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Is Being a Good Empiricist the Same as Being a Good Naturalist? The Case of the Relationship Between Science and Christian Theism

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Abstract: Using Feyerabend's argumentation, and rephrasing of the problem in terms of the Model of Levels of Analysis, I show that a good empiricist need not be a (metaphysical or methodological) naturalist. I characterize the ideas of Alvin Plantinga and Jitse M. van der Meer as being representative of two different varieties of theistic response to the problem of the relationship between Christianity and contemporary science. Against van der Meer, I argue for Plantinga's conclusion about the value of theism-based science. Against both approaches, I point to situations where theistic assumptions do indeed influence the contents of observation.

Keywords:

Alvin Plantinga;
Jitse M. van der Meer;
metaphysical naturalism;
methodological naturalism;
model of levels of analysis;
theism;
Paul Feyerabend

1. Introduction

Differences of detail notwithstanding, there is a broad consensus in support of the principle that the statements of science must, in one way or another, be connected to observations. Even though some branches of science exhibit a wide gap between the claims made there and the empirical data, theoretical physics being a particular case in point, in the end it is only those theories that do not contradict the established facts that can be accepted. Such facts consist of events from the natural (or empirical) world. For that reason, the argument goes, a good scientist

has to be an empiricist. Does that mean, however, that such a scientist must also be a naturalist?

The arguments pursued in this article rest on Paul Feyerabend's well-known claims that a good empiricist should not shy away from accepting metaphysical statements and that science develops best if one submits to the view described as metaphysical pluralism. Following Feyerabend, I seek to show that a good empiricist need not be a naturalist. In order to achieve this, I first present his position on the role of facts and philosophy in science and the value of pluralism. Then I describe two kinds of solution to the problem of the relationship between naturalist science and Christian theism. I focus on two theistic approaches: one by Alvin Plantinga and the other by Jitse M. van der Meer. I evaluate these from the point of view of the Model of Levels of Analysis. As a result of this analysis, and in terms consistent with Feyerabend's position regarding the relation of metaphysical assumptions to the empirical sciences, I pursue two lines of argument. Firstly, I argue against van der Meer, who rejects the notion of Christian science, and in favor of Plantinga's conclusion about the value of theism-based science. Secondly, I argue against both of these approaches that accept that empirical data are theoretically neutral, pointing to situations in which theistic assumptions do influence the contents of observation. What I say, therefore, provides further support for the argument that a Christian theist ought to be neither a metaphysical nor a methodological naturalist. [1]

[1] Among other contemporary voices in the discussion surrounding the role of methodological and metaphysical naturalism in science, one encounters a spectrum of opinions regarding whether the naturalistic assumptions of science should be considered non-restrictive and justified, restrictive and justified, or restrictive but unjustified, and supportive or not supportive of science, etc. See, for example: "Methodological naturalism does not constrain the theories that scientists may conjecture, but how those theories may be justified. On this view, methodological naturalism is a principle of science according to which supernatural methods of justification, such as faith, are eschewed" (Tiddy Smith, "Methodological Naturalism and Its Misconceptions", *International Journal for Philosophy of Religion* 2017, Vol. 82, No. 3, p. 321 [321–336], https://doi.org/10.1007/s11153-017-9616-3; "methodological naturalism is underpinned by certain ontological and epistemological assumptions including evidentialism and the causal closure of the physical, adoption of which necessitates commitment to metaphysical naturalism" (Zahra Zargar, Ebrahim Azadegan, and Lotfollah Nabavi, "Should Methodological Naturalists Commit to Metaphysical Naturalism?", *Journal for General Philosophy of Science* 2020, Vol. 51, No. 1, p. 185 [185–193], https://doi.org/10.1007/s10838-019-09464-8). I would like to thank an anonymous reviewer for drawing attention to these particular papers. According to Bruce L. Gordon, it is uniformity of nature, not naturalistic philosophy, that is a necessary condition of science (see Bruce L. Gordon, "In Defense of Uniformitarianism", *Perspectives on Science and Christian Faith* 2013, Vol. 65, No. 2, pp. 79–86). For Robert C. O'Connor, the problematic position

2. Paul Feyerabend on the Role of Facts and Philosophy in Science, and on the Value of Pluralism in Science

Philosophers that are representative of the socio-historical approach to the philosophy of science frequently include references to the history of science and emphasize the limited role played by empirical data in scientific endeavors. They also point out that scientific data is closely tied to theories (i.e. the theory-ladenness of observations) and argue that translating certain terms from one theory to

is scientism, not methodological naturalism (see Robert C. O'Connor, "Science on Trial: Exploring the Rationality of Methodological Naturalism", *Perspectives on Science and Christian Faith* 1997, Vol. 49, No. 1, pp. 15–31). Interestingly, according to Jonathan Bartlett and Eric Holloway one finds explanations in contemporary science that are inconsistent with naturalism (see Jonathan Bartlett and Eric Holloway, "Other Non-Naturalistic Methodologies in Modern Practice", in: Jonathan Bartlett and Eric Holloway (eds.), **Naturalism and Its Alternatives in Scientific Methodologies: Proceedings of the 2016 Conference on Alternatives to Methodological Naturalism**, Blyth Institute Press, Broken Arrow, Oklahoma 2017, pp. 257–268). See also, e.g., Jonathan Bartlett, "Philosophical Shortcomings of Methodological Naturalism and the Path Forward", in: Jonathan Bartlett and Eric Holloway (eds.), **Naturalism and Its Alternatives in Scientific Methodologies: Proceedings of the 2016 Conference on Alternatives to Methodological Naturalism**, Blyth Institute Press, Broken Arrow, Oklahoma 2017, pp. 13–37. According to Leonard Brandt, scientific explanations are to be based on empirical data and not on philosophical assumptions like methodological naturalism (see Leonard Brand, "Naturalism: Its Role in Science", *Origins* 2015, No. 64, pp. 21–37. Proponents of theistic naturalism like Ian G. Barbour, Arthur Peacocke, Ernan McMullin, Nancey Murthy, John Polkinghorne, Francisco Ayala, Michał Heller, Józef Życiński and others are usually sympathetic to methodological naturalism and its application in science. On their position, see, e.g., Piotr Bylica, **Współczesny teizm naturalistyczny z punktu widzenia modelu poziomów analizy: Problem działania sfery nadnaturalnej w przyrodzie**, *Biblioteka Filozoficznych Aspektów Genezy*, t. 7, Instytut Filozofii Uniwersytetu Zielonogórskiego, Zielona Góra 2016.

One encounters discussions of naturalism as a contemporary scientific frame of reference in, for example: Kazimierz Jodkowski, "Epistemiczny układ odniesienia teorii inteligentnego projektu", *Filozofia Nauki* 2006, t. 14, nr 1, pp. 95–105; Kazimierz Jodkowski, "Epistemiczne układy odniesienia I »warunek Jodkowskiego«", in: Anna Latawiec and Grzegorz Bugajak (eds.), **Filozoficzne i naukowo-przyrodnicze elementy obrazu świata**, t. 7, Wydawnictwo Uniwersytetu Kardynała Stefana Wyszyńskiego, Warszawa 2008, pp. 108–123; Kazimierz Jodkowski, "Uczony w ciemnym budynku. Na marginesie metafory Elżbiety Kałuszyńskiej", in: Józef Dębowski and Ewa Starzyńska-Kościuszko (eds.), **Nauka, racjonalność, realizm: Między filozofią przyrody a filozofią nauki i socjologią wiedzy**, Instytut Filozofii Uniwersytetu Warmińsko-Mazurskiego, Olsztyn 2013, pp. 55–67; Krzysztof J. Kilian, **Współczesne epistemiczne układy odniesienia w nauce**, *Biblioteka Filozoficznych Aspektów Genezy*, t. 9, Oficyna Wydawnicza Uniwersytetu Zielonogórskiego, Zielona Góra 2021; Krzysztof J. Kilian, "Argumenty na rzecz naturalizmu jako epistemicznego układu odniesienia", *Filozoficzne Aspekty Genezy* 2018, t. 15, pp. 1–63, https://doi.org/10.53763/fag.2018.15.149; Krzysztof J. Kilian, "Argumenty przeciwko naturalizmowi jako epistemicznemu układowi odniesienia", *Filozoficzne Aspekty Genezy* 2018, t. 15, pp. 71–137, https://doi.org/10.53763/fag.2018.15.150; Dariusz Sagan,

another is often impossible (the incommensurability of scientific theories). Such philosophers, in addition, stress the importance of metaphysical assumptions in science. Finally, cultural and social factors are also recognized as important in shaping the way science is done. Apart from Paul Feyerabend, this approach has been championed by, for example, Thomas Kuhn and Imre Lakatos: Feyerabend's considerations stand out, however, as having a decidedly normative character. The latter often wrote about how scientists should behave, and what is good or bad for science. Therefore, it is Feyerabend's approach that will serve as our main source when looking for an answer to the question posed in the title of this paper.

Nevertheless, it should be emphasized that this article makes reference solely to Feyerabend's pre-anarchist ideas. [2] His anarchist period is best showcased by such books as **Against Method** [3] or **Three Dialogues on Knowledge**. [4] It is characterized by epistemological, ontological and cultural relativism, including an abandonment of the notion of science as an important cultural milestone and a negating of the objectivity of scientific knowledge. Such extreme views are not yet present in the article "How to be a good empiricist: A plea for tolerance in matters epistemological", which is our main reference point here, and do not necessarily follow from the ideas presented there.

"Status poznawczy teorii inteligentnego projektu w świetle naturalizmu metodologicznego i koncepcji epistemicznych układów odniesienia", in: Stanisław Janeczek, Zbigniew Wróblewski, and Anna Starościc (eds.), **Genius Vitae. Księga pamiątkowa dedykowana Panu Profesorowi Marianowi Józefowi Wnukowi**, Katolicki Uniwersytet Lubelski Jana Pawła II, Lublin 2019, pp. 309–321.

[2] On the evolution of Feyerabend's position, see, for example: Kazimierz Jodkowski, "Filozofia nauki Paula K. Feyerabenda. Studium umiarkowane", *Studia Filozoficzne* 1979, nr 11, pp. 59–75; Krzysztof J. Kilian, **Poglądy filozoficzne Paula K. Feyerabenda: Cz. 1: Program metodologiczny, cz. I**, Oficyna Wydawnicza Uniwersytetu Zielonogórskiego, Zielona Góra 2014.

[3] The anarchistic theory was first published as an article (see Paul Feyerabend, "Against Method: Outline of an Anarchistic Theory of Knowledge", in: Michael Radner and Stephen Winokur (eds.), **Analyses of Theories and Methods of Physics and Psychology**, *Minnesota Studies in the Philosophy of Science*, Vol. 4, Minneapolis, University of Minnesota Press 1970, pp. 17–130. It was much changed in book versions (see, e.g., Paul Feyerabend, **Against Method: Outline of an Anarchistic Theory of Knowledge**, 1st edition, New Left Books, London 1975). Another three editions were released in 1988, 1993, and — posthumously — in 2010.

[4] See Paul Feyerabend, **Three Dialogues on Knowledge**, Blackwell, Oxford — Cambridge 1991.

2.1 The Two Conditions of Empiricism Accepted within Logical Empiricism

Feyerabend emphasized that there are two positive aspects to considering empiricism the basis for science: the "predilection for empiricism is due to the assumption that only a thoroughly observational procedure can *exclude fanciful speculation and empty metaphysics*, as well as to the hope that an empiricist attitude is most liable to *prevent stagnation and to further the progress of knowledge*". [5] Until around the 1960s, such advantages associated with empiricism were hailed by the representatives of one of the main currents in the philosophy of science: logical empiricism (also known as neo-positivism or logical positivism). Yet the version of empiricism accepted within neo-positivism included certain assumptions that, according to Feyerabend, were not advantageous for science. The critique of these assumptions is directly related to the problem of methodological and metaphysical monism in science.

According to Feyerabend, the following two conditions imposed by logical empiricism serve to solidify dogmas in science and hamper progress (with science itself developing so far mainly because these were in fact not taken into account):

> (1) only such theories are admissible in a given domain as either *contain* the theories already used in this domain, or are at least consistent with them; and
>
> (2) meanings must be invariant with respect to scientific progress: all future theories should be phrased in such a manner that their use in explanations does not affect either what is said by the theories or the factual reports to be explained. [6]

Feyerabend called these two conditions the *consistency condition* and the *condition of meaning invariance*, respectively. He found them restrictive "and therefore bound profoundly to influence the growth of knowledge". According to Feyerabend, "the development of actual science very often violates them and [...] it violates them in exactly those places where one would be inclined to perceive

[5] Paul Feyerabend, "How to Be a Good Empiricist: a Plea for Tolerance in Matters Epistemological", in: Paul Feyerabend, **Knowledge, Science and Relativism, Philosophical Papers, Volume 3**, John Preston (ed.), Cambridge University Press, Cambridge 1999, p. 78 [78–103] (emphasis added).

[6] Feyerabend, "How to Be a Good Empiricist...", p. 83.

a tremendous progress of knowledge". That is why "neither condition can be justified from the point of view of a tolerant empiricism". [7]

What does it mean that *in fact* scientists did not take these conditions into account? It can be said, for example, that the theory proposed by Newton is *logically inconsistent* with Galileo's law governing the free fall. This is how Feyerabend describes it:

> Galileo's law asserts that the acceleration of the free fall is a constant, whereas application of Newton's theory to the surface of the earth gives an acceleration that is not a constant but decreases (although imperceptibly) with the distance from the centre of the earth. Conclusion: if actual scientific procedure is to be the measure of method, then the consistency condition is inadequate. [8]

Note that the above concerns logical as opposed to pragmatic inconsistency. The latter is often hard to even notice, as the difference between the two theories with respect to their predictions can be so minute as to be experimentally undetectable, even though each of them could in fact be postulating a theoretically different picture of the world.

The condition of meaning invariance can be seen to be violated when we compare, for example, Einstein's theory of special relativity and Newton's dynamics. The term mass is used in both, but Newton's theory states that mass does not change independently of the speed of the body or its movement in general, whereas in Einstein's theory mass changes together with the movement of the body, with the measurements of velocity and mass depending on the accepted coordinate system. Therefore, the two theories use the same term "mass", but it is understood differently in each of them. [9]

Hence, had scientists taken into account either condition, it would have hampered the progress of science: "strict adherence to meaning invariance and consistency would have made impossible some very decisive advances in physical theory, such as the advance from the physics of Aristotle to the physics of Galileo and

[7] Feyerabend, "How to Be a Good Empiricist...", p. 83 (emphasis, if not specified otherwise, Feyerabend).

[8] Feyerabend, "How to Be a Good Empiricist...", p. 85.

[9] See Feyerabend, "How to Be a Good Empiricist...", pp. 86–88.

Newton". [10]

Moreover, the condition of meaning invariance applies not only to theoretical but also to observational terms:

> [T]he "logic" of the observational terms is not exhausted by the procedures which are connected with their application "on the basis of observation". [...] it also depends on the more general ideas that determine the "ontology" (in Quine's sense) of our discourse. *These general ideas may change without any change of observational procedures being implied.* [...] Witchcraft is again a very good example. Numerous eyewitnesses claim that they have actually seen the devil or experienced demonic influence. There is no reason to suspect that they were lying. Nor is there any reason to assume that they were sloppy observers, for the phenomena leading to the belief in demonic influence are so obvious that a mistake is hardly possible (possession; split personality; loss of personality; hearing voices; etc.). These phenomena are well known today. In the conceptual scheme that was the one generally accepted in the fifteenth and sixteenth centuries, the only way of describing them, or at least the way that seemed to express them most adequately, was by reference to demonic influences. Large parts of this conceptual scheme were changed for philosophical reasons and also under the influence of the evidence accumulated by the sciences. Descartes's materialism played a very decisive role in discrediting the belief in spatially localizable spirits. The language of demonic influences was no part of the new conceptual scheme that was created in this manner. [11]

According to the principle of relative autonomy, "the facts which belong to the empirical content of some theory are available whether or not one considers alternatives to *this* theory". [12] Yet, according to Feyerabend, observing a new fact is sometimes only possible in cases where an alternative theory is also taken into account: "There exist also facts which cannot be unearthed except with the help of alternatives to the theory to be tested, and which become unavailable as soon as such alternatives are excluded". [13] For example, sticking to the notion of an immovable Earth would mean that there could be no attempts at observing the phenomenon of parallax.

Hence, in order to be a good empiricist, one must accept a pluralistic outlook in respect of science. Pluralism enables one to take a more critical approach than

[10] Feyerabend, "How to Be a Good Empiricist...", p. 89.

[11] Feyerabend, "How to Be a Good Empiricist...", pp. 87–88, 98 (emphasis added).

[12] Feyerabend, "How to Be a Good Empiricist...", p. 91.

[13] Feyerabend, "How to Be a Good Empiricist...", p. 91.

is possible in a situation where a given theory is only compared with "facts", and not also with some alternative points of view.

2.2 The Positive Role of Metaphysical Ideas: The Postulate of Metaphysical Pluralism

One of the most important ideas argued for by the neopositivists was that science does not contain statements that cannot be verified (or confirmed, in the subsequent version of this view) using direct experience. Such statements as did not satisfy this criterion were characterized by them as being metaphysical, and considered meaningless. Generally speaking, contemporary philosophy of science — in large part due to Feyerabend's influence — does not support this view anymore.

Feyerabend saw a possibility for a positive role to be played by metaphysical ideas — meaning those that cannot be directly evaluated via comparison with observational statements. In his opinion, scientific theories have their beginnings in metaphysical beliefs. And since, in order to critique a given theory, one needs to have an alternative, metaphysical pluralism is the approach that one should adopt here:

> Metaphysical systems are scientific theories in their most primitive stage. If they contradict a well-confirmed point of view, then this indicates their usefulness as an alternative to this point of view. Alternatives are needed for the purpose of criticism. Hence, metaphysical systems which contradict observational results or well-confirmed theories are most welcome starting points of such criticism. [14]

Thus, theoretical and metaphysical pluralism turn out to be necessary elements of scientific research:

> [S]uch a plurality allows for a much sharper criticism of accepted ideas than does the comparison with a domain of "facts" which are supposed to sit there independently of theoretical considerations. The function of unusual metaphysical ideas which are built up in a non-dogmatic fashion and which are then developed in sufficient detail to give an (alternative) account even of the most common experimental and observational situations is defined accordingly: they play a decisive role in the criticism and in the

[14] Feyerabend, "How to Be a Good Empiricist...", p. 100.

> development of what is generally believed and "highly confirmed"; and they have therefore to be present at any stage of the development of our knowledge. Science that is free from metaphysics is on the best way to becoming a dogmatic metaphysical system. [15]

If, however, metaphysical statements cannot by definition be directly evaluated via comparison with observational statements, then how can one claim that metaphysical systems are able to contradict observational results at all, or influence science in any positive way? According to Feyerabend, purely metaphysical theories, in order to play a role in science, must therefore be "worked out" in sufficient "detail". This more detailed version should allow one an alternative explanation of observational data (facts) as compared with the accepted, or dominant, theory.

A detailed critique of "well-confirmed theories" begins, however, with metaphysical ideas. The absence of metaphysics is simply an illusion, and stating that it is not present in science, or that it does not play any positive role there, contributes to making science into a dogmatic metaphysical system. In one way or the other, some kind of metaphysics will be present behind all those "well-confirmed theories". What is required, therefore, is the acceptance of pluralism on a metaphysical level, as metaphysical ideas provide a foundation for empirical theories.

From the above point of view, naturalism can be construed as a metaphysical assumption that is accepted within contemporary science and that has served as a foundation for certain more detailed theories (that have themselves received, for the most part, strong empirical confirmation). Notwithstanding the undisputed successes of such theories, however, the Feyerabendian answer to the question of whether being a good empiricist is the same as being a good naturalist is bound to be negative. This is because — as has been mentioned — only by proposing and building detailed alternative approaches can one gain access to those facts that are inaccessible in a situation where there are no alternatives. This is the main way in which reigning theories can be subjected to more stringent testing. A stubborn adherence to one metaphysical approach can make science into a dogmatic system in danger of losing touch with nature (or reality as such), as one's point of view will always then be limited by some accepted conceptual framework or other.

[15] Feyerabend, "How to Be a Good Empiricist...", pp. 80–81.

3. The Relation Between Naturalism and Christian Theism: Is Science Metaphysically Naturalistic, Theistic or Neutral? Plantinga vs. van der Meer

It is generally accepted that contemporary science assumes methodological naturalism. It is less common, however, to admit that such an assumption makes science philosophically non-neutral. Certain researchers claim that in terms of scientific practice, there is no perceivable difference between methodological and metaphysical versions of naturalism. For that reason, some argue that the idea of science based on theistic assumptions should in fact be pursued, as otherwise science is bound to always yield naturalistic explanations, even in situations where Christians have good reasons to believe such explanations to be invalid. Other thinkers, despite admitting that the difference between methodological and metaphysical naturalism is important, claim that Christians need not worry about the former's presence in science, as it does not influence it in a way that would make it unacceptable to Christians.

The first view, or a version of it, has been promoted by Alvin Plantinga, together with other proponents of so-called "theistic science" such as J. P. Moreland and Stephen Meyer. This view has also been embraced by Phillip E. Johnson, who has proposed replacing methodological naturalism with what he has called "theistic realism". [16] In what follows, we shall look at Plantinga's notion of Augustinian science, as being representative where this group is concerned.

The belief, on the basis of the assumption of methodological naturalism, in the neutrality of science as regards Christian theism (albeit understood in a variety of ways) and the possibility of naturalism thus conceived still being a part of science is usually embraced by so-called "naturalistic theists" or "theistic naturalists". [17]

[16] See Phillip E. Johnson, **Reason in the Balance: The Case Against Naturalism in Science, Law & Education**, InterVarsity Press, Downers Grove 1995, pp. 48–50, 107.

[17] "The processes revealed by the sciences are in themselves God acting as Creator, and God is not to be found as some kind of additional influence or factor added on to the processes of the world God is creating. This perspective can properly be called »theistic naturalism«" (Arthur Peacocke, **Paths from Science towards God: The End of All Our Exploring**, One World, Oxford 2001, p. 138). See also Howard J. Van Till, "Are Bacterial Flagella Intelligently Designed? Reflection on the Rhetoric of the Modern ID Movement", *Science and Christian Belief* 2003, Vol. 15, No. 2, p. 121 [117–140]; Christopher C. Knight , "Divine Action: A Neo-Byzantine Model", *International Journal for Philosophy*

The representatives of this approach include Ian G. Barbour, Howard van Till, Arthur R. Peacocke, Nancey Murphy, Ernan McMullin, Philip Clayton, Michał Heller, Francisco Alaya, John Haught, Kenneth R. Miller and others. Here we shall focus on van der Meer's (succinctly and clearly presented) ideas concerning the neutrality of science with respect to naturalism, as being representative of this approach.

3.1 Plantinga on The Neutrality of Observations and Augustinian Science

Plantinga admits that the naturalistic understanding of the origins of life and humans presented by authors such as Richard Dawkins, Stephen Jay Gould, Douglas Futuyma or George Gaylord Simpson is a conclusion inferred from evidence. However, he thinks that such writers also base their position on philosophical premises:

> [W]hen these people make such declarations, they are neither speaking as scientists nor doing science. They are instead commenting on science, drawing conclusions from scientific results — conclusions that do not follow from the scientific results themselves, requiring extra and extra-scientific (perhaps philosophical) premises. Perhaps this is true, although it has become increasingly difficult to draw a sharp line between science and such other activities as philosophical reflection on science. [18]

In this last sentence, Plantinga emphasizes the problem of separating science from philosophy. Before this, however, he states that the naturalistic view of reality (which is supposedly based on science) is in fact based on evidence (i.e. scientific data) and naturalistic philosophy. When scientists that adhere to such assumptions draw conclusions about the lack of purpose in the process of evolution, they are not, as Plantinga sees it, doing science any more, but making comments

of Religion 2005, Vol. 58, pp. 184–188, 191, 194, 195 [181–199]; Christopher C. Knight, "Theistic Naturalism and Special Divine Providence", *Zygon* 2009, Vol. 44, No. 3, pp. 533–542; Józef Życiński, **Bóg i ewolucja. Podstawowe pytania ewolucjonizmu chrześcijańskiego**, *Prace Wydziału Filozoficznego*, T. 89, Wydawnictwo TN KUL, Lublin 2002, p. 70. See also Bylica Piotr, **Współczesny teizm naturalistyczny**..., p. 8.

[18] Alvin Plantinga, "Methodological Naturalism?", in: Jitse M. van der Meer (ed.), **Facets of Faith and Science: Volume 1: Historiography and Modes of Interaction**, The Pascal Centre for Advanced Studies in Faith and Science & University Press of America, Lanham — New York — London 1996, p. 187 [177–221].

about scientific findings from the naturalistic point of view. Therefore, it might be argued that according to Plantinga, the empirical evidence on its own, if not considered from the naturalistic point of view, does not necessarily lead to an atheistic interpretation of the origins and development of life on Earth. Rather, such evidence can be interpreted in various ways, and Christians have reasons to accept a different interpretation.

According to Plantinga, Christian scientists should do science in a way appropriate for Christians: "the Christian scholarly community should do science, or parts of science, in its own way and from its own perspective. What the Christian community really needs is a science that takes into account what we know as Christians". [19] When explaining phenomena, a true scientist uses the entirety of available knowledge, all the data that is deemed trustworthy. And Christians have access to knowledge not taken into account by naturalist scientists. They have their own reasons for considering this knowledge trustworthy, in that they have at their disposal evidence that comes not only from empirical research conducted in science, but also from other sources, such as the Bible. According to Plantinga, "of course part of the evidence, for a Christian, will be the biblical evidence. I myself think that the biblical evidence for a special creation of human beings is fairly strong". [20] Some things are known to Christians as a result of their faith, and this can influence the kind of science they help create. Plantinga puts forward six ways in which Christian theism can influence the structure of science:

> There are several different ways in which Christianity might enter into the texture of science: (1) stating and employing hypotheses according to which God does things directly, of course, but also (2) stating and employing hypotheses according to which he does something indirectly; further, there is (3) evaluating theories with respect to background information that includes Christian theism; still further, there is (4) employing such propositions as *human beings have been created in God's image*, either directly or as background, and (5) doing the same for such doctrines as that of original sin, which do not involve any direct mention of God at all, and (6) deciding what needs explanation by way of referring to that same background. [21]

Most controversial, perhaps, is the proposal of using "what we know as Chris-

[19] Plantinga, "Methodological Naturalism?", p. 192.

[20] Plantinga, "Methodological Naturalism?", n. 216.

[21] Plantinga, "Methodological Naturalism?", p. 212 [emphasis in the original].

tians" in science — as with the stating and employing of hypotheses (see (1) above) according to which God acts in a direct way in the world, which strikes directly against naturalism. Plantinga also asserts that using the "God of the gaps" strategy, understood as making use of the hypothesis of God's existence always and only when one does not have a naturalistic explanation, is not justifiable either for cognitive or for theological reasons. The strategy is not acceptable if it assumes that God acts in the world only from time to time. The reason for this is that, according to Christians, God acts continuously in the world, supporting its existence. Plantinga endorses referring to the direct involvement of God in explanations of phenomena subject to scientific scrutiny, but does not consider this a sign of a lack of knowledge — on the contrary, he regards it as being based on what Christians know as Christians:

> The Christian community knows that God is constantly active in his creation, that natural laws, if there are any, are not independent of God, and that the existence of God is certainly not a hypothesis designed to explain what science cannot. Furthermore, the Christian community begins the scientific enterprise already believing in God; it does not (or at any rate need not) engage in it for apologetic reasons, either with respect to itself or with respect to non-Christians. But of course from these things it does not follow for an instant that the Christian scientific community should endorse methodological naturalism. [22]

Assuming that God constantly acts in nature in a general way, sustaining the world in existence, does not mean that the Christian scientific community should support methodological naturalism, as Christian theism also describes the so-called "special", or direct, actions of God. It is precisely by means of empirical or scientific studies that one can try to find out which actions of God are indirect, being mediated by Creation generally, and which are not: "It would be worth knowing, if possible, which things he did do directly; to know this would be an important part of a serious and profound knowledge of the universe". [23] Purely theological considerations that do not refer to the observable elements in the world are not, according to Plantinga, sufficient to determine the nature of God's actions in the world or the results of his direct or indirect actions:

> [H]ere we should rely less upon a priori theology and more upon empirical inquiry.

[22] Plantinga, "Methodological Naturalism?", p. 204.

[23] Plantinga, "Methodological Naturalism?", p. 212.

> We have no good grounds for insisting that God must do things one specific way; so far as we can see, he is free to do things in many different ways. So perhaps he did create human life specially; or perhaps he has done other things specially. We cannot properly rule this out in advance by way of appeal to speculative theology; we should look and see. [24]

And since the nature of God's interactions with the world is empirical, there are good reasons to involve science in obtaining the answers. Similarly, there are good reasons for science not to exclude answers consistent with Christian theism.

According to the popular argument against making references to God's direct actions in the context of science, such references slow the latter down, since one can try to explain every phenomenon in that way. Moreover, since God — as a supernatural cause — goes beyond the epistemic limits of science, it further hampers the development of the field. Plantinga seeks to remedy this by holding that the validity or invalidity of making references to God should not be granted the status of a general rule:

> The fact that such claims are science stoppers means that as a general rule they will not be helpful; it does not mean that they are never true, and it does not mean that they can never be part of a proper scientific theory. [...] It is a giant and unwarranted step from the recognition that claimants of direct divine activity are science stoppers to the insistence that science must pretend that the created universe is just there, refusing to recognize that it is indeed created. [25]

One should also approach methodological naturalism in a similar, non-absolutizing way:

> [T]here is little to be said for methodological naturalism. Taken at its best, it tells us only [...] that claims of direct divine action will not ordinarily make for good science. And even in these two cases, what we have reason for is not a principled proscription but a general counsel that in some circumstances is quite clearly inapplicable. There is no reason to proscribe questions like: »Did God create life specially?«; there is no reason why such a question cannot be investigated empirically; and there is no reason to proscribe in advance an affirmative answer. [26]

[24] Plantinga, "Methodological Naturalism?", p. 213.

[25] Plantinga, "Methodological Naturalism?", pp. 212–213.

[26] Plantinga, "Methodological Naturalism?", p. 213.

Pierre Duhem postulated the complete neutrality of science in relation to metaphysical assumptions, viewing it as producing only those statements that are acceptable to anyone independently of whatever happens to be the accepted philosophical stance. Meanwhile, Plantinga asserts that there are indeed elements in science not dependent on metaphysical beliefs:

> Duhemian science, you might say, would be public science; it would be maximally inclusive and wholly neutral with respect to the worldview differences that separate us. And of course there are whole vast stretches of our cognitive economy where these worldview considerations do indeed seem to be wholly irrelevant. Anyone with decent eyesight will see that the pointer points to 7; metaphysical or theological differences have nothing to do with it. The same will hold, presumably, for a measurement of the distance from Earth to Jupiter. Anybody will see that a contradiction cannot be true; again, it does not matter whether you are a theist, or an antirealist or a naturalist, or whatever. [27]

Hence, Duhemian science only accepts statements the validity of which is determined on the basis of observations: "propositions whose truth can be determined by observation will be among those admissible to science from this perspective". [28] Plantinga accepts, therefore, that the empirical data will be independent of whatever assumptions of a metaphysical character are accepted.

At the same time, the Duhemian notion of a philosophically neutral science does not allow for theistic hypotheses, and neither does it do so for those based on methodological naturalism (which, for all intents and purposes, is no different from metaphysical naturalism): "not only will science not, so conceived, employ hypotheses about God, it also will not employ any hypotheses whose cogency involves or presupposes metaphysical naturalism". [29] In reality, as Plantinga has it, the notion of science as metaphysically neutral excludes many contemporary scientific theories:

> For example, it could not properly assume that mind-body dualism is false, or that human beings are material objects; these are metaphysical assumptions that divide us. Nor could it employ the deterministic assumptions that seem to underlie much social science; these beliefs also relevantly divide us. Further, many assumptions about the

[27] Plantinga, "Methodological Naturalism?", p. 209.

[28] Plantinga, "Methodological Naturalism?", p. 209.

[29] Plantinga, "Methodological Naturalism?", p. 209.

> proper function of human beings and their faculties would have to be proscribed: for example, Simonian assumptions about what is and is not rational, and Piagetian claims about what a properly functioning twelve-year-old will or will not believe, and the assumption widely current in scientific study of religion that serious religious belief must be a manifestation of pathology or invincible ignorance. Duhemian science would also proscribe the idea that the Theory of Common Ancestry is certain, as well as the idea, widely expressed by writers on evolution, that the randomness or chance involved in genetic variation is such as to preclude human beings having been designed by God or anyone else. It would also exclude McMullin's Principle of Indifference, and perhaps much more — perhaps some principles from psychology, from sociology, from economics, and so on. [30]

From the point of view of a Christian scientist, the above-mentioned theories, being based on a naturalistic metaphysics, are false, but this is no reason for such a scientist to support the idea of the metaphysical neutrality of science. The Duhemian approach excludes these from science not because they are false, but because they do not serve the goals of science construed as a joint activity that everyone can engage in independently of their philosophical stance. Similarly, on this approach science does not include theories based on Christian theism.

In order to avoid such limitations in science, Plantinga proposes "expanding" the notions put forward by Duhem. This amounts to accepting that science contains both elements that are independent of metaphysical assumptions, such as the results of observations, and ones where these assumptions do play an important role. Hence, within science there is a place for both naturalistic and theistic assumptions. Drawing upon the ideas of St Augustine and his City of Man and City of God — used as analogies for the two different pictures of reality that result when we change our basic set of assumptions underlying what counts as scientific — Plantinga calls his proposal "Augustinian science". He describes it as follows:

> According to the fuller Duhemian picture, then, we would all work together on Duhemian science; but each of the groups involved — naturalists and theists, for example, but perhaps others as well — could then go on to incorporate Duhemian science into a fuller context that includes the metaphysical or religious principles specific to that group. Call this broader science "Augustinian science". Of course the motivation for doing this will vary enormously from area to area. Physics and chemistry are overwhelmingly Duhemian (of course the same might not be true for *philosophy* of physics); here perhaps Augustinian science would be for the most part otiose. The same goes for biological sciences; surely much that goes on there could be thought of

[30] Plantinga, "Methodological Naturalism?", pp. 209–210.

> as Duhemian science. On the other hand, there are also non-Duhemian elements in the neighbourhood, such as those declarations of certainty and the claims that evolutionary biology shows that human and other forms of life must be seen as a result of chance (and hence can't be thought of as designed). In the human sciences, however, vast stretches are clearly non-Duhemian; it is in these areas that Augustinian science would be most relevant and important. [31]

In science, the areas where metaphysical assumptions play no role are referred to as Duhemian. For Plantinga, this is simply the area of empirical research. The way in which he apparently believes science to be done is that one first engages in empirical studies that are free from metaphysics, and only then, when formulating theories, takes into account metaphysical assumptions. This is the stage of the interpretation and construction of theories, when explanations, guided by such assumptions, are provided. If the above description is correct, then there are areas in science — says Plantinga — where the Christian scientist should obey the principle of methodological naturalism, and others where he or she should not:

> [S]hould the Christian scientific community observe the constraints of methodological naturalism? [...] [T]he answer seems to be: yes, of course, in those areas where Duhemian science is possible and valuable. But nothing here suggests that the Christian scientific community should not also engage in non-Duhemian, Augustinian science where that is relevant. There is nothing here to suggest that "if it ain't Duhemian, it ain't science". [32]

Hence, during the empirical stage, i.e. when making observations, the Christian scientist should obey methodological naturalism. What Plantinga most likely has in mind here is that such a scientist should not accept that the results of this phase of research could be influenced by supernatural factors. Therefore, both Christian and naturalist scientists would be in agreement when it comes to the empirical data. There are other areas, however, where it would be appropriate to refer to theistic assumptions: namely, during the stages of theory formation and explanation.

[31] Plantinga, "Methodological Naturalism?", p. 210–211 [emphasis in the original].

[32] Plantinga, "Methodological Naturalism?", p. 211.

3.2 Van der Meer: Background Beliefs and the Neutrality of Theory and Observation

As was stated above, Plantinga claims that science is neutral in terms of philosophical convictions at the level of empirical data. There is, however, also the level of theories and explanations, whose formulation is often accompanied by various metaphysical assumptions. An atheist and a Christian scientist can therefore accept the same facts without agreeing on their explanations. Moreover, the facts themselves cannot be used to decide who is in the right.

For van der Meer, however, this amounts to a relativistic vision of science, and as such it is incompatible with Christian theism, which is built on the basis of realism. There is only one objective reality, and it is this reality that is the key factor when it comes to deciding the validity of scientific findings. Objective reality reveals itself in empirical data and scientific theories (explanations). Van der Meer agrees that science is influenced by assumptions of a higher order than those of facts and theories themselves, and calls these *background beliefs*. Such beliefs can also include the most general theistic or atheistic convictions. The relation between such beliefs and the strictly scientific components of science — i.e. facts and their explanations, meaning theories — is, however, loose enough for them not to logically determine actual scientific findings. Furthermore, such findings do not necessarily themselves entail an acceptance of certain general metaphysical beliefs and, in addition, scientific practice (especially the communal aspect of scientific endeavors already mentioned here) protects science from the potentially damaging influence of background beliefs.

According to van der Meer, we should endorse the approach presented within so-called "critical scientific realism": "Scientific realists do not negate that human beliefs influence our attempts at broadening our understanding of the world; they emphasize, however, that it is the reality that in the end determines whether a given belief becomes knowledge". [33] Some background beliefs are of a philosophical character, and cannot be evaluated by direct reference to empirical data. There is a risk, therefore, of some background beliefs (especially those of a very general character, and those far removed from what can be observed) distorting

[33] Jitse M. van der Meer, "Background Beliefs, Ideology, and Science", *Perspectives on Science and Christian Faith* 2013, Vol. 65, No. 2, p. 89 [87–103].

the scientific picture of reality. Van der Meer addresses this problem by saying that such a risk does indeed exist, but that there are certain mechanisms in science to guard against distortions of the resulting picture of reality.

These defense mechanisms pertain to science in respect of its character as a communal activity: "A theory or explanation that is supported by evidence contributed by several independent scholars is better protected against distortion than one supported by a single scholar". [34] A lone researcher can succumb to delusions, but if a number of scientists see, or independently discover, a given solution, one may surmise that it is because they are all interacting with the same independently existing reality:

> In the simple case, two journalists report the same observation. In the complex case, two physicians not only infer the same cause from different observations, but they also make the observations using different methods. One has two different lines of evidence observed by two different people pointing to the same cause. In other words, the existence of the cause, though inferred, is independent not only of the persons doing the inferring, but also of the differences between what is observed and the method by which the observations were made. This complex case is analogous to what is meant by independent lines of evidence in science. [35]

The appeal to the existence of independent lines of empirical data is an argument to the effect that such data enables scientists to approach something existing independently in reality, that is not just a product of the assumptions they themselves have made. When scientists working in one and the same field disagree about the accepted facts and theories, they might feel compelled to check whether their results have not been influenced by background beliefs they have embraced. [36]

It can also happen that the same explanations are accepted by scientists with different background beliefs. Such differences can be related to the fact that coming up with explanations is a process that can take many years, or even centuries. Equally, it can happen that there are scientists living in the same period, but differing in terms of their background beliefs, who nevertheless arrive at the same

[34] Van der Meer, "Background Beliefs...", p. 89.

[35] Van der Meer, "Background Beliefs...", p. 158.

[36] See van der Meer, "Background Beliefs...", p. 159.

conclusions. Van der Meer mentions examples of the above from the history of science:

> Since the development of an explanation may take a long time, the contributing scholars may have lived in different eras, and they therefore tend to belong to different research traditions. When two research traditions separated in time converge on the same explanations, one has increased confidence in the validity of this explanation. This is what happened when quantum physicists realized that classical Newtonian physics remained valid as a special case of quantum physics. This also holds for scholars living in the same era and belonging to different schools of thought. In the history of biology, scholars in the mechanist and vitalist schools of thought eventually converged on the notion that organisms are like machines that can generate their own purposes. [37]

Background beliefs can, therefore, themselves become a subject of critique. As history shows, scientists have been prepared to change their background beliefs after realizing that the theories they had been using were incompatible with the facts. Van der Meer argues that despite the different background beliefs accepted by scientists such as Galileo, Kepler, or Laplace, they all contributed greatly to the development of mechanics. [38] The fact that one often encounters multiple independent discoveries of one and the same phenomenon speaks for the possibility of eliminating the distortions introduced by background beliefs:

> For instance, in ancient Chinese culture, the scarcity of written records caused mathematicians often to rediscover or reinvent earlier achievements. In Western Europe, the laws of Mendel in genetics were rediscovered independently in 1903 by three geneticists. This is analogous to four different reporters confirming the same event. Clearly, the content of such reports or discoveries does not depend on the background beliefs of the discoverer. [...] The discovery of the same mathematical and scientific knowledge in different and isolated cultures excludes distortion due to shared background beliefs such as is found in research programs and schools of thought. [39]

Van der Meer also gives examples from the history of racism, showing how individual scientists were able to not let their background beliefs influence their research:

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[37] Van der Meer, "Background Beliefs...", p. 90.

[38] See van der Meer, "Background Beliefs...", p. 90.

[39] Van der Meer, "Background Beliefs...", p. 96.

> Pearson is a founder of modern statistics. His statistical approach to human genetics has been shown to be motivated by biological problems, and not by the ideology of eugenics which he held strongly. Fisher is a founder of population genetics. He showed how difficult it would be to eliminate harmful genes from a human population despite the fact that this was the ideal of the eugenics movement which he endorsed. Finally, Haldane developed important parts of the theory of natural selection despite his suspicions of the eugenics movement which wanted to apply artificial selection to purify the human race. These scholars did not allow their work in genetics to be distorted by their background beliefs, even though the two were contrary to each other. [40]

Such examples show that facts and scientific explanations are not completely dependent on background beliefs. Such beliefs, according to van der Meer, do influence the shape of the theories supported by a given scientist, but even so, this is not a logical necessity. The beliefs do not determine theories or scientific explanations. Rather, they can be viewed as assumptions that underlie a number of different theories: "Logically, a background belief functions as a presupposition of a theory or explanation. Any explanation or theory presupposes one or more background beliefs. [...] [B]ackground beliefs can be logically disconnected from the explanation they support. The key point is that a background belief does not dictate a theory. [...] [T]here is no simple necessary (logical) link between belief — Christian or otherwise — and scientific explanation". [41] Incompatible background beliefs can lead to the same theory. Similarly, the same background belief can lead scientists to different, mutually incompatible, theories. Therefore, a theistic background belief can be compatible with mutually exclusive scientific explanations.

The possibility of introducing specific yet mutually incompatible scientific explanations is justified by van der Meer through his assertion that the theistic belief in God as Creator, and the specifying assumptions, are located on different levels of generality:

> A background belief is more general than a specifying assumption. A specifying assumption differs from a background belief in that it specifies the latter. The resulting explanation is less general than the background belief from which it is derived. The reason why two mutually exclusive explanations can be derived from the same background belief in the Creator lies in the different specifying assumptions about how God acts in the world. If theories were dictated by background beliefs, then a single

[40] Van der Meer, "Background Beliefs...", p. 97.

[41] Van der Meer, "Background Beliefs...", p. 93.

> theory would be associated with just one background belief without the involvement of specifying assumptions. [42]

Therefore, Newton and Leibniz both believed in God as Creator, but the fact that they focused on different attributes of God (Newton on God's freedom, and Leibniz on divine foreknowledge) meant that the former accepted God's interventions in the movement of planets, while the latter did not. [43]

One could also encounter a situation where different background beliefs lead to the same explanation:

> Different background beliefs can provide presuppositions for the same explanation. That is, the same explanation can be subsumed under mutually exclusive background beliefs by adding different specifying assumptions to the background beliefs. This would not occur if background beliefs dictated explanations. [44]

Van der Meer also mentions Christianity and materialism as examples of approaches augmented with additional specifying assumptions. This has allowed such very different approaches to be compatible with the same theory. [45]

The most general background beliefs can therefore be logically separated from statements about facts and theories or explanations. This also then pertains to the most general statements made in any type of philosophical or religious system, including Christianity and atheism. For that reason, van der Meer says that there is no need to specify the notion of a Christian science, or one based on the Bible. The same observations and scientific explanations can be accepted by Christians and non-Christians alike. After all, in science one frequently observes collaboration between the representatives of various schools:

> [S]criptural presuppositions do not dictate a kind of scholarship with a uniquely Christian content. The difference between two kinds of scholarship remains limited to the background beliefs of scientists. This conclusion is supported by the existence of schools of thought in science which differ in their background beliefs. In physics, there are different interpretations of quantum physics. In biology, gradualism and punctuated equilibrium represent different schools of evolutionary theory. In geology, uni-

[42] Van der Meer, "Background Beliefs...", p. 94.

[43] See van der Meer, "Background Beliefs...", p. 94.

[44] Van der Meer, "Background Beliefs...", p. 95.

[45] See van der Meer, "Background Beliefs...", p. 95.

> formitarianism and catastrophism were different interpretations of earth history. Scholars in different traditions have different background beliefs, but they share observations and explanations. Likewise, Christians and non-Christians can share observations and explanations because science is rooted in an objective reality. [46]

Hence, on the one hand, the rootedness of science in objective reality and the logical independence of statements about facts, and of scientific theories, from background beliefs mean, according to van der Meer, that accepting different beliefs does not prevent scientists from arriving at the same truths. On the other hand, a given scientific explanation need not entail specific beliefs of a higher order. Therefore, promoting atheism in the name of science is not justifiable. [47] If someone is using science to accomplish that, then they are construing their own atheistic background beliefs dogmatically. Van der Meer also critiques the dogmatism of someone who accepts philosophical naturalism and tries to explain everything in a naturalistic way, rejecting the possibility of there being existing beings beyond the material sphere.

It is tempting to conclude that from van der Meer's point of view, methodological naturalism corresponds to precisely this dogmatic and absolutistic assumption behind contemporary science: it forces one to search for naturalistic explanations and theories where all phenomena are concerned. It then becomes obvious that if one endorses the presence in Christianity of statements about the empirically recognizable actions of God in the world, then any scientific explanation of those facts — whose true explanation is taken to require a reference to direct acts of God — will constitute a distortion of the truth. There are, certainly, a number of such facts that have traditionally been explained by Christians with reference to God's direct actions. These include the creation of the Universe, the multitude of life forms, human beings, and supernatural interventions on the part of God in respect of what has occurred in the world since its creation. When it comes to the origins of the Universe, life and humans, contemporary science tries to explain these in a naturalistic way. To remain consistent with the principle of methodological naturalism, one should expect to explain in a naturalistic way (or else consider false) all cases relating to miracles as described in the Bible or otherwise

[46] Van der Meer, "Background Beliefs...", pp. 95–96.

[47] See van der Meer, "Background Beliefs...", p. 96.

known about from the history of Christianity, including those that come from more recent times (such as various apparitions or miraculous healings).

In line with the idea that no special type of Christian science is required, van der Meer does not see any need to abandon the principle of methodological naturalism in science. He believes that references to God in scientific explanations are unjustified:

> Background beliefs that function dogmatically are not the only ones inadmissible in science. God also cannot be part of a scientific explanation. This is in part because asserting that God created volcanoes, for instance, while true, would not explain where volcanoes are located or why they erupt. Scientific explanation has the narrow goal of finding material causes by learning from experience, and God just is not a material cause because this would turn him into a creature. Rather, God is the Creator of all material causes. In this way, a scientist is like the farmer in Isa. 28:23–29 for whom learning from experience is the same as receiving knowledge from the Lord. Further, if God were to be a part of an explanation, this would mean that God would be treated as if he were a variable to be manipulated by an experimenter. To treat God that way would be blasphemous in my view and, therefore, totally unacceptable from a Christian standpoint. Finally, is it not appropriate to explain material phenomena in terms of material causes, because God made them of matter? [48]

According to van der Meer, science cannot give up methodological naturalism, as its goal is to search for material causes of phenomena. This aim of science is not incompatible with Christianity. A quite definite theological theory of sorts is being embraced here: namely, that God is the creator of all material causes, and it would be blasphemous to invoke Him in a scientific explanation simply as one amongst such causes. Since God created all material causes, explaining material phenomena by referring to such causes seems the right thing to do. Moreover, it is even necessary (as van der Meer has it) when looked at from a Christian point of view.

Van der Meer, then, seeks to justify the adoption of methodological naturalism in science through his claim about God's involvement in the world. This claim, however, excludes special, direct actions on the part of God. All phenomena that can be subjects of scientific research have, on this approach, a proper naturalistic explanation.

[48] Van der Meer, "Background Beliefs...", p. 97.

4. The Model of Levels of Analysis (MLA) and Plantinga's and Van der Meer's Ideas

The model mentioned in the title of this section distinguishes five sets of statements found in science, religion and philosophy. It helps with identifying the role played by philosophical statements in science, as well as the role of scientific statements as sources for philosophical or metaphysical concepts. What follows is a presentation of this model, elaborated to the degree required if we are to engage in an analysis of relations between Christian theism and contemporary science. [49]

Level 1, the highest, includes statements pertaining to what might be called the *deepest metaphysics:* non-empirical statements concerning existence (or being) as such. These statements are considered philosophical or religious (theological), and are treated as completely neutral with regard to science — in the sense that they influence neither the meaning nor the truth value of scientific statements. For example, the statements of classical metaphysics describing God as the ontological ground of the world (i.e. of nature, or the empirical realm) belong to this level. The logical status of statements on this level will not impact on the acceptance or rejection of scientific statements in any way.

Level 2, that of *shallower metaphysics*, contains general non-empirical statements such as go to form the most general characterization of the world as such. Statements on this level will include those pertaining to the general, rational ordering of the world — its intelligibility, or its mathematical orderedness. It is

[49] A more detailed description of the model can be found in Piotr Bylica, "Levels of Analysis in Philosophy, Religion, and Science", *Zygon: Journal of Religion and Science* 2015, Vol. 50, No. 2, pp. 304–328, https://doi.org/10.1111/zygo.12179; Piotr Bylica, "Mark Harris as a Naturalistic Theist: The Perspective of the Model of Levels of Analysis", *Filozoficzne Aspekty Genezy* 2015, t. 12, pp. 7–36, https://doi.org/10.53763/fag.2015.12.109; Piotr Bylica, "Second Thoughts on Naturalistic Theism and the Model of Levels of Analysis: A Response to Mark Harris", *Filozoficzne Aspekty Genezy* 2016, t. 13, pp. 275–285, https://doi.org/10.53763/fag.2016.13.134; Piotr Bylica, "Naturalistic Theism on General Divine Action within the Framework of the Levels of Analysis Model", *Studia Philosophiae Christianae* 2016, Vol. 52, No. 4, pp. 7–37, https://doi.org/10.21697/2016.52.4.11; Piotr Bylica, "Naturalistic Theism on Special Divine Action within the Tramework of the Model of Levels of Analysis", *Studia Philosophiae Christianae* 2017, Vol. 53, No. 1, pp. 5–33, https://doi.org/10.21697/2017.53.1.01; Piotr Bylica, "Regularity Statements in Science and Religion", in: Michael Fuller, Dirk Evers, Anne Runehov, Knut-Willy Sæther, and Bernard Micholle t (eds.), **Nature and Beyond: Transcendence and Immanence in Science and Religion**, *Studies in Science & Theology,* Vol. 17, Essat, Martin-Luther-University, Halle-Wittenberg 2020, pp. 237–249.

a level that will include assertions claiming that the world in general is chaotic and not intelligible. Hence, it is on this level that one will encounter affirmations or negations of a principle of uniformity. L2 statements are logically connected with L1 statements in a way that can be illustrated by the following example: L1 statements describing the personal character of God and His rationality furnish the basis for statements setting out a general characterization of His creation as rationally ordered and as realizing His intentions. Statements describing the general order of the empirical sphere are important for science as such: they constitute the logical background to science understood as a search for stable regularities or unchanging laws of nature. They are metaphysical in the sense of not being empirically testable. There is no single branch of science that has the entire world as its research area: hence, the intelligibility, rationality or uniformity of the world should rather be considered a philosophical (metaphysical) assumption standing behind science in general. It influences all particular branches of science, which attempt to create a particular representation of this order in their respective research areas.

Other L2 philosophical assumptions that are important for relations between science and religion include statements commonly accepted in contemporary science asserting that nature is a closed system of causes and effects, and/or that no supernatural factors influence any course of u in the empirical sphere in a way that would be empirically detectable. Taken together, such statements express the position of naturalism. These naturalistic assumptions are logically prior to research within any given branch of science that seeks purely natural causes as explanations of events and properties within the empirical realm. In practice, all scientists act as if this assumption were true: whatever the events under analysis, they only look for naturalistic explanations for them.

Level 3, *the ontology of nature*, includes philosophical statements describing the general structure, and kinds of entities and processes and their properties, relating to particular domains or levels of organization distinguished in the natural world and adopted (albeit usually tacitly) within particular scientific theories, systems of theories, or areas of science — as well as in religious theories of divine action in nature, or concerning the role of non-natural factors in nature. One can point to the following as examples of L3 statements: assertions describing the deterministic or indeterministic character of quantum processes and nonlinear dynamic processes, and claims propounding the reducibility or irreducibility of cer-

tain types of natural events or properties, including statements on bottom-up and downward causation and dualistic or non-dualistic interpretations of the spirit-matter/mind-body problem, etc.

Level 4 is that of *regularity statements*. While the upper levels could be described as containing philosophical statements, this contains empirical ones. Such statements are empirical in the sense of being testable by means of (theory-laden) observation. Level 4 consists of general statements making up the scientific laws and theories used to explain empirically detectable events and the properties of objects found in the empirical sphere. It also includes classificatory statements. In the case of religion, these are statements that express general rules governing empirically detectable actions, by what is supernatural, in the empirical world. In traditional Christian theism they are statements describing the role of faith, the role of so-called "holy pictures" or "sacred places" believed to enhance the effectiveness of prayer, general rules assumed in the context of the etiology of demonic possession, etc. [50]

Level 5 is that of *"observational" statements*. The use of inverted commas here is meant to indicate an acknowledgement of the notion of the theory-ladenness of observation. It contains specific statements describing occurrences in the so-called "empirical realm" observed at a particular time and place. Religious "observational" statements include the accounts of empirically-detectable supernatural actions usually called *miracles* or, more generally, *supernatural interventions*. These actions are assumed to be performed by God, but also by other lower supernatural beings, like angels or daemons. Statements of this kind form an important part of the Christian tradition. They are found in the Bible, and in the official decrees of the Church. As the scope and meaning of scientific "observational" statements are determined by higher-level assumptions — especially those encountered in naturalism, having the form of L2 statements — there are no scientific statements describing particular events interpreted as supernatural interventions. By contrast, traditional Christian theism embraces a L2 statement describing the openness of nature to special, empirically detectable divine action. This metaphysical assumption enables traditional Christian theism to accept statements describing particular instances of empirically detectable supernatural ac-

[50] See Bylica, "Regularity Statements...".

tions. In many cases, it also includes statements concerning the law-like character of divine action (classified as L4 *regularity statements)*.

The MLA allows one to see more clearly that neither Plantinga nor van der Meer would seem to be accurately describing the relation between the philosophical assumptions of science and empirical scientific statements. Plantinga correctly notes that the assumption of naturalism (L2) influences the kinds of explanations (L4) to be accepted in science: these will always have a naturalistic character. He is mistaken, however, in endorsing the idea that empirical data or evidence (L5) is independent from philosophical levels of analysis — and, in particular, the claim that an atheist and a theist would accept the same facts. For example, an atheistic scientist who applies methodological naturalism in his or her reasoning would never consider a given event to be a miracle or a case of demonic possession, while a theist could have reasons to consider that this is the case. The atheist would refer to naturalistic theories (L4) as explaining and influencing the understanding of observations expressed using L5-statements. A theist would understand and explain those L5-statements that, according to him or her, describe a miraculous event or a demonic possession with reference to certain religious types of statement about regularities (L4), or by directly invoking an anti-naturalistic metaphysical L2-thesis. Faced with one and the same problem, the scientist who accepts the primacy of methodological naturalism and the theist would thus endorse different observational statements, different evidence. Moreover, when Plantinga states that in his opinion, valid evidence for the role of God in creating life on Earth is to be found in the Bible, he considers it valid because he endorses anti-naturalistic statements that would not be acceptable to a consistent naturalist. It is the previously accepted assumptions of a methodological and a metaphysical character that influence decisions on what types of evidence are valid.

Van der Meer is aware of these various levels of background belief. He also writes about the different level of generality of various such convictions, and the necessity of drawing specifying conclusions from these that would allow one to construct a scientific explanation of the facts. This comes close to Feyerabend's idea, that in order for metaphysical theories to play a role in science, they should first be made more specific, so that empirical studies are then possible. Van der Meer views theories and scientific explanations (L4-statements, to use the MLA terminology) and observational statements (L5-statements) as being logically independent from background beliefs (described using statements located on

higher levels in the MLA approach). On the other hand, examples of such factual occurrences as miraculous healings or demonic possessions indicate that their interpretation and explanation is logically dependent on the acceptance or rejection of naturalistic background beliefs. The above-mentioned examples used by van der Meer indeed illustrate a situation where such a logical dependence is missing. Therefore, the problem is much more complex: there are background beliefs and facts that are not logically related, and there are those where such a relation is present. In order to accept an occurrence of a miracle as a fact dependent on the actions of God, it is necessary to accept that miracles are indeed possible, and hence that naturalism (L2) is false. As Clive S. Lewis aptly put it, in his well-known book on miracles: "What we learn from experience depends on the kind of philosophy we bring to the experience. It is therefore useless to appeal to experience before we have settled, as well as we can, the philosophical question". [51] Van der Meer can believe that methodological naturalism will not lead to a clash between science and Christianity, as he accepts that God does not act directly in nature, and that His role was to create all material causes. When it comes to God's actions in the world, he can therefore be said to be in agreement with the approach represented by a weak form of metaphysical naturalism (L2). This approach, however, is hard to distinguish from deism. In any case, his conception of both nature and science reflects the influence of certain already accepted background beliefs about divine action (which are themselves expressed using statements located on the metaphysical levels).

5. Conclusions

A monopoly exerted by a single metaphysical framework, as was shown by Feyerabend, leads to dogmatism, and contributes to a diminution of the empirical content of scientific theories. Being a good empiricist therefore not only in no way requires one to be a naturalist, but also even demands that one not be a dogmatic naturalist. In order to be a good empiricist one must be a pluralist — that is, be able to work with a number of mutually inconsistent theories, including metaphysical ones.

[51] Clive S. Lewis, **Miracles: A Preliminary Study**, Collins, Glasgow 1977, p. 7.

According to Plantinga, one should give up methodological naturalism and adopt either theistic realism or his own Augustinian science, as only when science is based on such assumptions can it follow the evidence where it truly leads. Van der Meer claims that the relation between the most general background beliefs and facts and scientific explanations is so loose that the *bona fide* elements of science, i.e. facts and theories, are neutral with regard to Christianity. Both approaches assume the philosophical neutrality of science when it comes to those parts of it that are closest to observational data.

Using the MLA, I have sought to show that the above-mentioned approaches to modelling the relationship between Christian theism and naturalist science do not paint an accurate picture of the relations in play between our philosophical assumptions and the empirical data. Contrary to Plantinga's claims, and in line with van der Meer's ideas, the facts alone do not significantly influence the validity of background metaphysical beliefs. However, the relationship between metaphysical assumptions and facts is not always as loose as the examples used by van der Meer seem to suggest. Despite the influence of metaphysical statements being in some cases negligible where the relationship between religion and science is concerned, there are other instances where it is of crucial importance. This point connects with Feyerabend's idea that the importance of certain statements describing empirical data (that have a bearing on the relation between science and religion) depends on previously accepted theories, including those of a metaphysical character. Therefore, a Christian theist that wants to be a good empiricist not only need not, but even should not, be a naturalist.

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