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“Is There Certitude in the Doctrines of Physics?”

By Philip Melanchthon

(b. 1497–d. 1560)

[Philip Melanchthon, “*Estne certitudo aliqua doctrinae physicae?*” (“Is There Certitude in the Doctrines of Physics?”). *Initia Doctrinae Physicae*. In *Philippi Melanthonis Opera Quae Supersunt Omnia*. Edited by Karl Gottlieb Bretschneider. Halis Saxonum: C. A. Schwetschke and Son. 1846. 13: 186–189. Translated from the original Latin by the Witherspoon Institute. 2015.]

Sometimes the translator has indicated in italics within parentheses the original Latin word that the English translates. The Latin noticia *is always translated as “notion” and the Latin* norma *is always translated as “norm.” Brackets ([ ]) enclose text that is implied in the meaning of the Latin but requires added words to make sense in English.* –Site Editor

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God wills (*vult*) that some arts that govern life, indeed that also manifest God in some way, be certain and sure (*firmas*). As Plato said, He wants “the pleasing rumor (*famam*) of God to be scattered among the arts.” If they were utterly uncertain and contained nothing sure, they would neither manifest God nor be laws of life. This statement then must be held as true: that there is some certain and sure doctrine of physics (that is, concerning the many things in nature) that is useful and necessary for the life of men, even if in the present (*hac*) feebleness of the human mind there are many other things that have not been fully investigated (*pervestigata*).

There are three *criteria* (that is, rules of judgment) that demonstrate (*ostendunt*) certainty, namely, principles, universal experience, and the understanding of consequence, for logicians advise [us] that these are the criteria of certainty in all the arts. Philosophers say that these norms (*normas*) do not deceive because it is clear that, given [their] opposite, the destruction of nature follows. Fire makes heat: if anyone shall deny this norm and throw himself into fire, the destruction of nature will follow.

So let us consider these norms and see what conclusions we can draw from them.

The order of deduction (*consequentiae*) in the syllogism is itself known by nature, just as the principles are. Therefore the conclusions that are drawn by valid (*bona*) deduction from principles and experience are certain and sure.

Experience clearly shows that among the lower bodies there are different qualities and motions. In fire there is heat, in earth and water there is cold, and these qualities fight among themselves. Heaven moves by a circular motion, but the elements move by a straight motion: light ones move up and heavy

ones move down. To these experiences the physicist joins principles. For instance, when he wishes to show that this world, although its magnitude cannot be grasped by the eyes, is nevertheless finite, he begins from the principle that no infinite body moves in a circle. Now it is clear that heaven can complete a circle in a little bit of time, that is, in twenty-four hours; therefore it is not infinite. Let us take up one of the greater principles: an infinite distance cannot be crossed in a finite time; and where a diameter runs to infinity, a revolution back to the same point cannot happen. Therefore it is a true and sure conclusion that heaven is not an infinite body.

This conclusion (*sententia*) is useful for observing nature. For it is pleasing (*gratum*) to, as it were, comprehend and define that enormous vastness with one's mind; but it is also then helpful for measuring the areas of the regions of heaven and earth, so that we may know where it is that we live and in which part of the world the affairs about which we read and hear take place.

But although we do not grasp all the parts of nature that have been fully investigated, nevertheless experience confirms that there is an enormous multitude of certain propositions that are useful to know. And if I may move on from the bodies of heaven (about which many grant that there is a greater certainty because they are not subject to generation and corruption as mixed things are) I shall speak about generation. It is certain that species do not get mixed (an ox is not begotten from a tree), but any nature tends to propagate something of its own species. Then it is certain that there is an order of numbers, and their progressions and their proportions are clear. Moreover concerning nutrition it is certain that nature requires certain nourishing things and in the right amount. Finally, concerning healing it is clear that there are many certain things: if a body is inflamed with a fever and in addition you give it wine, you will make it burn more. The cause of this is quite clear, and the principles have been handed on truly: that like things increase by the addition of like things, and that contrary things must be cured by contrary things.

Often even when the causes are not perceived the effects are nevertheless clear. For example, we do not see why the peony is good for an epileptic, yet its effect is still known, and we have ascertained that it keeps epilepsy away. There are many such things: Galen tells that it happened by chance that when some people had drunk wine in which there were deadly echidnae, they were freed from elephantiasis or leprosy. When several cases of that outcome were later found, that remedy was accepted as certain.

The bodies of the world have been so divinely ordered in nature that they adhere to each other to prevent the existence of a vacuum. In order to preserve this order a heavy thing will rise, or it will stop if nothing supports it below, like water in punctured sacs if the opening at the top is blocked.

So then it must be said that many things are certain, even if not all parts of nature have been fully investigated.

Moreover, because we are assured by the testimonies of the doctrine of heaven, we can pronounce more assuredly about certitude. We know that God is the author of nature, and that he has handed on many ordinances, which he wants to be certain to us, such as those of generation, nutrition, numbers, life, death, and many motions of the body. To belittle the certitude of these is to insult God.

And what insanity it would it be to say it is not certain whether a man is living if he eats, drinks, speaks, and performs all the functions of a living man: or whether Pompey's body, if it is lying on the shore with its head cut off, is dead.

Therefore let that doubt of the skeptics and the like be rejected, and let them be refuted both with the rules of certainty, which I have spoken of—principles and universal experience—and also with the testimony of the doctrine of heaven and the will of God.

And let us not be troubled by that sophistry of Plato. In his writing Socrates says that he also burned with desire to examine nature and eagerly learned physics as a young man. But from physics he concluded the following: what he knew before and judged to be most certain, he afterward realized to

be uncertain, as though it escaped from his hands.

Let not this saying of Socrates be applied to all things, and let not certainty be taken away from everything. For although it often happens that men both learned and unlearned assent to uncertain things, embrace them as certain, and later their error is grasped, nevertheless in the meantime not all things are uncertain.

In the same place Socrates quite seriously shows what he means. He said that he sought not only proximate causes, but the first and principal cause. For he had read Anaxagoras, who had said that the whole of this creation of the natural world had been laid out and established as it is by the eternal architectonic Mind. These are Anaxagoras's words: "Mind is the arranger and cause of all things." Socrates complains that his soul was unable to rest because he could not look more closely and gaze at this cause. At the same time (*interim*) he does not deny that there are many certain propositions concerning secondary causes.

But it is true that the yearning of the human mind does seek the first cause; indeed this enormous variety of nature has been put before our eyes in order that we might seek God, the creator of nature. When we see him face-to-face, then we will understand completely the nature of things. In the meantime let us hold on to those things that God has handed on to us with certain testimonies about his nature and will. The knowledge of these things will add much light to many disputes about physics.

Many people have committed many errors (*Multi sunt multorum errores*): Aristotle thought that nerves arise from the heart, while others have grasped correctly that they arise from the brain. Plato says that three humors (red bile, black bile, and phlegm) are not conducive to nutrition but corrupt the blood. Yet others more carefully distinguish the four useful humors from the harmful ones. So, in many instances many people have committed many errors; nor is anything more common for man in his (*hac*) weakness than to err, be deceived, and go astray in his thoughts (*hallucinari*). Nevertheless there remains divinely confirmed certainty concerning many propositions: God wills that life be one thing and death another; he wills there to be a certain distinction between species; he wills that the limits of generation and nutrition that he has ordained not be violated; he wills that the order of numbers be unchanging; he wills that the distinction between just (*honestorum*) and wicked men remain immovable, which is the image of the divine mind. And because that eternal mind is a likeness of God and unchangeable, the number and knowledge of the just that have arisen from that source are immovable

In the beginning students must be warned these things about certainty, lest they applaud the ravings of those who with the impudence of the clever have taken certainty away absolutely. And there are some "slaves of absurd opinions," as Thucydides calls them, who despise custom, and who for the sake of perverting nature delight in monstrous opinions. Far be this vice from those who, for the sake of seeking the truth and in order to know God, cultivate the study of doctrine.

Let this principle of physics be immovable: anything is or it is not. Let the notion be immovable that "God exists." Let also the following notions be immovable: things established by God are something; the gradations of things that have been ordained by God are something; life is something that is better than death; there are some actions of the living that have been ordained and are certain, and if they remain life remains. Let this experience be judged certain, just as an ordinance of God, for God has not established things in vain.

Let us search no longer for proofs for why fire burns, but let us be content with experience, which we deduce to be certain, and for this reason: because given the opposite the destruction of nature follows, and because the thing shows that such is the ordinance of God [its] creator (*opificis*).

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