61105

The name body can be taken in many senses.
ST. THOMAS AQUINAS, *On Being and Essence*, Ch. 2.

CHAPTER 23

THE WORLD OF BODIES

WHAT IS A BODY?

THE first and most obvious things we know are bodies and their changes. This was the initial field of investigation for the early Greek philosophers, and for them the world of nature was simply the world of bodies. It soon became clear however that it was not easy to explain what a body is, and as various theories were developed the concept of nature itself underwent radical changes, though the identification of nature with the realm of bodies was to remain one of the most persistent meanings of the word down through the history of western philosophy. We will examine first the various meanings that have been attached to the word "body," and then we will be in a position to see how this has influenced the various interpretations of the word "nature."

The answers which have been given to the question, What is a body? can be grouped according to the different fields in which the intellect operates. The first answers seem to have been given in terms of quality – in terms, that is, of what is most obvious to us, the immediate sensible aspects of things.

BODY AS QUALITY

In their search for a key to the vast multiplicity and variety of bodies, the early Greek philosophers looked for some single principle behind all the different appearances of reality. For Thales, this single principle was water. For Heraclitus, fire. For others again, the basic reality was fourfold – earth, air, fire, and water. The differences between bodies could be explained by the principles of condensation and rarefaction – fire, for example, was simply

earth in another and more rarefied state – and of attraction and repulsion (manifested in human beings as love and hate).

Anaxagoras of Clazomenae, in Asia Minor, a philosopher of the fifth century B.C., made the structure of bodies much more complex in his attempt to explain change. In each particle of body, he said, there is a little of every quality which falls under the senses. Thus a drop of water would contain minute quantities of every other thing in the universe – silver, copper, wood, cotton, flesh, blood, etc. It is called water because that is the element which predominates. Anaxagoras illustrated his doctrine from the mysterious change of food into the living body. I eat bread and it turns into flesh and blood, teeth, hair, sinews, bones. If bread produces these things, they must be in it to start with. A piece of bread therefore not only contains flour and water but also minute particles of teeth, hair, muscle, sinew, and so on. Digestion is the process which separates out the elements, redistributing them in the various parts of the human body.

The alchemists of the medieval and renaissance periods similarly stressed the importance of qualities. Every substance for them is composed of an identical primitive matter onto which is imposed a certain set of qualities. Substances vary according to the different sets of qualities. The secret of the transmutation of substances was to strip the primitive matter of one set of qualities in order to give it a new and different set. Whereas density was the quality most stressed by the ancient Greeks, color seems to have been the key quality for the alchemists. Color was the most important thing about gold, for example. If you could succeed in giving any other metal the same color as gold, you would have changed it into gold.

The alchemists were strongly influenced by the Platonic doctrine that the qualities of things are a reflection of eternal types or Ideas; this participation in the unchanging types is in fact what gives a body most of the reality it has, so that by changing the qualities of a thing you can change its basic character. This particular way of looking at things dominated the thought of physicists until the end of the seventeenth century, which saw the experiments that were to lead to a revival of the atomic theory of

Democritus, with its emphasis on the quantitative rather than the qualitative aspects of things.

BODY AS QUANTITY

Democritus, another philosopher of the fifth century B.C., stressed quantity as the ultimate principle of things.[1] Qualities – colors, sounds, tastes, etc. – which earlier Greek philosophers had held to be part and parcel of bodies, do not belong to bodies at all, according to Democritus, but are rather the effect produced on our senses by solid bodies in motion. "According to convention," he says, "there is a sweet and a bitter, a hot and a cold, and according to convention there is color. In truth there are atoms and a void."[2] Atoms are the ultimate, indivisible particles of matter. Although they are made up of identically the same stuff, they differ in size and shape: some are large, some small; some are square, others round, and so on. According to their size and shape, they differ in their motions and in the way they are related to each other. The differences we see in things are accounted for by the varying combinations of these identically constituted atoms.

This primitive formula of Democritus is the prototype of one of the basic ways of looking at reality. For although the atomic theory of Democritus is a far cry from the modern atomic theory, "it was entirely in harmony with modern scientific thought in making the 'real' world of matter something entirely different from the vivid colored world perceived by the senses. The conception of the real world as a vast machine, colorless, odorless, soundless, had been introduced into human thought."[3]

BODY AS NUMBER

Democritus represents a peak of what might be called the materialist or naturalist tradition in early Greek philosophy – the view that limits reality, including what we call mind or soul, to body

[1] Democritus (fl. 400 B.C.) headed a school at Abdera, in Thrace. He was still alive when Plato founded his Academy. Only fragments of his writings have come down to us.

[2] Diels, *Die Vorsokratiker*, Fragment 9.

[3] J. W. N. Sullivan, *The Limitations of Science* (New York: The Viking Press, 1934), Chap. II, Section 1.

and its manifestations. Another tradition makes mind prior to body, and puts all of reality under the control of law or design. Plato names Pythagoras as the originator of this tradition.

Pythagoras, as we have seen,[4] made important discoveries in the field of arithmetic, particularly about the properties of numbers. He discovered, too, that the notes in the harmonic scale varied according to fixed numerical proportions. Pythagoras was so impressed by the discovery that even the complex and apparently chaotic world of sound could be reduced to numerical law that he affirmed number to be the actual element out of which bodies are made. The number 1 is a point, 2 is a line, 3 a surface, 4 a solid. (These are the numbers necessary to define each of these figures.) With these four numbers as building blocks he constructed the entire universe. "The Pythagoreans supposed the elements of numbers to be the elements of all things, and the whole heaven to be a musical scale and a number," records Aristotle.[5]

The confusion of physical body with mathematical body was not limited to the Greek philosophers. We find the same doctrine in the seventeenth-century philosopher Descartes – another pioneer mathematician – who defined the essence of body as extension in length, breadth, and depth. Descartes's philosophy of nature, or rather "mathematics of nature," was to influence profoundly modern concepts of the nature of bodies. We read in Sir Arthur Eddington, for example, that "if today you ask a physicist what he has finally made out the ether or the electron to be, the answer will not be a description in terms of billiard balls or flywheels, or anything concrete; he will point instead to a number of symbols and a set of mathematical equations which they satisfy. What do the symbols stand for? The mysterious reply is given that physics is indifferent to that; it has no means of probing beneath the symbolism."[6] Or again, in the words of Sir James Jeans, "Nature is more closely allied to the concepts of pure mathematics than to those of biology or of engineering."[7]

[4] See Chapter 1.
[5] *Metaphysics,* I, 5; 986 a.
[6] *Science and the Unseen World* (London: Allen and Unwin, 1929), p. 30.
[7] *The Mysterious Universe* (New York: The Macmillan Company, 1932), p. 186.

BODY AS IDEA

George Berkeley, a bishop of the Church of Ireland, and contemporary with Oliver Goldsmith and Dean Swift, held that bodies are only sets of ideas. The only things I know, he says, are collections of sensations, which are present to me as conscious states. "Thus, for example," he says, "a certain color, taste, smell, figure and consistence, having been observed to go together, are accounted one distinct thing, signified by the name *apple.* Other collections of ideas constitute a stone, a tree, a book, and the like sensible things."[8] Ideas and sensation mean the same for Berkeley. Custom causes me to refer to certain bundles of ideas as though to something outside of me, which I call bodies. But actually I never know anything except ideas. I have never really experienced the existence of a body, and therefore I have no right to say that there are bodies.

When I say the table I write on exists, all I can mean by that is that if I am in the room I can perceive it; that is, I can see it, feel it, and so on. In the case of objects such as tables, trees, and other unthinking things, to be is to be perceived; "nor is it possible that they should have any existence, outside of the mind or thinking things that perceive them."[9]

This doctrine, which is called Idealism, is summed up in a well-known limerick by Monsignor Ronald Knox:

> There once was a man who said "God
> Must think it exceedingly odd
> If he finds that this tree
> Continues to be
> When there's no one about in the Quad."[10]

Where do our ideas come from if not from things? They are furnished directly to our minds by God. This explains also how things like tables and trees continue to exist when there is no one around to see them. Another limerick, an anonymous reply to that of Monsignor Knox, makes this clear:

[8] *Principles of Human Knowledge,* I, 1.
[9] *Ibid.,* I, 3.
[10] Reprinted with the kind permission of Monsignor Knox.

Dear Sir,
Your astonishment's odd:
I am always about in the Quad.
And that's why the tree
Will continue to be,
Since observed by
Yours faithfully,
God.

BODY AS FORM

Plato follows in the footsteps of Pythagoras, stressing the greater reality of the spiritual as compared to the corporeal. In fact the Platonic doctrine so stresses the reality of the immaterial that at times it seems almost to argue away the existence of bodies. Plato does not say that bodies are nothing but they are so close to it that they cannot even be a source of certain knowledge. For him the "really real" is the world of perfect unchanging Ideas or Forms, and the world of bodies has reality only in so far as it reflects these eternal Forms.

In the *Timaeus* Plato speaks of a kind of receptacle for Forms, passive and indeterminate, which communicates something of its own indetermination and nullity to the Forms which it receives. Bodies, starting with the primary elements earth, air, fire, and water, are the offspring of the union of Forms with the "invisible and formless being which receives all things."

To the extent that bodies are a reflection of the eternal Forms, they participate in their being and intelligibility. But they also participate in the unsubstantiality and imperfection of the shifting surface on which the Forms are mirrored. The reflection of Form in bodies is therefore a distorted one, so mixed up with change and indetermination that the principal value of bodies is to serve as signs pointing our minds to the enduring and unchanging reality of the eternal types.

The extreme of this doctrine is found in the philosophy of Leibniz[11] who does away entirely with matter in his explanation of

[11] Born 1646 in Leipzig, Leibniz was the first of the great German philosophers of modern times. He was an adherent of the philosophy of Descartes, which he modified considerably. He was one of the discoverers of differential calculus and a pioneer of modern symbolic logic. In addition to the fields of philosophy and mathematics he gained distinction as a lawyer, historian, and diplomat.

bodies, making them consist of pure forms which he calls monads. Each monad is a complete and self-contained reproduction of the whole universe. There is an infinite graduation of monads, starting with God, who by His omnipotent decree insures the harmonious interrelation of all the monads. Monads are graded according as they possess more or less self-consciousness. The higher ones are called souls or minds, although in fact each monad is spiritual in character. What we call bodies are like souls that have never become fully conscious. The apparent extension of bodies is only appearance. Modern developments of this doctrine substitute "points of force" or "energy" for Leibniz' pure forms.

BODY AS MATTER AND FORM

Aristotle discerned a twofold principle in bodies: form and matter.[12] In the things around us we see manifested different basic ways of being, so that we put things in different classes. There must be in things, then, some positive, determining principle which gives them the kind of being they have – tree as against lion, for example. This principle we call form.

But each individual corporeal being only partly realizes the possibilities of its way of being. A tree, for example, is not at one time everything a tree could be – maple and oak at the same time, let us say. Beings on this level, in other words, cannot exist except as limited; if you want that perfection of animal being we call lion, you cannot have simultaneously in the same being those perfections realized in giraffe or zebra. Along with the positive, formal principle which gives things their basic way of being, we are forced to recognize also the existence of a principle of limitation which circumscribes and confines beings. This principle we call matter. Dimension, consistency, color, taste, and all the other sensible properties which we associate with bodies, are the product of the limiting of form by matter.

This doctrine of the form and matter composition of bodies is

[12] See Chapter 7.

called hylemorphism (from the Greek words for matter and form). It was taken over by St. Thomas Aquinas in the thirteenth century in opposition to the prevailing Augustinian position, which closely echoed Plato on this point. For St. Augustine, bodies were a reflection of varying degrees of order, form and number against the restless background of a previously created prime matter. In the Augustinian as well as in the Platonic position there was always the danger of the world of bodies slipping away from us as mere signs or symbols of a deeper reality. In the eyes of St. Thomas, the doctrine of Aristotle, while not effacing the symbolic dimension of corporeal creation, nevertheless endowed bodies with a separate reality and independence of their own, a position which he favored as better according with everyday experience.

SUMMARY

The first inquiry into the nature of the world led to the investigation of the make-up of bodies. Many answers have been given to this question in the course of human thought, some of them reflecting partially valid aspects of bodies, others arguing away their very reality. For Aristotle and Aquinas, bodies are composite substances of formed matter, reflecting in their act of existence both the properties of quantity, such as figure and number, and the various qualities of color, sound, taste, and so on.

About nature consult nature herself.
FRANCIS BACON, *Instauratio Magna*, Part 3, Int.

CHAPTER 24

THE REALM OF NATURE

THE MEANING OF NATURE

OUT of the Aristotelian notion of form grew what was to become one of the basic meanings of the word *nature*. The form of a being is its principle of operation; the form, that is, gives a thing its fundamental pattern of activity which differs according as the basic ways of being differ. Form thus regarded as the principle of operation can be called nature.[1] From this point of view number and qualities as rooted in forms may also be considered as elements in the nature of a thing.

The sum total of individual natures can also be called nature. In this sense it corresponds to the word nature as used by the early Greek philosophers, standing for the ensemble of all bodies. Using nature in both the senses we have isolated, we can say that nature is made up of natures.

When we consider the nature of man our problem broadens. Man is corporeal and therefore belongs to nature considered as the sum total of bodily creatures. But on the side of his intellect and will man is open to another, noncorporeal order. What are we to call this other part of reality? It can also be called nature, though then it should be understood as nature on a different level. For some philosophers, anything above the corporeal order is called super-nature.

When the use of the word nature is broadened to cover that part of reality which is not corporeal, a further distinction again may be made. Nature may be limited in its application to the totality of

[1] From the Latin *nata* — the set of operations for which the thing has been born, we might say. The corresponding Greek word is *physis*, a word meaning growth. This is the source of our word "physics."

creation, or it may refer to everything that exists, including God. ("God or Nature," says Spinoza.) In other words for some philosophers nature and the real are identified, though they may differ very widely about the meaning of reality; thus for the materialist philosopher, reality – and therefore nature – is body only, while for the idealist, reality – and therefore nature – is immaterial only.

For those who limit the word nature to the realm of the corporeal, any intrusion of man's intellect or will into the physical world demands a new set of distinctions: thus natural may mean the spontaneous, the elemental, the instinctive, as opposed to the artificial and acquired; for example, the state in which man is born is the state of nature as against the state of civilization, or the uncultivated and wild state of plants and animals as against the cultivated and the domesticated.

We may note, finally, that in a theological context the state of nature may be opposed to the state of grace.

NATURE AS CAUSED

One of the marks of Aristotle's philosophy is its stress on purpose in nature. Nature is not an aimless thing. If we have digestive organs it is because there is food to be digested. If we have eyes it is because there is something to see. And similarly if we have intellects it is because reality is intelligible. If I ask the "why" of things I can hope for an answer. The whole endeavor of science and philosophy presupposes this over-all reasonableness of reality. Everything must have its adequate reason, though our intellects may not always be able to discover it.[2]

From the very fact that things have being, then, they are intelligible. Things may have the full reason of their being in themselves, in which case they are said to be self-sufficient and their own nature is their explanation; or they may have part of their explanation in things outside themselves – some other being is needed to explain them. Beings that are not self-sufficient, not self-

[2] Our intellects, as we have already seen, are geared to a particular, limited range of reality. Being may offer too much or too little intelligibility for us, just as the sun may offer too much or too little light for our eyes.

explaining, are the only ones of which we have direct experience, for everything that falls under our senses bears the mark of having come into existence, of depending therefore on something prior to itself for its existence and for its explanation.

If a thing's reason for being must be sought outside itself, then instead of using the word "reason" we can use the word "cause." The word "cause" indicates that we are dealing with beings that are not self-sufficient, that have a beginning of some kind. The term "cause," in other words, is more restricted than the term "reason." It answers the question "Why" about things that come into being. We may define a cause as *any positive factor* – as against a negative factor, such as a necessary condition – *on which something depends for its existence*. The product of the causal action is called an *effect*.

THE FOURFOLD DIVISION OF CAUSE

Greek philosophy at first contented itself with assigning a single cause in attempting to explain the reason for a thing. The philosophers of nature looked for some single kind of matter, such as water or fire, as the source out of which all things came. Other philosophers, as we have seen, designated numbers or forms as the single explaining principle of things. Assimilating the partial truths in all these positions, Aristotle asserted that four different kinds of cause contributed to the production of any bodily substance. Two of these causes are intrinsic to the thing, the others extrinsic.

The union of matter and form in the thing are the intrinsic causes of its being. The form, as we have seen, is the positive, determining principle which gives a thing its basic way of being. The matter is the passive, determinable principle, the principle of limitation without which the form could not be realized.

The extrinsic factors in the production of a new substance are again twofold. The first is the activity from without which is required to bring about the actuality of a hitherto unrealized possibility – this outside factor is necessary because if the possibility could realize itself it would never remain a possibility. The second extrinsic factor is the goal or purpose for which the new being

comes into existence. These last two factors are called efficient and final causes.

THE ORIGIN OF THE FOURFOLD DIVISION OF CAUSE

The discrimination of the four kinds of causality, the four different ways in which we can answer the question "why," probably came about originally from the analysis of works of art, of human production. In the making of a statue for example, there is a real dependence of the final result on the kind of material we use – wood, stone, plastics, etc. Hence our first kind of cause, the material cause, is *that out of which* the thing is made. Again we may observe that the kind of statue we make depends on the form we impress on the matter – the Venus de Milo, for instance, as against "The Thinker" of Rodin. Thus the formal cause is the likeness or form which tells us *what the thing is.*

The efficient cause is *that by which* the effect is produced – in this case the sculptor. (The sculptor's chisel would be called an instrumental cause.) The final cause is *that for the sake of which* the activity is performed, and it may refer either to the work itself or to the agent who produces the work. Thus we may say that the end or aim of the work of art is to show forth the likeness of Venus or, referring to the artist, we may say the whole chain of activity was motivated by the artist's desire to produce a work of beauty or to earn money. Whichever motive dominates is called the principal end; other motives are called secondary ends.

By analogy from works of art, Aristotle extended the notion of a fourfold causality to the works of nature. Each thing in nature is a formed matter, brought into being by a cause external to itself, and ordered to some goal. To understand a thing is to discover the causes that have made it. To trace these lines of causation was to be from henceforth the goal of scientific exploration.

SUMMARY

Nature may refer (1) to the individual bodily thing considered in its active, substantial character; (2) to the sum total of individual bodily natures, with anything outside the world of bodies being called supernature or supernatural; (3) to the totality of

creatures, as distinct from the Creator; (4) to all reality, including God; (5) in a theological context, nature is used in opposition (or contrast) to supernatural, which refers in a wide sense to anything relating to the order of grace, in a narrow sense to the union in charity with God.

A cause is any positive factor on which something depends for its existence. There are four basic kinds of cause: intrinsic – formal and material; and extrinsic – efficient and final.