

Father Smith summarizes the teaching of Molina and of Bañez and offers a criticism of Bañez, followed by a criticism of Molina written by the editors. This most tactful arrangement permits a balanced disinterested presentation without involving the author in a criticism of a fellow Jesuit.

If one man teaches another to think philosophically, then it matters little that there should be an error or two on the part of the teacher. For the philosophic life which the teacher has enkindled in the student will enable the student, in time, to correct the teacher. So Aquinas corrected his dead teacher Aristotle and his living teacher Albert, where correction was necessary. It is the very life of the mind, the habit and the act of philosophy which Father Smith has, and having, gives to his students and to his readers. When I. B. M. gets around to philosophy machines, they will always be right and never have a thought. Surely it is more human never to stop thinking but occasionally to be wrong. Father Smith is a man, not a machine.

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Philosophy of Nature. By JACQUES MARITAIN. (Trans. by Imelda C. Byrne.) New York: Philosophical Library, 1951. Pp. 208. \$3.00.

In this very interesting and important book Mr. Maritain presents both historical and doctrinal perspectives on the philosophy of nature and its relations to metaphysics and to the experimental sciences. He recalls the views of the early Greek philosophers in regard to our knowledge of natural things, and recognizes the magnificent achievement of Aristotle in establishing the philosophy of nature as a genuine science distinct from mathematics and from metaphysics. He notes that Aristotle emphasizes the mathematical aspects of such disciplines as astronomy and optics, whereas St. Thomas insisted more upon their physical matter and term while admitting that they are mathematical in form and principle. He then passes to the early modern developments in mathematical physics, and the tragic supplanting of the traditional philosophy of nature. He traces the rise of positivistic conceptions of science, together with more recent reactions against these conceptions. Finally, he tries to show in a formal and precise way the need for a philosophy of nature and for natural science which are specifically distinct from each other, and to manifest their mutual relations and proper definitions. The book includes an article by Yves Simon, "Maritain's Philosophy of the Sciences," reprinted from the Maritain Volume of *THE THOMIST* (1943). There is a selected bibliography, footnotes and index.

It is well known that Aristotle and the early scholastics did not acknowledge a formal or specific distinction between the philosophy of nature and the non-mathematical sciences of nature. Mr. Maritain says that in this unified view of the philosophy of nature there was “a serious error of intellectual precipitation” (page 33); “an error in the speculative realm.” (page 34) Although the ancients were keenly interested in the details of natural phenomena, they failed to perceive that these details require natural science which is specifically distinct from the philosophy of nature.

Just why the philosophy of nature as conceived by Aristotle and St. Thomas cannot extend to the specific details of natural things is not easy to discover from Mr. Maritain’s account. He notes (page 91) that in the time of St. Thomas the non-mathematical sciences of nature constructed their definitions according to the same typical pattern as the philosophy of nature, and the different degrees of concretion in the distinct parts only entailed differences of more or less generic and specific considerations. From this point of view all our non-mathematical knowledge of natural things—and in a reductive sense also our mathematico-physical knowledge—was seen to pertain to a single science. This science extended from the consideration of the general principles and properties of natural things down to their specific details, which can be known only by special experience and which can be understood in the light of their proper principles and causes.

St. Thomas himself held that the essences of natural things are sufficiently manifested by their sensory characteristics, and that we can have philosophic knowledge of these things. He taught that we can and do have some essential knowledge not only of certain very general aspects of natural things but also of their specific details. This philosophic knowledge of details is not attained by deduction, as in pure mathematics, but by the method of concretion, that is, by the orderly investigation of the proper principles, causes and elements of natural things, and by understanding the specific details in the light of their proper causes. The ancients were convinced that we can by careful investigation discover the proper matter and form, the proper agent and end of natural beings and processes in specific detail. These proper reasons can be discovered only through experience, and must always be defined with reference to sensory experience. In this way, it was thought, we can attain essential knowledge of natural things in detail. Such knowledge is very imperfect when compared with pure mathematics; nevertheless, it merits the name of philosophy of nature.

Mr. Maritain does not explain the method of concretion by which Aristotle and St. Thomas thought that we can extend the philosophy of nature down to specific details. He simply says that when we want to arrive at specific distinctions and diversities we cannot discover the essence, and so we cannot have essential knowledge of natural phenomena, which embraces the whole specific diversity of things. He holds that there is no

other science of natural phenomena than that which explains in terms of the observable without seeking the essence, and this science is not philosophy. (pages 96, 97)

Mr. Maritain's distinction between a philosophical science of nature and one which is not philosophical is based on his distinction between an ontological and an empiriological analysis of natural things. The ontological analysis ascends toward intelligible being, and seeks the answer to such questions as: what is a plant? what is a corporeal substance? what are operative powers? what is transient action? The empiriological analysis descends toward the sensible and observable, and seeks to answer always with reference to the observable questions such as: How can a certain plant be classified? what is a chemical species? what is mass or energy? (pages 74, 75)

Mr. Simon is a little more explicit and tells us something about silver considered from the point of view of empiriological analysis. "Nobody can say what the essence of silver is." (page 170) "The logically satisfactory definition of silver would be X melts at 960.5° , boils at 2000° etc.; we give the name of silver to the hidden essence which we circumscribe by the steadily connected set of observable regularities." (page 171)

In regard to this view of the matter it can be said in the first place that the philosophical analysis of natural things does not logically begin with a question such as: what is a plant?, nor does it proceed in a way that ascends toward non-sensory being. Rather it begins with the question: what is sensory or mobile being?, and descends to the consideration of specific types of natural things with their sensory and observable characteristics, proving also the Unmoved Mover and the spiritual soul.

Furthermore, it seems truer to say that we do know what silver is in terms of mobile being and metallic nature with such and such observable characteristics. This knowledge does not enable us to deduce the properties of silver, but it is sufficient to enable us to understand in the imperfect way proper to natural philosophy what silver is as a natural species with certain properties and a certain behavior which it regularly manifests in given circumstances. We know something about the proper dispositions of the matter required for the form of silver, and something about its nature as the principle of its physical and chemical properties and effects, all of which is essential knowledge, albeit, imperfect. Silver is merely an inorganic unit, and there is relatively not so much to be known about it. Plants and animals with their many parts and functions are more knowable and better known.

It would be a serious mistake to think that demonstrations in the strict sense can be made only in regard to the metaphysical attributes of a subject. There are essential connections also between the subject and its physical properties which are present either always or for the most part, and between

appropriate causes and their effects. The specific details of natural things are effects which are produced regularly in the course of nature, and their proper causes can be discovered through experience. Scientific knowledge in the strict sense of the term consists in knowledge of the proper causes of things. Even though we do not know what the essence of a cat is in terms of its proximate genus and specific difference, and even though we cannot deduce its properties, still we do know many of the essential notes of the whole and many proper reasons or causes of its various parts and activities. The proportion between the sensory properties of natural things and their specific natures, between matter and form, structure and function, is often so beautifully evident that we easily attain some essential knowledge of them which is genuinely philosophical. The larger task of natural philosophy as conceived by the ancients is not to deduce the properties of natural things, but to determine their natures from their manifest properties, and to understand their peculiar structures and functions in the light of their proper principles, causes and elements. This view of natural philosophy does not require us to maintain an outmoded astronomy, chemistry, or physiology, but rather enables us to incorporate into the philosophy of nature all the essential truth and probable knowledge which is contained in modern science.

Mr. Maritain explains very carefully the principles according to which the various sciences are specified, and he correctly employs these principles to show that mathematics differs from natural philosophy, and arithmetic from geometry. In a similar way he tries to show that the philosophy of nature differs from the experimental sciences, whether mathematical or not. It has been recognized quite generally that mathematical physics is not, simply speaking, either mathematics or physics, but is a mixed or hybrid science. Nevertheless, it can be reduced to the philosophy of nature by reason of the special human purpose which it serves, which is to perfect our understanding of natural things.

But the need and even the possibility of a non-mathematical science of nature specifically distinct from natural philosophy is open to question. The formal perspective of such knowledge must be both scientific and speculative, and it must be directed to the sensory and observable insofar as this is intelligible through its proper principles, causes and elements, or through causal and explanatory schemes, as Mr. Simon says. (page 172) How this perspective differs from that of the philosophy of nature is not clear. From a single perspective the ancients thought that they could attain philosophic knowledge of natural things in specific detail, although not by deduction but with constant reference to experience. They held that the sensory characteristics are really distinct from the natures of things, but because these properties reveal the natures, and can neither be nor be

understood apart from the natures, they are properly considered in the same science which treats of natures.

Therefore, it seems that the distinction between an ontological and an empiriological analysis of natural things is arbitrarily drawn. This distinction appears insufficient to support the claim that there is need for natural science distinct from the philosophy of nature. It seems unnecessary and unnatural to cut short the philosophy of nature as conceived by Aristotle and St. Thomas, and to admit an empiriological science which does not manifest essential natures and is not stabilized or illumined by them.

Mr. Maritain rejects the integral and unified view of the philosophy of nature which the ancients held. He points out how desperately modern science and natural philosophy need each other, but he has juxtaposed them rather than united them in inner continuity and harmony. Instead of reducing the philosophy of nature to the skeleton of its former grandeur and admitting a science of nature which is not philosophical, would it not be better to agree with St. Thomas that the essences of natural things are sufficiently manifested by their sensory appearances, and that natural philosophy can and should attain to the specific details of natural phenomena?

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Reality and Judgment According to St. Thomas. By PETER HOENEN, S. J.
Appendix by Charles Boyer, S. J. Translated by Henry F. Tiblier, S. J.
Chicago: Henry Regnery, 1952. Pp. 395, with notes and index. \$6.00.

The book is divided into two parts: I, The Phenomenological Theory of Judgment, and II, The Justification of the Judgment. In the first part the author maintains that every judgment is preceded by a reflection on a previous act of simple apprehension, a thesis taken over from Boyer, and that it is the function of this reflection to affirm or deny the content of the apprehension. The content or data of the apprehension is already composite before the judgment, that is to say, the nexus of the future judgment is already present in the apprehension, and even in the phantasm and the data of sense perception. The content is called the *Sachverhalt*, a term employed by the followers of Brentano, and this term is likened to St. Thomas's *dispositio rei*, an expression that has a technical meaning in St. Thomas and that has been unduly neglected according to Father Hoenen. The reflection on the content enables the mind to find the motive justifying the judgment, for the mind then *knows that it knows* by reason of the fact