

PATRISTIC VIEWS ON THE NATURE AND STATUS OF SCIENTIFIC KNOWLEDGE

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The Fathers have a variable approach to science. Science is often respected in its own method and in the knowledge that comes from it. Medical science, for example, was recognized very early in its autonomy. A Father like St Gregory of Nyssa, in the fourth century, had no difficulty in recognizing Hippocratic-Galenic medicine despite its pagan origin. For his part, St Gregory Palamas, in the fourteenth century, does not hesitate to affirm: 'In matters of physiology, there is no dogma', a liberal position, but only in appearance, because there is in the background the idea that scientific knowledge is relative and should be relativized as a mode of knowledge. If some Fathers admit the possibility, up to a certain point, of the use of reason (St Maximus the Confessor) or of logical reasoning (St Gregory Palamas) in the theological field, it is however commonly accepted that science remains limited to a knowledge of appearances only. This does not contradict the conception that current science has. On one hand, it defines itself as the study of phenomena (*τα φαινόμενα*, that is to say what appears to the senses or to the instruments of observation and measurement) and of their laws. On the other hand, the neo-Kantian conception of modern science, considers that the scientist knows reality only as it appears to him or her and as he or she theorizes it by reason. Then, science is not able to claim that knowledge, always relative, coincides with reality as it is in itself, the essence of being remaining forever inaccessible to this type of approach. From this point of view, some Fathers stress that the true knowledge of the nature of things is that of their *logoi* (St Maximus the Confessor), which is only possible by the intellect (*νοῦς*) in its contemplative function (*θεωρία*), which presupposes a whole spiritual preparation (*ἄσκησις*). Compared to this form of superior knowledge, scientific-type knowledge is, in the eyes of some Fathers (Isaac the Syrian) only a degenerate form of knowledge, implemented by fallen man as an ersatz to true spiritual knowledge, which he has lost and cannot easily recover.

Introduction: Some remarks on methodology

The subject I have chosen to deal with brings up some methodological problems that need to be examined.

The first problem has to do with the idea of 'scientific knowledge' and therefore of 'science' itself. In this presentation, we understand the word *science, a priori*, in its modern, ordinary sense, that is, the commonly accepted definition: 'knowledge of phenomena and their laws', a rational, rigorous, coherent knowledge that, from the methodological point of view, implies in principle three stages: 1) observation, 2)

formation of a hypothesis, and 3) verification of the hypothesis which in the case of the first and third stages can take various forms both direct and indirect.

The modern idea of science did not exist in the Fathers, designated by that word. The Fathers designated what corresponds to it rather as a certain kind of knowledge that uses the senses and reason and that deals with the realm of nature considered in its appearances.

A second problem consists in the fact that the areas of knowledge that today belong to the sciences in the past took forms that we can call, using contemporary norms, non-scientific. On the one hand, physics, astronomy, physiology, for example, belonged for a long time to philosophy (this was the case in the West at the time of Descartes, that is, in the seventeenth century), and we know that until the nineteenth century, chemistry was still closely related to alchemy, itself a mix of philosophical, religious, and esoteric theories. On the other hand, some subjects that we consider to be sciences today were in the past thought of as 'arts', that is as technical skills. The best example of this is medicine, certainly still today considered to be an art, but which has also developed as a science that is the basis of this art.

Science, as we conceive of it today, only came about at the end of the nineteenth century, and so we need to watch out for anachronisms and be vigilant about the use of concepts.

A third problem is found in the difficulty of defining a single, global approach of the Fathers in relation to what we today call science. On the one hand, there are various opinions and positions that must be taken into account, but on the other, these opinions are only insights.

In this presentation, we will refer especially to the insights that are found in four Fathers who belong to different periods and outlooks: Clement of Alexandria (second to third centuries), St Maximus the Confessor (seventh century), St Isaac the Syrian (seventh century) and St Gregory Palamas (fourteenth century).¹

1. Tolerance with regard to 'scientific' knowledge and its diversity

From a certain point of view, the Fathers recognized the independence of scientific knowledge, and for this reason, they are tolerant of the diverse theories worked out by it.

In my book, *The Theology of Illness*, I showed that the Fathers of the first centuries accepted the theories about medicine that were dominant in their time.¹ Starting with the third century, we can consider that the diagnostic and therapeutic methods of Galenic medicine had become dominant in the whole Christian world.² When they spoke about physiology and medicine of the body, the Fathers normally used the Hippocratic and Galenic categories. This is the case especially with St Basil of

¹ *Théologie de la maladie*, 3e éd. (Paris, 2001), 101–109.

² P. Lain Entralgo, *Maladie et culpabilité* (Paris, 1970), 93–94.

Ancyra, St Gregory of Nyssa, St Basil of Caesarea or Theodoret of Cyrus.³ These categories were adopted afterwards by Byzantine medicine, which developed on them as their foundation⁴.

These medical theories were dominant at the time, and this explains their unanimous acceptance. But in other areas, or at other times, the theories were quite diverse. In the area of physiology and astronomy, St Gregory Palamas (fourteenth century) recognized the legitimacy of many hypotheses, all of them credible. He justified this by the fact that knowledge of reality itself is not naturally open to us and belongs to God alone:

On such subjects, if we ask how the mind is attached to the body, where the seat of imagination and opinion is, where the memory is located, which part of the body is the most vulnerable and, so to speak, directs the others, what the origin of blood is, whether each of the humors is free from any mixture, and which internal organ contains which humor, in such matters, all can give their opinions since everything that can be said in this area is reasonable. The same thing holds for the constellations and the movement of the stars, for the grandeur and nature of each one of them, as well as for all questions of this sort about which the Spirit has not given us any clear revelation, for only the Spirit knows exactly the Truth that penetrates every thing.⁵

We could relate this conception to Kant's when he said 'the thing in itself' is not accessible to us—a theory that modern science, which is generally based on Neokantian epistemology, has taken up. However, the difference is that St Gregory Palamas considered it possible to know reality in itself, but this only belongs to God and to those to whom he wants to reveal it.

This position is liberal, but only in appearance, for, as we will see, there is an idea in the background that says that scientific knowledge is relative and therefore must be relativized as a mode of knowing in relation to another form of knowledge, which is spiritual knowledge.

³ Among others, see: Basil of Ancyra, *On Virginity*, IX; XII; Gregory of Nyssa, *Treatise on Virginity*, XXII, 1–2 ; *The Creation of Man*, I; XII; XIII; XXX; *Homilies on the Our Father*, IV, 2; Basil of Caesarea, *Hexaemeron*, V, 4; 5; 8; Theodoret of Cyrus, *History of the Monks of Syria*, XVII, 5; 8; *The Therapy of hellenic deceases*, V, 82; *Discourse on Providence*, III; IV; VI.

⁴ The great Byzantine doctors, Oribase (fourth century), James the Psychestre (fifth century), Caelius Aurelianus (fifth century), Aetius of Amida (sixth century), Alexander of Tralles (sixth to seventh century), Paul of Egina (seventh century), Theophile Protospatharios (seventh century), Theophanes Nonnos (tenth century), and Michael Psellos (eleventh century) are known as encyclopediasts and compilers of the dominant Galenic tradition. Cf. F. Brunet, 'Les médecins grecs depuis la mort de Galien jusqu'à la fin de l'Empire d'Orient', in M. Laignel-Lavastine (éd.), *Histoire générale de la médecine* (Paris, 1936), t. I, 433–63.

⁵ *Triads in Defense of the Holy Hesychasts*, II, 2, 30.

2. *A pragmatic notion of science*

The Fathers who accepted the medical theories of their time or the diversity and relativity of scientific knowledge had a very pragmatic conception of such knowledge. This pragmatic conception concerned first of all the goal that these sciences pursued or the goal their application attained. The essential point was this: medicine should care for the sick and heal; other scientific knowledge should serve the general good. In fact, what made them good and valuable was the use they were put to. This point of view was developed by St Gregory Palamas who, like St Isaac the Syrian,⁶ who developed the idea before him, related scientific knowledge to the tree of the knowledge of good and evil mentioned in Genesis 2:17:

The exact knowledge of the celestial spheres, their movement and symmetry, as well as their properties, this is also a knowledge of good and evil, for it does not possess goodness in its very nature, but in the intention of those who use it. It changes with the intention of those who use it, going one way or another. All the more reason, I would also say... that the discoveries of nature's mysteries, the various methods of logic, the different opinions about the science of calculating, the various ways of measuring immaterial configurations, all these things are at the same time good and evil not just because they appear so according to the thinking of those who use them [but also because] they easily take the form given to them by the point of view of those who possess them.⁷

We do not have to agree with this position, especially as it relates to what are called today the fundamental sciences since they have as their aim, according to the classical definition, to attain to 'knowledge for itself' and do not have any *a priori* application, foreseeable or possible. Obviously, however, the question is relevant when dealing with the applied sciences and, all the more so, the arts (in the ancient sense), in other words, the technical applications they are related to.

The pragmatic conception of the Fathers that justifies their tolerance has secondly to do with the person engaged in scientific knowledge: the usefulness of the sciences is then, according to St Gregory Palamas, to educate and form the mind of the one who practices them.⁸

3. *The danger of losing oneself in scientific knowledge and thus of not participating in any activity or in any superior knowledge*

⁶ *Ascetical Homilies*, 63.

⁷ *Triads in Defense of the Holy Hesychasts*, I, 1, 6.

⁸ *Ibid.*

St Gregory Palamas adds that, once this education is finished, it is proper to leave the sciences behind and to give oneself over to a superior activity:

Their study is only a good thing to the extent that such study develops in the eye of the soul a piercing look. But it is a bad thing for whoever gives himself over completely to this study and to stay with it even into old age. The good solution is to train yourself a little, and then to give oneself over to what is much superior and much surer, for despising them carries with it a great reward from God.⁹

Palamas then refers to what St Gregory of Nazianzus said about St Athanasius of Alexandria:

He had studied the profane sciences just enough to avoid giving the impression of being totally lost, and he was even ignorant in such matters since he had resolved to despise them. In fact, he found it intolerable to occupy his noble and elevated mind with vain studies and to undergo the same fate that some athletes suffer, those who beat the air more than their opponents and thus see the victory slip through their fingers.¹⁰

He also refers to what St Gregory of Nazianzus thought about himself: 'He himself studied [the sciences] with delight, according to his own words, to the extent that he despised them and possessed Christ whom he preferred to them.'¹¹

As St Gregory Palamas underlines, the danger is in fact to give oneself over to science with the consequence of depriving oneself of the spiritual life. Because the universe of unknown and inexplicable facts goes on and on forever and because scientific knowledge progresses and is constantly renewed, the risk is great of letting oneself be dragged into an endless process, both illusory and alienating, and this is quite close to a devilish seduction:

The Evil One is always trying to maliciously turn us away from what is superior, to engender in us charming things, and to tie us up in them with hardly any chance of getting loose. [He wants to get us] wound up in those attachments so dear to men full of vanity. He suggests to us the deep and multifaceted extent of the sciences, the multitude of knowledge associated with them, as he suggests to other wealth and false glory, and fleshly pleasures,

⁹ *Ibid.*

¹⁰ Gregory Palamas, *Triads in Defense of the Holy Hesychasts*, I, 1, 6; Gregory of Nazianzus, *Orations*, XXI, 6 (SC 270, 120).

¹¹ Gregory Palamas, *Triads in Defense of the Holy Hesychasts*, I, 1, 6; Gregory of Nazianzus, *Ad Nemesium* (PG 37:1554).

so that we keep ourselves busy all our life chasing after these things and not having enough strength to firmly undertake the kind of education that purifies the soul [and leads] to the knowledge of the mysteries of God: real and true education and knowledge of which a man given over to the love of vain philosophy, being all wrapped and rolled up in its images and theories does not even see the beginning.¹²

4. *The usefulness of reason and its limits*

Scientific knowledge is a kind of rational knowledge. Even if intuition and imagination play a role in it, especially in developing hypotheses, they always remain the servants of reason. The rational coherence of a theory is one of the basic conditions for its validity. The development of modern science in the area of the infinitely small has resulted in the fact that today science is less involved in sensible phenomena, tangible and measurable things, than in conceivable things. Theories are no longer explanations of observable phenomena and no longer claim to describe reality but are 'models' constructed by reason that are only required to give a coherent understanding of reality; several different models can, from this point of view, legitimately coexist. Modern science is, by this very fact, not just rational but rationalist, and it can in many ways lay claim to the principle of rationalism: what is real is rational, and what is rational is real.

The Fathers do not deny the value of reason. In his *Apodictic Treatises*, where he opposed Barlaam, St Gregory Palamas defended the value of reasoning and of demonstration, even in theology.¹³ And one of Gregory Palamas's disciples, Nil Cabasilas, used a demonstrative method of a rational type, similar to those of the scholastics with whom he debated.¹⁴ Even in spirituality, St Maximus the Confessor underlined the usefulness of reason in searching for God.

Nonetheless, the Fathers did not accept an autonomous exercise of reason and considered as limited and vain the use of reason that was based only on sense data and on its own concepts. Reason, in theology, must have revelation as its base or else be enlightened by the intellect, which receives illumination from grace.

In *Questions to Thalassios*, 59, St Maximus explains that reason is not only useful but indispensable, but that it must be used in relation to the intellect and in synergy with grace:

¹² *Triads in Defense of the Holy Hesychasts*, I, 1, 7.

¹³ See Grégoire Palamas, *Traité apodictiques sur la procession du Saint-Esprit*, introduction de J.-C. Larchet, traduction d'E. Ponsoye (Paris, 1995).

¹⁴ See Nil Cabasilas, *Sur le Saint-Esprit*, introduction, texte critique et traduction et notes par le Hiéromoine Théophile Kislas (Paris, 2001).

It is not legitimate to say that grace alone produces in and of itself in the saints the knowledge of the mysteries without the help of the natural faculties which can open us up to knowledge. ... Neither, certainly, is it true that, without the grace of the All-Holy Spirit, can the saints, using only their natural faculty, receive true knowledge of reality. ... Thus the grace of the All-Holy Spirit does not produce in the saints either wisdom without the intellect to receive it or knowledge without the faculty of reason capable of receiving it ... And the reverse as well is true: man will not acquire [such knowledge] with just his natural faculty, without the divine power which dispenses them.¹⁵

5. *The limits of scientific knowledge*

Several Fathers emphasize the limits of scientific knowledge itself. One of these limits has to do with the hypothetical character of its theories and therefore with the fact that such theories are relative and uncertain. Clement of Alexandria underlined this also, opposing faith and science:

Sense data gives access to science while faith, after having first passed through things open to the senses, then abandons conjecture and hurries on to what does not deceive and stands firm in truth.¹⁶

Another limit has to do with the fact that scientific knowledge always presupposed that, at its base, there are undemonstrated principles and undefined concepts, as Aristotle showed in his *Posterior Analytics*. Not only is scientific knowledge unable to arrive at an integral rationality, as it claims, but it implies, as Clement of Alexandria underlined, a foreknowledge¹⁷ that is not only derived from sense data (as Epicurus thought in his theory of pre-notions to which Clement referred), but that also constitutes a form of faith. And this form of faith does not have the certainty of the Christian faith, founded on divine revelation.¹⁸

In the eyes of the Fathers, however, the first limit of science is that it remains a prisoner of the limits of nature.¹⁹ That means that science is only related to the sensible and material world and that it knows nothing of what is outside of and beyond it. It implicitly affirms then that only the sensible and material world exists and tries to relate everything to itself, in fact to reduce everything that exists to itself. Clement of Alexandria quotes Plato:

¹⁵ *Questions to Thalassius*, 59 (CCSG 22, 47–49).

¹⁶ Clement of Alexandria, *Stromata*, II, iv, 13, 3.

¹⁷ *Ibid.*, 16, 3.

¹⁸ See *ibid.*, 13, 3–18, 3.

¹⁹ St Isaac the Syrian, *Ascetical Homilies*, 62.

Those who find it hard to believe try to draw down to earth everything that is in heaven and invisible. Being convinced by everything they can understand of the material world, they energetically claim that the only thing that exists is what offers resistance and can be touched. They define the body and existence as one single thing.²⁰

As St Isaac the Syrian emphasizes, science accepts nothing that disagrees with nature.²¹ It can therefore undertake only what is in agreement with itself.²² It is always dependent on matter.²³ The very fact of its limits makes it fundamentally incomplete. As St Isaac said, 'it always lacks something'.²⁴

These limits are in fact recognized by science itself, but it sees them rather as internal limits, linked to the present extent of its knowledge or to its understanding of reality, than as objective limits in relation to a great part of reality that is beyond it because of the very nature of that reality.

The problem for the Fathers is not basically the existence of internal limits (for example, the positive knowledge of God has such internal limits: man can never grasp God in his essence and even in his energies he can be grasped only partially. Such knowledge is always in a state of tension and movement toward more knowledge because of God's infinity). The problem is rather that, while remaining limited to the domain of nature, science—for whoever recognizes through it the existence only of natural, sensible things—deprives that person of the knowledge of another dimension of reality: the dimension beyond the natural. Thus St Isaac reproaches scientific knowledge in this way: 'It separates its disciples from everything that is foreign to the natural order'.²⁵ He constantly opposed scientific knowledge, which is a prisoner of nature, to faith, which is free in relation to it, because faith, on the one hand, is not limited to its domain, and, on the other hand, is freed from nature's laws and constraints. Science simply misses a great part of reality, but that reality is open to faith.²⁶

Faith gives access to the knowledge of principles while science sees only certain consequences of them: those that manifest themselves in the sensible world, in the world of material phenomena. Faith thus includes, as a matter of principle, all the knowledge of science. Thus St Isaac judges that scientific knowledge is useful only to the extent that it can lead people to faith, but when they have reached faith, they no longer need scientific knowledge.²⁷

²⁰ Clement of Alexandria, *Stromata*, II, iv, 15, 1.

²¹ St Isaac the Syrian, *Ascetical Homilies*, 62.

²² *Ibid.*

²³ *Ibid.*

²⁴ *Ibid.*

²⁵ *Ibid.*

²⁶ *Ibid.*

²⁷ *Ibid.*

Science seeks to explain only the mechanisms that govern the universe in the domain of nature itself. This principle is part of the very methodology of science. It is what epistemologists call 'the postulate of objectivity' according to which nature is sufficient unto itself and contains in itself the principle of its own intelligibility. Science refuses *a priori* to take into account any suprasensible principle and *a fortiori* any metaphysical principle for making sense of its objects. In doing this, science ignores, according to St Isaac, the true principles that govern the world, especially divine Providence.²⁸ It attributes to nature or to human activity things that in fact come from grace. In doing this, science produces an illusory knowledge. St Isaac accuses it of thinking it is sufficient unto itself, that is, of pride. He considers the universe of scientific knowledge as a world of shadows and darkness, for science is riveted on the earth, has no other reference than what is on the earth, and does not know that there exists something higher.²⁹ True knowledge is on the side of faith, which knows the real causes of phenomena that are beyond the natural world, and obscurantism is on the side of science, which ignores them.

The sciences and technical skills have, according to St Isaac the Syrian, been produced to deal with the material needs of man. He expresses this by saying that they are dependent on the body, and under the body's influence.³⁰ Dominated as they are by the body, they do not concern themselves with anything other than what is in this world. They contribute to separating man not only from faith but also from virtuous activities that are associated with it,³¹ in other words from the spiritual life. And this we have already seen in St Gregory Palamas³².

6. *Science, that is knowledge of appearances, is inferior to spiritual knowledge, that is knowledge of the essences of creatures*

According to St Maximus the Confessor, creation can be understood by man either spiritually, according to its intelligible reality that reveals God, that is according to its *logoi*, or physically according to its sensible appearances alone. Scientific knowledge seeks to define, in a rational manner, the laws that link the phenomena and to establish theories that unify these laws. In order to do this, it must often go beyond appearances, which, as Gaston Bachelard has emphasized in his epistemological reflection, are often misleading: phenomena (*τα φαινόμενα*) are what appear (*φαίνει*). According to Neokantian epistemology, which is in general the foundation of science today, scientific knowledge never knows reality as it is in itself, what Kant called 'the thing in itself', but only reality as it appears.

²⁸ St Isaac the Syrian, *Ascetical Homilies*, 63.

²⁹ *Ibid.*

³⁰ *Ibid.*

³¹ *Ibid.* Cf., 65.

³² St Isaac the Syrian, *Ascetical Homilies*, 65.

Since scientific knowledge is limited to the domain of nature, and in the domain of nature to phenomena, that is to appearances, St Isaac the Syrian makes it the lowest degree of knowledge, which has three degrees.³³ St Maximus the Confessor considered this knowledge, which apprehends nature only according to sensible appearances alone, to be a fruit of ancestral sin and the fall of man. He also considers such knowledge to be the lowest degree of knowledge. He opposed it to a form of knowledge that, while being on the level of nature, is nonetheless able to know and to understand the beings of nature beyond their sensible appearances, in their spiritual reality that corresponds to what they really are. This spiritual reality is defined by the *logos* or the *logoi* of their essence, each being having its *logos* that defines it in its individuality, but also *logoi* that are shared by it with other beings.

In the introduction to his *Questions to Thalassios*, St Maximus establishes the distinction between sensible and intelligible things in relation to the tree of the knowledge of good and evil, which represents the double aspect according to which Adam can consider creation. The knowledge of good corresponds to the sensible creation grasped spiritually, that is considered according to the *logoi* that it contains, by the mind (νοῦς), which is fed by these *logoi*.³⁴ Knowledge of evil corresponds to the creation considered materially, that is according to sensible appearances alone, the senses allowing themselves to be charmed by appearances and the mind being perverted.³⁵

God called man to exclusively follow the first way by forbidding him access to the second by his commandment: 'Of the tree of the knowledge of good and evil, you will not eat' (Gen. 2:17). This prohibition, however, does not signify the devaluation of the sensible world, but only of the sensible way for man to use it.

Instead of following the divine commandment, Adam misused all his faculties, turning them away from their natural purpose, turning them against nature toward sensible reality, considered in and for itself. The result of this was the first and most serious of all evils: lack of knowledge of God.³⁶

The conversion of fallen man in Christ should lead him back to the right path. The purification of his passions, which attached him exclusively to the appearances of this world, should allow him to accede to a knowledge superior to that which only deals with phenomena, a spiritual knowledge that St Maximus, following Evagrius, called natural contemplation (*φυσικὴ θεωρία*).

This contemplation seeks to grasp the *logoi* of creatures in themselves,³⁷ in other words to 'read' them in nature,³⁸ to examine them,³⁹ and to put them together.⁴⁰

³³ *Ascetical Homilies*, 62; 63.

³⁴ *Questions to Thalassios*, Introduction (CCSG 7, 37.331–32).

³⁵ *Ibid.*, 37.332–34.

³⁶ *Ibid.*, 31.241–42 and 35.303–4.

³⁷ *Questions to Thalassios*, 13 (CCSG 7, 95.6–13; 25, CCSG 7, 161.39–42).

³⁸ Cf. *ibid.*, 25 (CCSG 7, 161.42).

³⁹ *Ibid.*, 32 (CCSG 7, 225.4–6).

⁴⁰ Cf. *Ibid.*, Introduction (CCSG 7, 27.167–170; 25, CCSG 7, 161.42).

To accomplish this, it must disengage them from their sensible expression,⁴¹ and thus distinguish in each being between its *logos* and its appearance.⁴² Starting from sensible perception, it carries man beyond the senses.⁴³ Thus creation is no longer grasped in a carnal way but in a spiritual way.⁴⁴

Natural contemplation discovers God,⁴⁵ the incarnate *Logos* in the *logoi* of beings, but it also discovers the Spirit that is present in creation.⁴⁶ In natural contemplation, the believer accedes to spiritual knowledge; the contemplation of nature gives 'science of beings'.⁴⁷ The *logoi* discovered, gathered and, as we have just seen, assimilated by the contemplative, do not have their only end in the knowledge that, through them, he has of beings, nor in the graces that God grants him when he contemplates them⁴⁸ but are above all destined to be offered to God⁴⁹—certainly not because God might lack one of them, but in order to give him the praise he is due.⁵⁰

This is the doxological and eucharistic use of creation, as opposed to the utilitarian use of nature introduced by technical skills and before that by the applied sciences, a utilitarian use that, as the French philosopher Cournot said, has caused man to go from the status of 'king of creation' to that of 'dealer of the planet'.⁵¹

The conception of St Maximus and the liturgical, doxological, and eucharistic use of nature constitute the theoretical and practical bases of a spiritual ecology, which for the modern world is an antidote to the unreasonable exploitation of nature's resources by modern technologies, which are, for the most part, application of the physical sciences, especially chemistry.

Conclusion

We can conclude from what we have said that the applied sciences are considered positively to the extent that their applications are positive, that is that they contribute to what is good for man.

As for their content, scientific theories are considered with a certain tolerance, going hand in hand with the awareness that there are many of them, and they are therefore relative. The rationality that is the basis of the scientific method is considered by the Fathers in a positive manner, on the condition that it is not a closed

⁴¹ *Ibid.*, Introduction, (CCSG 7, 27.167–170; 32, CCSG 7, 225.4–33; 51, CCSG 7, 395.7–29).

⁴² *Ibid.*, 32 (CCSG 7, 225.21–22).

⁴³ Cf. *ibid.*, 24 (CCSG 7, 157.5–18).

⁴⁴ Cf. *ibid.*, Introduction (CCSG 7, 37.335–336).

⁴⁵ *Ibid.*, 32 (CCSG 7, 225.24–25).

⁴⁶ *Ibid.*, 15 CCSG 7 p. 101.7–12.

⁴⁷ *Ibid.*, 5 (CCSG 7, 67.42–43; 17, CCSG 7, 111.25).

⁴⁸ *Ibid.*, 5 (CCSG 7, 67.42–43; 17, CCSG 7, 111.25).

⁴⁹ *Ibid.*, 397.34–57 and 63–68, 403.136–144, 405.198–201; 65 (CCSG 22, 281.492–494).

⁵⁰ *Ibid.*, 397.65–399.69.

⁵¹ A. A. Cournot, *Considérations sur la marche des idées et des événements dans les temps modernes* (Paris, 1872), p. 422.

rationality, closed in on itself and ending up finally as a rationalism that refuses to accept any other faculty but reason and any other reality but what is recognized by reason. For the Fathers, reason is not autonomous but must be used in the service of the intellect and of God's revelation to which it gives access. In other words, the ultimate purpose of reason is beyond itself and beyond its content, of a natural order, to which science is limited.

The main problem that is posed by science, from the theological and spiritual point of view, is that its object is limited to the domain of nature, and therefore an important part of reality, that part that is above and beyond nature, is imperceptible to it. This is not a bad thing if science is aware of this limit and explicitly recognizes it. The danger, however, is that, in a rationalist perspective previously referred to (which was dominant all over Europe at the end of the nineteenth century and which was maintained during the twentieth century in societies where a materialistic ideology dominated), science sees itself as the only way of knowing the totality of what is real.

This objective danger linked to knowledge becomes a danger for knowledge itself. This danger is that it invests all its energy in this type of knowledge and remains ignorant of forms of superior knowledge linked to faith and spiritual experience, and these alone can open man to the totality of what is real and assure his spiritual development, and finally his salvation. In other words, there is in scientific knowledge, if developed in an exclusive manner, a risk of alienation.

And finally, the Fathers consider that even at the level of the knowledge of nature, whatever its degree of development and complexity, scientific knowledge remains a knowledge of phenomena, a knowledge of appearances, and therefore a superficial knowledge. It ignores the true nature of material things themselves, whose meaning is spiritual and is contained in their *logoi*. These are only accessible by spiritual contemplation (*φυσικὴ θεωρία*), which man can develop in himself only by ascetic activity, which is linked to divine grace and purifies his passions—that is his different forms of attachment to his own ego and to the appearances of things. By natural contemplation, which is for the Fathers superior to the first degree of knowledge, whose domain is science, man can have access not only to knowledge of the real nature of each thing, but also to the knowledge of their real laws, which are spiritual laws intimately linked to divine Providence that invisibly governs the world. For the Fathers, in other words, real science, at the first level, is the one that, behind the appearances of phenomena, reveals to us their spiritual reasons, their *logoi*, and that, through these *logoi*, leads us to the Logos, the Word of God, which is their real, ontological foundation and their ultimate, real purpose.