Religious Faith, Natural Science, and Metaphysics

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Abstract. This chapter presents Agazzi's considerations on the relationship between science and religion. In the first part I discuss Agazzi's analysis of natural and empirical science which can be seen as a source of the modern and systematic conflict with religious belief if science is interpreted according to logical positivism. This interpretation mainly means taking the scientific perspective (i.e. physical objectivity) as closed, precluding any metaphysical view. In the second part I focus on the positive relationship between metaphysical insight and religious faith, which is a necessary condition for the harmony between science and religion. I will especially highlight Agazzi's notion of rational faith as a helpful element in a correct understanding of the problem tackled in this chapter. Faith and reason are necessary interactive elements both in natural science and in philosophy or metaphysics.

1. Introduction

A considerable part of Evandro Agazzi's contribution to philosophy is devoted to the problem of the relationship between science and religion. This topic is very important and there is a long-standing and insightful tradition in many philosophical and scientific circles in the United States, Europe and other countries, dedicated to the challenge posed to religious belief (Christian, Hebrew, Muslim or other creeds) by modern science and technology.

The problem can be viewed from many different perspectives. In English-speaking cultures, where science is often taken more seriously than in other cultural domains, an academic concern for the theological implications dictated by certain

scientific views is widespread in many authors and initiatives. One might recall, for instance, the efforts of the Templeton Foundation to foster research surrounding the big questions posed by science, placing them within the background of religious faith and theology. This special attention to the positive relationship between science and religion flourished in many other international academies and scientific groups in recent decades, in spite of the misunderstanding and tension which are at times translated into ideological positions, especially in the field of education.

With regard to an analysis of this issue, Agazzi can be said to hold the perspective of philosophy of science. If traditionally science was seen as an intellectual enterprise connected to wisdom and contemplation of God, why in modern times is science often associated with atheism or viewed as a rational enterprise that must inevitably conflict with religious faith?

This chapter presents Agazzi's considerations on this topic according to two main points. First, I discuss what I consider to be Agazzi's main contribution to the problem, namely his analysis of modern empirical and natural science which often became a source of systematic conflict with religious beliefs. Second, I focus on the relationship between metaphysical insight and religious faith, which in my view is a necessary condition for the harmony between natural science and religion. I will especially highlight Agazzi's notion of rational faith as a helpful element in a correct understanding of the whole of these points.

2. Modern Natural Science and Empirical Rationality

In an attempt to gather a general overview of the history of the conflict between science and religion, we could say that the central point, and Agazzi would agree, lies in the birth of modern natural science and its method. The new methodology, initiated by Galileo in a more explicit way than by other authors of his time, consists of a dismissal of the Aristotelian account of natural science as a search of the essence or nature of things, which, once grasped through a definition, would enable one to derive properties of things as a set of logical or analytical consequences. According to this framework, there is no difference between science and philosophy, contrary to our current distinction between physics and philosophy of nature, biology and philosophy of biology, and so on.

There is no place for this distinction in a classical account of science (Sanguineti 2002). Galileo's approach, instead, altogether renounces the possibility of uncovering the essence of physical things, and remains satisfied with the knowledge of some empirical properties adequately understood in terms of mathematical functions.

> For the first time in an explicit way, Galileo states that – at least in the case of objects of nature ('natural substances') – the pretence to answer the Socratic question is always in vain and illusory; 'testing the essence' is a task which he renounces, limiting himself to a more humble yet approachable goal — that is, the knowledge of 'some properties' (*affezioni*) of the natural things or, as we would say today, an accurate ascertainment of how some natural phenomena carry on (Agazzi 1974: 10)[1].

Some authors, like William Wallace, tried to show that the Galilean and Newtonian physical-mathematical discoveries might be translated into an Aristotelian syllogistic account of science as displayed in the *Posterior Analytics* (Wallace 1983, 115-143). This can certainly be accomplished, but it is purely a formal reconstruction. Nevertheless, Aristotle as a real scientist, especially in biology, does not follow an overly rigorous method such as the one delineated in the *Posterior Analytics*, which is elaborated more in accordance with geometry and some aspects of his physics. The systematic syllogistic method seeking to analytically derive all the properties found *per se* in a substance (which is the object of any scientific endeavour) from the essence as inductively grasped, is more typical of a scholastic method of working in science, against which Galileo battled throughout his scientific career.

Agazzi rightly remarks that Galileo follows an empirical method without concerning himself with pursuing essences, inaugurating the modern detachment of physics from philosophy. In doing so, Galileo was in a certain sense anticipating the times. His method is scientific in a modern sense, but two centuries were to pass before a clear distinction between experimental physics and philosophy would be reached. The ideal of a deductive science grounded in the intuition of essential properties still lingered in the classical account of rational mechanics. Agazzi is fully aware of the epistemological problems (phenomenalism) that emerge from the new methodology in physics (Agazzi 1974: 3-32). The problem of essence and substance in the new physical configuration in some sense justifies Kant's efforts to interpret the new science in a transcendental (idealistic) way.

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[1] This and subsequent translations from Agazzi are my own.

The conflict with religion, at least at the epistemological level, appears whenever modern natural science is seen as a kind of scientific research that must exclude any illusion of intellectually attaining the realm of something that extends beyond matter, matter here being understood as a reality characterized by empirical properties whose intrinsic lawlikeness could be made an object of science. Aristotle looked continuously in his ontological endeavours for *separate substances* (separated from matter), which in other terms are the purely immaterial substances – such as separate intelligences, and above all God as transcendent Intelligence moving the cyclic universe. This is precisely what is precluded by modern empirical science according to the tenets of the conflict in question. Explanations, regardless of any mathematical and theoretical elements they may contain, can never make the leap to separate substances. Human reason must be confined to this physical world. Hence, the way to atheism is opened and the conflict with religion is elaborated in a systematic rather than a casual way.

Thus far, I have highlighted Agazzi's claim that a major occasion for atheism was modern empirical natural science, which is understood according to a rigorous positivistic closure when the moment arrived to establish the new scientific method. Historically speaking this was largely successful, a new normative standard for scientific operations, a standard purified – such was the pretence, though never fully satisfied – from all immaterial additions (called metaphysical or supernatural). This was mainly the task of logical neopositivism (the Vienna Circle).

The claim was that only empirical terms (i. e. referring to observable properties) are fitting elements that might integrate existential statements and keep in check unobservable hypotheses likewise referring to existent objects in order to explain their spatio-temporal properties and relations. Within these constraints, one can build a universe of discourse, or a special ontology constituted by objects, properties and relations, which is in turn the object of natural science, and more precisely the object that defines it as such[2]. The whole of this universe of discourse is by definition the field of objectivity of a given science (Agazzi 1974, 1981, 1983, 2014).

[2] The definition of such an ontology must contain the properties that are considered observable and the basic operational procedures that render observations public or intersubjective, normally through instrumental measurements.

Agazzi and other non materialistic philosophers (Maritain 1932) maintained that this particular physical objectivity originates from the selective or abstracting operation of the mind that encapsulates an intellectual vision of the world within certain parameters, more or less like our senses perceive sensible objects from a certain point of view (light, sound, etc.). As a consequence, physics must be seen as a partial science, a partial way of viewing things and therefore of explaining phenomena and events of the natural world.

Positivists and materialists, instead, take this abstraction to be the only fruitful way to study natural objects and, consequently, to create technical objects. Indeed, only the physical Galilean approach enables us to physically intervene in nature, to produce changes according to our own laws. Empirical and experimental science, then, is the necessary condition for developing technology. It is no wonder that technical progress in Western civilization is due to this approach, unattainable by philosophical speculations about nature *qua* nature. It is likewise no wonder that nothing can be established by experimental views and techniques, as Agazzi often claims, when trying to discover what values might guide humans in their use of technology.

Modern science as we know it was born from a kind of restriction of our rationality. The decision to remain confined within the sensible realm of the universe transforms what is partial into something assumed to be the whole, yet this should be understood with an awareness of its partiality. People working in this area – scientists, professors, students – acquire an empirical scientific habit (habit in the Aristotelian sense), forgetting that their vision is partial, unconsciously treating science as philosophy, and in this sense accept it as a kind of complete worldview[3]. This attitude can be called *scientism*, a form of reductionism[4].

> Reductionism, lurking at all times, has been refuted with many proofs in the field of science, yet it survives in a residual way, though perhaps less consciously, whenever one claims that the *totality* of problems subject to human reason should be *reduced* to those which the sciences can properly address. Thus, scientism is the most radical form of reductionism inasmuch as it is not capable

[3] Not materially total, of course, but formally, in the sense that there is no other possible perspective to obtain a real knowledge of things.

[4] Scientism is tricky because it is a hidden philosophy. Scientistic authors, of course, deny this label. They take advantage of the prestige of science and make philosophical assertions beyond the possibility of the scientific method, such as "nothing can be true outside physical science", and many other conclusions concerning man, freedom, reason, truth, and the mind.

> of eliminating the need of problematizing the whole, but it thinks that the whole is identical with an horizon which is actually partial, despite how vast it might seem (Agazzi 2007: 94).

This restriction is not supported by any evidence. It is a choice, perhaps emerging from a materialistic faith, or just from habit and *routine*, but not from rational knowledge. It renders an impression that anything alleged to exist out of the empirical worldview is incompatible with science (for example, human freedom, self-consciousness, values, the human person, and most certainly God). The reasons invoked according to this empirical closure beg the question. If one believes that nothing exists outside the realm of the empirical, the concrete reason for this is only a decision to remain closed within self-imposed empirical limitations. Thus, the epistemological empirical choice is consonant with ontological materialism or naturalism (which is today's name for materialism), the former being the basis for the latter.

The problem I address in this section is that of the root of the modern conflicts between science and religion according to Agazzi. I tried to assess up to what point the new empirical, or experimental, method typical of modern science may be considered a systematic source of this conflict, and something that ultimately is an occasion for atheism. The conclusion is that this is true only if one takes up this method as necessarily closed or detached from the metaphysical perspective.

Within this framework, it is possible to single out particular areas of conflict, as Agazzi does with respect to the Galileo affair and evolutionism. The specific conflict surrounding Galileo is historically important, but from a theoretical point of view, today it appears more as a misunderstanding – theological and exegetical – than a systematic problem, as Agazzi rightly suggests. Galileo's judges were surprisingly obtuse in linking a particular cosmology to Christian faith, namely to the Scriptures.

The problem of evolution is much more serious in that it touches upon origins – – namely, the origin of the universe, of life and of man. When pursued, this topic naturally suggests a global view of nature and a certain doom, and in this sense it opens up to the question of sense, which is typically philosophical. Science concerning the origins of everything, if this is possible, is not too far removed from philosophical views and questions. The tricky feature of scientism as mentioned

above dramatically emerges in the topics generally considered as not easily tractable in the purely scientific sphere, according to the strict empirical method as such. The need for a metaphysical interpretation seems crucial to these highly specialized scientific areas, such as cosmology[5], in order to obtain an overall insight of the problem at hand (the sense of the universe, the sense of time, the place of man in cosmos). Thus, possible conflicts between evolutionary theories, scientific approaches to animal life, neuroscience, and religious faith may naturally arise, and perhaps in a confusing way when a clear distinction or a correct relationship between science and philosophy is not recognized.

Rather than being an isolated conflict, the general overview of nature emerging today from the whole of the natural sciences, and particularly biology (including evolutionary theories, neurobiology, bio-computational approaches, ethology, etc.), offers a framework which already belongs to the popular understanding of nature in our scientific culture, and one that in some way defies the theological account of divine creation. This overview is philosophical in the broad sense of the word. This synoptic panorama must be carefully studied, and it is not impossible to insert it into the Christian picture of a universe created by God in which human persons hold a very special place due to their reason and freedom.

Perhaps many people today do not care too much about epistemological restrictions, but in doing so they fail to capture the possible metaphysical implications in natural sciences. So the crux of the conflict between science and religion is simply reduced to the question about the need, rather than the possibility, of acknowledging a realm of existential being beyond matter, namely the spirit (the human spiritual dimension, or human soul) and God.

This need has collapsed for some persons for practical reasons. As Agazzi observes, human beings traditionally turned to God in order to obtain material security and spiritual relief, but many of these needs seem to be satisfied by modern technological and scientific achievements (medicine, economy, neurobiology, psychology) (Agazzi 1983: 122-124). So the sense of our dependence on God and of

[5] Agazzi touches upon the problem of the scientific status of cosmology, not corresponding to the Galilean constraints, in his paper on cosmology (Agazzi 1991). This status introduces philosophical assumptions in modern cosmology and suggests an enlargement of the notion of scientific rationality, far from the positivistic account.

our impotence to solve our great problems has decreased on account of this new era of technical progress.

> While people of a time long past had the impression that recourse to God was necessary to solve their problems, science seems today to exonerate them from this need (Agazzi 1983: 123).

But a more careful analysis of the human situation in our contemporary world does not confirm the claim that science affords a solution to all human problems. The impression of not needing God is ambiguous. In the absence of God as a transcendent and personal being, people tend to replace him with some absolute dimension of life which in turn becomes the object of faith (science, nature, man himself). They thereby run the risk of being disappointed, which is often the gateway for depression and nihilism (Agazzi 1969: 178).

> Neither the religious dimension nor the problems to which it responds can be suppressed. If people are no longer able to find the answers to their problems in a positive historically determined religion, they will look for it elsewhere, for instance, in various ideologies which, in that moment, accomplish for them the role of the 'faith that saves', the religious faith (Agazzi 1983: 162-163).

Summarizing the points made in the previous pages:

1. The historical root of the conflict between science and religion lies, according to Agazzi, in the new experimental methodology of modern natural science when this method is taken as closed and precludes by definition (and decision) all possibility of knowing existentially relevant truths. This decision is formally present in logical positivism, wherein God seems to be scientifically excluded.

2. It can be shown that this is a route which leads to self-refutation. The empirical way of perceiving things is partial. Taking this partial and abstract view as complete is the very definition of scientism, which is a kind of reductionism. Scientism is logically inconsistent. Philosophy, beyond the empirical closure, is not eliminable[6].

3. However, the overall worldview emerging from natural sciences today is nevertheless impressive. Due to an overwhelming practical (technological) dimension linked to that worldview, which efficaciously deals with many human needs, many people today think that there is no need for God, nor religion, or that God is a pious

[6] See in Agazzi (1981, 326-327) an indirect demonstration of why metaphysical knowledge cannot be cancelled out, using the Aristotelian method of *elenchos*.

invention subject to a scientific explanation (perhaps with recourse to psychology or neuroscience).

4. The last point (n. 3) easily overlooks the logical limitations of science and techno-science (n. 2). Of course, there are many other limits – anthropological, ethical, ecological, even physical – which I have not considered in these pages. In any event, when one presents a philosophical proposal that attempts to go beyond natural science and technology and reach a more metaphysical level — hence, open to the human spirit and to God – he immediately finds himself in conflict, according to the difficulties mentioned in n. 1. In more practical terms, people (scientists, professors, etc.) who on a daily basis deal with pure scientific conceptual instruments lack the conceptual instruments to deal with the immaterial, even if they do on some occasion feel the need of going beyond matter in order to speak of something immaterial. They only know scientific ontology and all other ontology appears to them as inappropriate and awkward.

I would like to add a further historical point that contributed to the modern conflict between science and religion. Toward the late 18th and early 19th centuries, Enlightenment and Positivism promoted a strong confidence in the power of pure reason – in first place in philosophy, later in science –, and spread a hostile attitude towards religious faith. Modern atheism based on science owes much of its existence to this historical trend. Many contemporary "scientific" atheists—such as D. Dennett, R. Dawkins or J. P. Changeux – today propose to return to the spirit of Enlightenment. But even in post-modern ideologies – ecologism and other anti-science movements, for example – one is prohibited from revisiting belief in God as Absolute even though, paradoxically, this belief for the above mentioned Dennett, Dawkins and Changeux seems akin to rationalism[7].

Not everyone shares this view. Many scientists, movements and cultural initiatives are convinced of the real compatibility between modern science – for instance evolutionary biology or neuroscience – and the belief in God as Creator of the universe, though some matters that raise theological questions, for example the problem of evil, cannot easily be passed over and require rational explanations, as is

[7] This historical trajectory can be exemplified in Nietzsche's atheism or Heidegger's agnosticism confronted with Hegel's God or against the Absolute in idealism.

traditionally done in the philosophy of God and in theology. I do not here have in mind American creationism or the theory of the intelligent design, which in many aspects are each problematic both in their religious claims as well as in their accounts of natural science. I am instead thinking of many authors who are simultaneously believers and scientists, for example Francis Collins[8], creator of the BioLogos Foundation that deals with various issues surrounding the harmony between science and religion. Many prominent modern scientists, from Galileo's time up to the present century, were believers in God (and sometimes were also religious persons), such as Newton, Kepler, Maxwell, Planck, Heisenberg, Mendel, Pasteur, Lemaître, Sherrington, Eccles, Ayala, and others.

There is no historical link between atheism or philosophical positivism and the great scientific discoveries in the modern history of science. The authors mentioned above did not perceive a particular difficulty in being believers and scientists, and being both coherently, for they did not share the "empirical closure" elaborated by some philosophers of science. Many of them felt the need for God as a transcendent being in order to ultimately explain the existence of our universe and its amazing and profound order and complexity. This feeling was due to a naturally made and implicit "metaphysical" inference from the natural and physical order ultimately extending to some superior Intelligence, reason or personal spirit who could be thought of as the ultimate source of all that exists – namely, of mankind and the universe, when rightly seen as not self-sufficient in their contingent existences, respectively. Even if they were educated in a religious creed, which facilitates the perception of the invisible presence of God in creation, they could not fail to intellectually understand this as a matter of rational faith.

3. Metaphysical Insight and Religious Faith

Unlike in other periods, though not too long ago, people involved in natural sciences today seem more inclined to be materialists. Placing aside sociological analyses and statistical surveys of different cultural areas, one can rightly surmise that

[8] Collins guided the team of the Human Genome Project, successfully carried out in 2003, together with Craig Vender. A former atheist, Collins converted to Christianity when he was 27 years old during his practice of medicine. It was not a purely intellectual conversion, but fully religious, with an awareness that science and religious faith are compatible and that the latter gives a sense to the former (Collins 2007).

this phenomenon is due to the prestige and amazing development of physics, chemistry, and biology in our scientific culture. A person working closely with physics tends to see every problem in physical terms. Scientific information, classically reserved to a limited group of scholars and experts, is today available to everyone by means of education, news media, popular books and magazines, films, and the Internet. Natural sciences and technology constitute an essential part of daily life, even if simply for practical reasons.

We could therefore think that this might be the reason – a cultural reason – for the particular difficulty that ordinary learned people experience in acknowledging anything immaterial, or spiritual, that transcends the material world. This often is, if not the unique reason, at least one of the relevant reasons for the current crisis, among many persons, of the faith in God, in the afterlife, in the human spiritual soul, i.e. in all the spiritual dimensions that touch upon religion. Western countries are living in a materialistic culture, although the great pioneers of modern science, as we have seen, usually were not themselves materialists and non-believers.

The problem is related to a massive eruption of atheism in contemporary culture and has been analysed from many points of view (historical, cultural, philosophical, pastoral, etc.). Science is just one of these aspects, and I will focus on this while highlighting several of Agazzi's suggestions on the topic.

There is little doubt that grasping in natural sciences aspects that might be helpful for the acknowledgment of God's creation and providence requires a metaphysical insight that extends beyond scientific methodology. This can be done spontaneously, though at times runs the risk of seeming naïve, or of inadequately mixing different dimensions (easily jumping from the Big Bang cosmology to God, from quantum's indeterminacy to God's interventions, etc.). Yet on the other hand, atheists and materialists are often too hasty in drawing conclusions upon the mere suggestion of science and hence run an analogous risk. We must ask ourselves: why do some so easily conclude to the existence of God (think of Francis Collins and his colleagues today) through contemplation of nature, whereas others, independently of philosophical positions, are not compelled to admit a connexion between the universe as disclosed by science and God as a Creator?

I think this question is essential, though very difficult to answer. It is nothing less than facing the problem of why there are believers and non-believers. This is a very personal matter, irreducible to syllogistic constraints or to rationalistic evidence. It is personal because the solution involves the whole of our existential attitude with respect to life, death, persons, and moral duties. To rationally acknowledge God's existence is not a matter of information, as when a scientist simply accepts or denies some explanatory hypothesis on logical or empirical grounds. The existence of God – especially as a personal God, or as a personal being endowed with the capacity of making voluntary choices concerning the universe and human existence – is not obvious. But, paradoxically, this non-obvious existence (or non-existence) is crucial for an absolute and overall sense of our lives. We may be attracted by the strong and at the same time soft thought of God's existence, or perhaps intimidated by it, or even afraid of being deceived[9].

Agazzi usually comments on this point by remarking that what is "at stake" in these existential questions is nothing less than the whole sense of our existence (Agazzi 1981: 335-336). But there are no compelling answers, and certainly none of a compelling logical or empirical nature. The only existential pressure here is that any answer, positive or negative ("God exists", "there is nothing beyond matter", etc.) is for us a matter of "life and death". Many ethically and anthropologically deep problems share this quality. Epistemologically, human knowledge in these matters is not purely rational (and philosophers are not exempt from this fact), rather it engages and unites in a profound and mysterious way both freedom and reason, to which must be added the role of various virtues such as honesty, humility and sincerity. To perceive what is true and good in these matters, classically associated with wisdom and to science, implies a very personal commitment[10]. Even compelling evidence can be rejected if it clashes with an already rooted commitment, albeit irrational[11].

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[9] Frequently these thoughts and feelings do regard God not in a purely private way, but in the context of institutional and historical religions in which God is worshipped. In Christian religion, the claim is that God himself has the initiative of addressing man with his personal commitment in the Incarnation.

[10] It is in this sense that I understand the usual and true assertion that the philosophical proofs of God's existence convince only those who already believe in God. Not because these proofs are necessarily invalid, but because affirmation of God's existence requires a personal commitment. Some rational evidence can be helpful, but is not sufficient to convert an atheist.

[11] This point is touched upon in Christ's statement concerning the unmoved (stubborn or tepid) attitude of some persons in their moral lives: "If they do not hear Moses and the

I agree with Agazzi's claim that this personal conviction might be qualified as faith and that it is natural to every human person.

> Every human being manages to give a sense to his/her life by adhering to a faith, not necessarily religious, yet nevertheless capable of showing him/her something for which it is worth living and dying. Insofar as they are endowed with reason, humans tend to 'give themselves a reason' for their being in the world, and therefore also to check the content of their faith using reason" (Agazzi 2008, 109).

The relationship between religious faith, metaphysical elaborations and human sciences must be seen within this perspective. According to Agazzi, this rational faith, though frequently embedded in religion, cultural traditions and education (sometimes also in ideologies), corresponds to the ultimate sense of human life[12]. Its referent is sometimes mentioned as the world of Life (in the sense of the Husserlian *Lebenswelt*) (Agazzi 2010). It is not a faith in a subjectivist sense, for it encompasses all the cognitive intellectual resources (intelligence, perception of the world, acknowledgment of one's self and of other persons), granting to what is known as a whole an ultimate meaning – we see this, for example, in regard to the value of human life and to other fundamental human tasks in science, politics, family, religion, etc.

Regarding the scope and the epistemological features of this "anthropological" faith, which cannot be confounded with a mere *Weltanschauung* or a pre-scientific general worldview, there is much to consider (Agazzi 1983: 155-156). It is a rational knowledge, though not in a rationalistic sense. It is metaphysical inasmuch as it reaches beyond sensible perception and its object is not a material thing. Is it uncontroversial? It seems not, judging from the infinite debates and opinions surrounding the meaning of life. If it were indisputably obvious, it would not be faith. As *faith* (and not merely belief), however, it entails certainty and confidence, grounded in intellectual insight that invites one to believe, without the pressure of sensible perceptions or of analytic truths.

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prophets, neither will they be convinced if some one should rise from the dead" (*Luke* 16, 31, in Gavigan 1988).

[12] Skepticism and relativism apparently refrain from having faith in something for which it is worth living. But this attitude, if not cynical, is often taken with a sense of pessimism and sadness, and not rarely it becomes the object of a kind of intellectual justification which in some way or other conceals an unconscious pursuit of meaning, and one that furthermore ends in frustration or disappointment.

I would like to introduce a new element to this confrontation between science, metaphysics and faith, presupposing that the last two items touch upon ultimate questions "worth living and dying for" because they regard the meaning of human existence on earth. I refer to the first principles, which for Aristotle were objects of *intellectus* (*noûs)*, and not of *ratio* (*logos*). In my view, the first principles are not just a series of formal axioms, but profound and basic ontological and intellectual habitual convictions that ground all other knowledge, rational practise, language, and volition. The lively (not academic) certainty that one is a human person living in a world populated by other persons, and that our knowledge is capable of attaining the truth or of distinguishing between what is real, possible, potential, unreal, false, etc., are unshakeable convictions for any human person, even if the majority of people would be incapable of explaining the meaning of "real", "potential", "person", etc. Indeed, this is a task for metaphysics.

I do not think that the first principles, in this brief account, include the ultimate meaning of human life, which is the object of faith as discussed above following Agazzi's indications. If the first principles correspond to what Aristotle assigns to *noûs*, Agazzi's notion of faith, instead, seems to concern classical wisdom (*sofía*). Now, science and wisdom are rational developments of human knowledge on the basis of the first principles (here "on the basis" does not mean "automatically deduced"). The world according to primitive knowledge is not self-sufficient. It requires explanations in different areas. Many of these explanations are implications which human reason derives under the requirement of coherence (non-contradiction) and of the principle of causality, and this is why people raise many questions on the basis of what they observe.

But the use of reason is twofold. First, explanatory reason can systematically address the knowledge of particular things and properties of the world. This aspect can be called *scientific rationality*, which is not an absolute need for every human person. Secondly, people cope with the absolute need of articulating (or discovering) the ultimate meaning of their life in the world. What classically was known as *wisdom* is a response to precisely this aspect. This is not a privilege of philosophers, nor a way of knowing reserved only to those who are concerned with the ultimate questions. Not every person is a philosopher, but every person tends toward wisdom, or perhaps

thinks that s/he has already sufficiently solved the problem regarding the meaning of life – this includes many convictions about what justice might be, and likewise injustice, values, the sense of doing science, or at least doubts and questions about problems such as what or who God is, or the meaning of human suffering and death. This is exactly the realm of rational faith as discussed by Agazzi in many of his writings concerning the problem of the relationship between science, religion and metaphysics.

Metaphysics as a scientific inquiry, or philosophy understood as a professional endeavour, deals with these universal, ultimate questions which every person necessarily copes at least with his rational faith. This is the platform upon which Agazzi situates the interplay between faith and rational knowledge.

> An important part (not all) of the metaphysical discourse can be seen as a relation established between faith and knowledge (*sapere*[13]). The metaphysical discourse, in this aspect, is revealed as an attempt, within faith, to use reason in order to clarify what is believed and render it a form of a knowledge (*sapere*) (Agazzi 1981: 337).

From this perspective, reason as an extension of our intelligence beyond what is directly perceived by human senses or by the immediate intellectual perception of certain fundamental truths – namely, the first principles – frequently begins by establishing beliefs and opinions (in natural sciences, these are hypotheses or conjectures), and only afterwards, attempting to operate a transition from faith to rational knowledge (metaphysical knowledge in the philosophical field; corroborated knowledge in natural sciences; well grounded opinions in practical knowledge).

A rationalistic account of knowledge considers faith as a popular view, and one that is completely submissive to reason, whether philosophical or scientific. Agazzi, instead, conceives both metaphysics and science as interplays between rational faith and reason as demonstrative knowledge, interplays that cannot ever be abandoned and replaced by pure faith or a pure reason. This point is equally valid in philosophy and science, albeit in a different way.

> The metaphysical discourse is always a discourse which unfolds inside a 'metaphysical faith', which is not necessarily a religious faith, for it could very well be an atheistic faith, yet always a faith. Hence, metaphysics appears as a use

[13] In Italian, *sapere* means rational knowledge, science, whether philosophical or in the sense of particular sciences such as physics or mathematics.

> of reason that tries to transform into rational knowledge (*sapere*), if possible, what is attained through faith (Agazzi 1981, 337-338).

It may happen that rational inquiry corrects some aspects of faith, or even forces one to abandon false beliefs[14]. Dogmatism, in a negative sense, is the attitude of always rejecting the possibility of a critical examination of one's faith, even if only to clarify it[15].

Contrary to a rationalistic view, metaphysics and the positive sciences normally operate within the framework of a previous faith. But this does not mean that for Agazzi metaphysics would be a mere hypothetical science. Philosophers often claim to be able to attain true rational conclusions, with the exception of relativists and the followers of the so-called "weak thought" (but it can be argued that even the latter hold convictions, for example the strong conviction that there are no absolute convictions). Agazzi, too, acknowledges the merit of various important metaphysical conclusions – to be found in many different philosophical schools – that claim to be "non hypothetical, unconditionally valid and irrefutable" (Agazzi 1983: 150), something than can be fully attained if the philosopher succeeds in proving that empirical reality would be contradictory unless there is a metaphysical reality (Agazzi 1983: 150)[16].

The general conclusion of these considerations is that the opposition between faith and reason, religion and science, claimed by some authors since the Enlightenment and renewed by the so-called new Enlightenment – sometimes taking advantage of the achievements of recent science – is not valid. Perhaps one might object to this that atheists normally do not place reason in opposition with rational faith, but only with religious faith, claiming that the latter (which believes in supernatural entities) is irrational. This difficulty mixes various aspects. If atheists think that believing in God is irrational, they should argue their points using philosophical arguments, but not in the name of science. Natural sciences do not have

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[14] But it can never remove the unshakeable certainty of the first principles.

[15] Even the principles are open to rational clarification, otherwise they would be believed in an irrational way. In an analogous way, Christian faith, in its essential points, is never considered by a genuine believer as something that perhaps in the future might be abandoned, as it happens in scientific hypothesizing, but in any event it remains open to rational clarification, which is the task of theology.

[16] This idea could be applied to the affirmation of God's existence, as it is suggested in Agazzi 1983: 152.

recourse to God in their explanations because this recourse falls beyond their competence, just as it would be irrational to think that God could intervene in a football match as one secondary cause among others. Agazzi's argument is that there is an interplay between faith and reason at the level of natural sciences, therefore within their competence, and another at the higher level of metaphysics. In the latter case faith might also be religious and not purely speculative, especially in religions like Christianity, which are by nature open to reason in all its aspects.

How, then, can these two levels be related? Each of them – namely the scientific level and the philosophical one – shows a dynamic interplay between faith and reason. The answer it that the latter provides an ultimate interpretation, which is both ontological and ethical, to the discoveries and technical achievements of the former[17]. But this can done more effectively, in my view, provided philosophy is not limited to metaphysics and ethics, but explores such fields as philosophy of nature, philosophy of science, and philosophical anthropology. Otherwise, the exchange between religion and natural science runs the risk of being rather extrinsic.

From the perspective of the sciences, in turn, when one considers scientific results not in a piecemeal way, but globally – as it happens in the framework of great theories, for example, in cosmology, or in evolutionary biology taken as a whole –, a philosophical interpretation is more inviting. Natural sciences today, considering their complexity and interdisciplinary relations, present a sufficiently consistent scenario – from cosmology to biological sciences – that more than ever seems to invite a philosophical overview (Vitoria 1994). This interpretation is a philosophy of nature or a philosophy of science that can be afterwards related to theological topics, such as God's creation and providence. Science is very useful, moreover, for furnishing the material upon which the philosophical reflection might be undertaken. In this sense, science and philosophy are not extrinsic, but complementary and necessary to each other, and this despite the usual changeable state of scientific theories.

[17] This interpretation is a human need. Even scientists consider their research and discoveries within a universe of sense and meaning, using their intelligence with the help of the first principles and a reasonable faith. They can also try to respond to ultimate problems, but in doing so they think as human persons, not as scientists (Agazzi 1983, 118). It would be illegitimate, however, to propose these reflections as if they were scientific conclusions.

In conclusion, philosophy is a necessary cognitive mediator between science and religion (or between science and theology). According to Agazzi, it can be shown that the whole of the empirical experience – the epistemological space given to natural sciences – does not equate to the whole of reality as such. This experience is open to metaphysical investigation as well. Hence, the latter opens the conceptual space to transcendence (in the sense of God and the human spirit), which is in turn the cognitive space given to religious faith (Agazzi 1983: 134, 153-154).

Summing up,

1. Natural sciences are neither purely empirical nor purely rational. They presuppose metaphysical aspects – the first principles – and they possess a particular dynamism according to the intellectual interplay between faith and reason with respect to their object, which is the world as captured by the totality of empirical experience.

2. The answer to the problem of the ultimate meaning of human existence in the material world does not come from natural sciences, but from a higher metaphysical perspective. This perspective in ordinary people is given through faith, normally embedded in religion, or at least in some existential attitudes. This faith corresponds to what classically was called wisdom.

3. A systematic rational inquiry about the ultimate meaning of human existence pertains to metaphysics – considered as a philosophical discipline – or to theology, which is the science of religious faith.

4. From numbers 2 and 3, we can conclude that the relationship between faith and reason, or between science and metaphysics – including religious knowledge –, is positive and natural, and cannot be prohibited by any artificial caveats. Philosophy of nature and philosophy of science are cognitive mediators that facilitate a positive and fruitful relationship between those items.

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