ARGUMENTS AGAINST METHODOLOGICAL NATURALISM AND THEIR ROOTS IN METAPHYSICS

Krzysztof J. Kilian

ABSTRACT: The article analyzes main arguments against methodological naturalism and shows their roots in specific metaphysics. A review of the arguments against this form of naturalism presented in this paper lends credence to the thesis that none of the arguments against methodological naturalism discussed here forces one to abandon naturalism.

KEYWORDS: Methodological naturalism; Methodological anti-naturalism; Presuppositionalism thesis; Epistemic frameworks

1. PRELIMINARY REMARKS

This paper, excluding the present introduction, consists of two sections and a conclusion. I will first present and discuss methodological naturalism vs. other general frameworks for doing science. The presentation and discussion of the presuppositionalism thesis as well as the idea of epistemic frameworks constitute the background to these considerations. Next, I will examine main arguments against methodological naturalism. These arguments can be perceived as arguments in favour of the admissibility of anti-naturalistic explanations. In the conclusions section, I will explain why none of the arguments against methodological naturalism presented below forces one to abandon naturalism.

2. METHODOLOGICAL NATURALISM VS. OTHER GENERAL FRAMEWORKS FOR DOING SCIENCE

Methodological naturalism forms one of the contemporary epistemic frameworks (EFs).[1] In order to clarify what EFs are, it is necessary to address the very important, long recognized, and universal problem of the relationship between the content of scientific claims and "non-scientific" beliefs.[2] This problem, called the "thesis of the irreducible presence of philosophy in science",[3] is combined with the thesis of presuppositionalism. According to the latter, science cannot exist without philosophical presuppositions. The latter claim has three components.[4]

Of these, the most important from the perspective of the considerations being pursued here is the first. According to this, before anyone begins to practise science, they must *a priori* accept a number of elementary assumptions. These assumptions, instilled in a trainee during their scientific education, tell us what practising science is all about.

According to the second component, within any given science there is the possibility of revising its basic assumptions. This thesis has gone unchallenged

---

[1] See, e.g., Krzysztof J. Kilian, 'Arguments for Methodological Naturalism and Their Roots in a Particular Metaphysics', *Cosmos and History: The Journal of Natural and Social Philosophy*, vol. 19, no. 1, 2023, pp. 114-125, https://tiny.pl/c32z4 (accessed Mar. 20, 2024).

[2] Even though this issue has been known about for a long time ("Natural scientists believe that they free themselves from philosophy by ignoring it or abusing it. They cannot, however, make any headway without thought […]. Hence, they are no less in bondage to philosophy […]"; Frederick Engels, *Dialectics of Nature*, transl. and ed. by Clemens Dutt, International Publishers, New York 1940, pp. 183-184, https://tiny.pl/wwdk3 [accessed Mar. 20, 2024]), it is still quite common for researchers to direct their attention away from it. "Despite the tight historical links between science and philosophy, present-day scientists often perceive philosophy as completely different from, and even antagonistic to, science" (Lucie Laplane, Paolo Mantovani, Ralph Adolphs, Hasok Chang, Alberto Mantovani, Margaret McFall-Ngai, Carlo Rovelli, Elliott Sober and Thomas Pradeu, 'Why Science needs Philosophy', *PNAS*, vol. 11, no. 10, March 5, 2019, p. 3948, https://tiny.pl/wwd2t [accessed Mar. 20, 2024]).

[3] See Krzysztof J. Kilian, 'Geneza idei epistemicznych układów odniesienia i ich odmiany', *Filozoficzne Aspekty Genezy*, vol. 14, 2017, p. 140 [137-190], https://tiny.pl/wwd2w (accessed Mar. 20, 2024).

[4] See Kazimierz Jodkowski, '*Curriculum Vitae*', https://tiny.pl/wwd24 (accessed Mar. 20, 2024); Kazimierz Jodkowski, 'Racjonalność Kopernika i Darwina. Polemika z drem Eugeniuszem Moczydłowskim', *Na Początku…*, no. 11-12A (174-175), 2003, p. 435, https://tiny.pl/trs79 (accessed Mar. 20, 2024); Kazimierz Jodkowski, 'Nienaukowy fundament nauki', in Zbigniew Pietrzak (ed.), *Granice nauki*, *Lectiones & Acroases Philosophicae*, vol. VI, no. 1, 2013, p. 105, https://tiny.pl/q3m1q (accessed Mar. 20, 2024); Kazimierz Jodkowski, 'Metafizyczne opowieści nauki jako fundament pluralizmu naukowego', in Phillip E. Johnson, *Wielka metafizyczna opowieś nauki (z posłowiem Kazimierza Jodkowskiego)*, *Archiwum Na Początku...*, vol. 13, Polskie Towarzystwo Kreacjonistyczne, Warsaw 2003, pp. 80-81, https://tiny.pl/q3m5p (accessed Mar. 20, 2024).

since the times of Charles Sanders Peirce. According to the third component, there are indelible, but changeable, metaphysical components of scientific theories within scientific activity. These components can be changed quite freely. However, they cannot be completely eliminated.

It is argued here that metaphysics plays an important role not only in the initial phase of the development of science (externalism − metaphysics is outside science but sometimes positively influences science).[5] Metaphysics is an essential component of science itself (internalism).[6] The term "metaphysics" is ambiguous. It is therefore worth clarifying at this point how it is understood in this paper. It is understood here very broadly and means all speculative thinking beyond the limits of empirical research, all that cannot be empirically verified. This very broad understanding of the term can be made more precise by saying what the metaphysical components of scientific theories mentioned in the previous paragraph are. In the most general terms, they are the very general, untestable theses that justify doing science in a certain way. The standards we use and the rules we prescribe make sense only in a world that has a certain structure ("[t]he naive falsificationist assumes that there are no oceans of anomalies. The conventionalist assumes that the world is built in a simple way. […] And so on").[7] Accepting the thesis that the world is structured in this way and not in that way leads to a certain thesis about how the world should be investigated.[8]

---

[5] See e.g., Ernst Mach, *Die Principien der Wärmelehre. Historisch-kritisch entwickelt*, Johan Ambrosius Barth, Leipzig 1900, p. 362-363; Henryk Mehlberg, 'O niesprawdzalnych założeniach nauki', *Przegląd Filozoficzny*, vol. 44, iss. 4, 1948, pp. 319–335.

[6] See e.g., Karl R. Popper, *Logik der Forschung. Zur Erkenntnistheorie der Modernen Naturwissenschaft*, Springer-Verlag, Wien GmbH 1935, p. 11; Karl R. Popper, 'A Metaphysical Epilogue' in Karl R. Popper, *Quantum Theory and the Schism in Physics. From the Postscript to The Logic of Scientific Discovery*, Roman and Littlefield, Totowa 1982, pp. 161-165.

[7] Paul K. Feyerabend, 'The Methodology of Scientific Research Programmes', in Paul K. Feyerabend, *Philosophical Papers. Vol. 2. Problems of Empiricism*, Cambridge University Press, Cambridge–New York–Port–Chester–Melbourne–Sydney 1981, p. 215, n. 24.

[8] I will use just three examples here, which of course do not express the entire spectrum of the diversity of these metaphysical theses.

First example: the thesis of the complexity of the world. "The world in which we live is very complex. Its laws do not lay open to us, rather they present themselves in diverse disguises (astronomy, atomic physics, theology, psychology, physiology, and the like). Countless prejudices find their way into every scientific action, making them possible in the first place. It is thus to be expected that every rule, even the most «fundamental», will only be successful in a limited domain, and that the forced application of the rule outside of its domain must obstruct research and perhaps even bring it to stagnation" (Paul K. Feyerabend, 'On the

Despite the fact that there are still voices today saying that science should be free from all worldview influences, [9] the belief that there exists science that is free from such influences is wrong. The fact that even before research begins, decisions are made about what will be studied and how, has been repeatedly emphasized. In turn, such decisions, as has also been repeatedly pointed out, do not depend solely on facts and logic.[10] They are shaped by different traditions of practising science, which exert a powerful influence on scientists' biases and beliefs. Motives of a metaphysical, religious and even aesthetic and volitional nature also play an important role, allowing the scientist to persist with his or her chosen path of research.[11]

Moreover, the thesis of the complete theorization of observations (according

---

Limited Validity of Methodological Rules', transl. by Eric Oberheim and Daniel Sirtes, in Paul K. Feyerabend, *Philosophical Papers. Vol. 3. Knowledge, Science and Relativism*, John Preston (ed.), Cambridge University Press, Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo 2008, p. 138 [138-180].

Second example: the thesis of the rationality of the world. "The Myth of Rationality […] reflects a conviction that our rational methods of investigating the world are not merely a *savoir vivre* of some eccentric people but reflect something that transcends us. The Myth of Rationality, like all myths, cannot be rationally established, because every argumentation presupposes the myth" (George V. Coyne, Michael [Michał] Heller, *A Comprehensible Universe. The Interplay of Science and Theology*, Springer-Verlag, New York 2008, p. 8).

Third example: thesis of the mathematical beauty of the universe. "A theory with mathematical beauty is more likely to be correct than an ugly one that fits some experimental data" The statement by Paul Adrien Maurice Dirac quoted in the article R. Corby Hovis and Helge Kragh, 'P.A.M. Dirac and the Beauty of Physics', *Scientific American*, vol. 268, no. 5, May 1993, p. 104.

The use of these theses can of course be justified by explaining why they should be used. Here is one example. Jeffrey Koperski points out that without accepting metaphysical thesis of the uniformity of nature "few sound inferences could be made in astrophysics or geology" (Jeffrey Koperski, *The Physics of Theism: God, Physics, and the Philosophy of Science*, Wiley-Blackwell, Chichester, UK 2015, p. 27).

[9] See, e.g., Keith B. Miller, 'Countering Public Misconceptions about the Nature of Evolutionary Science', *Georgia Journal of Science*, vol. 63, no. 3, 2005, p. 178, https://tiny.pl/tqw12 (accessed Mar. 20, 2024).

My attention here is focused only on the theses and arguments, not the persons defending or criticizing the claims I am examining. *It may be, like in this case, just that the author in question is responsible for having explicitly formulated a given thesis or argument.*

[10] See, e.g., Paul K. Feyerabend, 'Problems of Empiricism', in Robert G. Colodny (ed.), *Beyond the Edge of Certainty. Essays in Contemporary Science and Philosophy*, Prentice-Hall, Englewood Cliffs, New Jersey 1965, p. 227 [145-260]; Thomas S. Kuhn, *The Structure of Scientific Revolutions*, The University of Chicago Press, Chicago 1970, p. 4.

[11] See, e.g., Paul K. Feyerabend, 'Explanation, Reduction and Empiricism', in Herbert Feigl, Grover Maxwell (eds.), *Scientific Explanation, Space and Time*, *Minnesota Studies in the Philosophy of Science*, vol. III, University of Minnesota Press, Minneapolis, 1962, pp. 48-49.

to which observations are not merely theory-laden but fully theoretical, so that observation statements have no "observational core")[12] is, in principle, still accepted today.[13] Thus, if there are no bare or brute facts, and all facts are always interpreted in some theoretical framework, then, *mutatis mutandis*, there is no "bare or brute science" either, the latter always being practised in some pre-accepted context.

Such contexts have been called "epistemic frameworks",[14] where this term denotes "a set of the most general assumptions about how science can and cannot be done".[15] They express the greatest possible difference in scientific views.[16] In other words, EFs are small, two- or three-element sets of the most general, historically variable assumptions, adopted on the basis of decisions made by

[12] "[O]bservations (observation terms) are not merely theory-laden (the position of Hanson, Hesse and others) but fully theoretical (observation statements have no «observational core»)" (Paul K. Feyerabend, 'Introduction to the Volumes 1 and 2', in Paul K. Feyerabend, *Philosophical Papers. Vol. 1. Realism, Rationalism & Scientific Method*, Cambridge University Press, Cambridge – New York – Port Chester – Melbourne – Sydney 1981, p. x).

[13] See, e.g., Jodkowski, 'Nienaukowy fundament nauki…', pp. 89-90; Gonzalo Munévar, *A Theory of Wonder: Evolution, Brain and the Radical Nature of Science*, Vernon Press, Wilmington, Malaga 2021, pp. xxi-xxii; John Grimes, 'On the Failure to Detect Changes in Scenes across Saccades', in Kathleen Akins (ed.), *Perception*, *Vancouver Studies in Cognitive Science*, vol. 5, Oxford University Press, New York, Oxford 1996, p. 108; Ralph Baergen, 'The Influence of Cognition Upon Perception: The Empirical Story', *Australasian Journal of Philosophy*, vol. 71, no. 1, 1993, pp. 21-22; Jitendranath Mohanty, 'Intentionality, Meaning, and Open-Endedness of Interpretation', in Michael Krausz (ed.), *Is There a Single Right Interpretation?*, The Pennsylvania State University Press, University Park, PA 2002, p. 73; Tim Lewens, 'Realism and the Strong Program', *British Journal for the Philosophy of Science*, vol. 56, 2005, p. 573.

[14] The term "epistemic framework", and the core ideas pertaining to this, were presented by Kazimierz Jodkowski in 2004 (see Kazimierz Jodkowski, 'Epistemiczne układy odniesienia i «warunek Jodkowskiego»', in Anna Latawiec and Grzegorz Bugajak (eds.), *Filozoficzne i naukowo-przyrodnicze elementy obrazu świata 7*, Wydawnictwo Uniwersytetu Kardynała Stefana Wyszyńskiego, Warsaw 2008, p. 115 [108-123], https://tiny.pl/q3m5s [accessed Mar. 21, 2024]). Those ideas were taken up in various texts by members of Zielona Góra's "Science and Religion" Local Group, https://tiny.pl/ww8d8 (accessed Mar. 21, 2024). See also Krzysztof J. Kilian, *Współczesne epistemiczne układy odniesienia w nauce*, *Biblioteka Filozoficznych Aspektów Genezy*, vol. 9, Oficyna Wydawnicza Uniwersytetu Zielonogórskiego, Zielona Góra 2021, https://tiny.pl/99l82 (accessed Mar. 21, 2024).

[15] See Jodkowski, 'Nienaukowy fundament…', p. 96.

[16] See Kazimierz Jodkowski, 'Kreacjoniści przed sądem. Aspekty filozoficzne «małpich procesów»', in Jakub Michalczenia, Jadwiga Mizińska, Katarzyna Ossowska (eds.), *Poszukiwania filozoficzne. Tom I: Nauka, Prawda. Panu Profesorowi Józefowi Dębowskiemu w darze*, Instytut Filozofii Uniwersytetu Warmińsko-Mazurskiego w Olsztynie, Olsztyn 2014, p. 177, https://tiny.pl/xhz82 (accessed Mar. 21, 2024); Krzysztof J. Kilian, 'Czym są epistemiczne układy odniesienia?', *Filozoficzne Aspekty Genezy*, vol. 14, 2017, pp. 192-213, https://tiny.pl/g86dn (accessed Mar. 21, 2024).

scientists, and which determine the necessary conditions for doing science.[17]

The assumptions (methodological decisions) on which EFs are based cannot be scientifically justified without falling into a vicious circle,[18] as all research that counts as scientific already presumes them.[19] They tell us what, according to a given group of scientists, is forbidden in the practice of science, and what not, indicating how science can and cannot be done. They thus determine the range of acceptable solutions of problems. They also indirectly inform scientists about what exists, and in so doing determine, in addition, the most general metaphysical perspective involved in the practice of science.[20] The latter two questions call for a broader commentary, stating what specific assumptions are being discussed in this regard, and indicating what kind of metaphysical theses

[17] It is worth mentioning at this point that the very idea of EFs is already widely-acknowledged. For example, a necessary condition for the naturalistic practice of science is the presence of "a basic epistemological and metaphysical framework, which either excludes the existence of God or, at best, places him entirely outside the boundaries of the natural universe" (Thomas Nagel, 'Public Education and Intelligent Design', *Philosophy & Public Affairs*, vol. 36, no. 2, 2008, p. 205). 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. 32-33, https://tiny.pl/tr32k (accessed Mar. 21, 2024); Eric Holloway, 'Problems with Non-Naturalistic Theories of Science', in: Bartlett and Holloway (eds.), *Naturalism and Its Alternatives…*, p. 163; Stephen C. Meyer, 'Scientific Tenets of Faith', *Journal of the American Scientific Affiliation*, vol. 38, no. 1, 1986, pp. 41-42, https://tiny.pl/wwfqv (accessed Mar. 21, 2024); J.P. Moreland, *Scientism and Secularism: Learning to Respond to a Dangerous Ideology*, Crossway, Wheaton Ill. 2018, p. 32; Andrzej Zybertowicz et al., *Samobójstwo Oświecenia?*, Wydawnictwo Kasper, Krakow 2015, p. 21.

[18] It has been noted that justifications of EFs can be attempted at a meta-scientific level. If, among alternative scientific hypotheses, one is chosen that proposes the best explanation of the phenomena in a given field, then, following the same principle, among alternative EFs, one should be chosen that guides research work in the field better than others. Here is one example of such an attempt: "Naturalism was a major premise of Darwin's thinking and the success of his theory gave strong sanction to the validity of naturalism, showing that the supernatural account of the world's seeming design was a superfluity" (David R. Oldroyd, *Darwinian Impacts: An Introduction to the Darwinian Revolution*, Humanities Press, Atlantic Highlands, New Jersey 1980, p. 254). However, the acceptance of this meta-scientific justification depends on the rejection of the incommensurability thesis and Kuhn's loss thesis. And, therefore, such an attempt at justification has significant limitations.

[19] See Jodkowski, 'Epistemiczne układy odniesienia…', p. 115. See also Robert A. Larmer, 'Is Methodological Naturalism Question-Begging?', *Philosophia Christi*, vol. 5, no. 1, 2003, pp. 117-118, 130, https://tiny.pl/g2sgc (accessed Mar. 21, 2024). Larmer has formulated his argument only for methodological naturalism.

[20] See Kazimierz Jodkowski, 'Dlaczego kreacjonizm jest pseudonauką?', in Józef Zon (ed.), *Pogranicza nauki. Protonauka — paranauka — pseudonauka*, Wydawnictwo KUL, Lublin 2009, p. 322, https://tiny.pl/q3m5b (accessed Mar. 21, 2024). See also Ernan McMullin, 'Varieties of Methodological Naturalism', in Bruce L. Gordon and William A. Dembski (eds.), *The Nature of Nature: Examining the Role of Naturalism in Science*, ISI Books, Wilmington, Delaware 2011, p. 82.

these assumptions are based on.

The only EF that is widely known and well described in modern philosophy of science is methodological naturalism. This consists of three decisions, all of which stem from Charles Darwin. The first prescribes that we accept only naturalistic explanations for facts, processes and phenomena.[21] This decision was supplemented by Darwin with two others, with the aim of excluding anti-naturalistic explanations: these are the prohibitions on accepting explanations that invoke supernatural[22] and final causes, respectively.[23] In short, methodological naturalism[24] is a prescription to the effect that scientific inquiry be confined to the natural world, and thus that only naturalistic explanations for facts and processes be accepted, along with a simultaneous prohibition on accepting explanations invoking anything other than natural causes. Thus, the latter prohibition applies to two different types of explanations: on the one hand, those invoking supernatural causes (anti-naturalism$_1$), and on the other, those invoking intelligent causes (anti-naturalism$_2$),[25] for not every intelligent cause is a

[21] See Charles Darwin, *The Origin of Species*, P. Collier & Son, New York 1909, p. 400, https://tiny.pl/wwfg9 (accessed Mar. 21, 2024).

[22] In its original form, methodological naturalism involved a set of three decisions: the first required that scientific research be limited to the natural world, the second that only naturalistic explanations for facts and processes be accepted, and the third that no explanations invoking supernatural causes be admitted. See Darwin, *The Origin*…., p. 400.

[23] Darwin's later statement clearly suggests a prohibition on allowing teleological explanations: "There seems to be no more design in the variability of organic beings, and in the action of natural selection, than in the course which the wind blows" (Charles Darwin, *Autobiography of Charles Darwin with Two Appendices by His Son Francis Darwin*, Rupa & Co., New Delhi 2003, p. 136, https://tiny.pl/wwfgl (accessed Mar. 21, 2024). See also Grzegorz Malec, 'Teologiczne dylematy Karola Darwina', *Roczniki Filozoficzne*, vol. 60, no. 1, 2012, pp. 69-70 [67-85], http://tiny.pl/g4751 (accessed Mar. 21, 2024).

[24] It is generally claimed that the term "methodological naturalism" was first used by the American philosopher Paul de Vries in 1983 (see Paul De Vries, 'Naturalism in the Natural Sciences: A Christian Perspective', *Christian Scholar's Review*, vol. 15, no. 4, Summer 1986, pp. 388-396). However, it was used earlier by another American philosopher and Christian theologian in the Methodist tradition, Edgar Sheffield Brightman, in his paper 'An Empirical Approach to God' (*The Philosophical Review*, vol. 44, no. 2, 1937, pp. 157-158 [147-169], https://tiny.pl/wwfgs [accessed Mar. 21, 2024]).

[25] Cf. on this issue the remarks of Kazimierz Jodkowski, 'Antynaturalizm teorii inteligentnego projektu', *Roczniki Filozoficzne*, vol. 54, no. 2, 2006, pp. 68-73, https://tiny.pl/tdzjz (accessed Mar. 21, 2024).

supernatural cause.[26] The fact that these are sometimes equated[27] does not mean that they are the same. *De facto*, therefore, we are dealing here with two varieties of this naturalism, and two variants of the naturalistic EF. The first is anti-supernaturalistic naturalism, while the second is anti-artificialistic naturalism.[28] The former prohibits invoking supernatural causes, while the latter prohibits appealing to artificial (intelligent) causes.

In practice, however, these two prohibitions are generally brought to bear simultaneously. For example:

> It was Darwin's greatest accomplishment to show that the directive organization of living beings can be explained as the result of a natural process, natural selection, without any need to resort to a Creator or other external agent.[29]

Even so, the widespread acceptance of such a broad criterion, which has laid stress on extending the requirements of methodological naturalism to include a stipulation prohibiting the admission of artificialist explanations, has led to serious theoretical problems, in that a set of restrictions has been proposed that are incompatible with what is standardly done in science. These lead to disciplines whose scientific character is not in question being considered unscientific. There are fields (such as archaeology) that allow for artificial explanations (in that archaeologists repeatedly conclude that the objects they

---

[26] See Ratzsch's comments on finite design and supernatural design (Del Ratzsch, *Nature, Design and Science. The Status of Design in Natural Science*, State University of New York Press, Albany 2001, pp. 17-40). See also Leon Brunschvicg, *L'Expérience Humaine Et La Causalité Physique*, Felix Alcan, Paris 1922, pp. 155-159, https://tiny.pl/wwftj (accessed Mar. 21, 2024).

[27] See, e.g., Phillip Kitcher, 'Born-again Creationism', in Robert T. Pennock (ed.), *Intelligent Design Creationism and Its Critics: Philosophical, Theological, and Scientific Perspectives*, MIT Press, Cambridge, MA 2001, pp. 257-288; Barbara Carroll Forrest, 'Inside Creationism's Trojan Horse: A Closer Look at Intelligent Design', *Georgia Journal of Science*, vol. 63, no. 3, 2005, pp. 153-166; Julian Chela-Flores and Joseph Seckbach, 'Divine Action and Evolution by Natural Selection. A Possible and Necessary Dialogue', in Joseph Seckbach, Richard Gordon (eds.), *Divine Action and Natural Selection. Science, Faith and Evolution*, World Scientific, New Jersey, London, Singapore, Beijing, Shanghai, Hong Kong, Tai Pei, Chennai, 2009, pp. 1035-1048.

[28] The term "artificialism" was introduced into the study of EFs by Kazimierz Jodkowski. It expresses the conviction that neither the origin of life itself, nor the subsequent evolution of its various forms, can be explained by means of impersonal and unintelligent causes (see Jodkowski, 'Antynaturalizm teorii…', p. 73; Kilian, 'Geneza idei epistemicznych…', p. 139). However, it was first used by Brunschvicg in a more general sense, denoting the belief that all things result from a transcendent act of creation (see Brunschvicg, *L'Expérience Humaine*…, pp. 155, 159).

[29] Francisco J. Ayala, 'Darwin's Revolution', in John H. Campbell and J.W. Schoff (eds.), *Creative Evolution!?*, Jones and Bartlett, New York 1994, p. 5.

discover are the creations of intelligent beings), yet no one denies their claim to scientificality.[30]

Returning to our main problem, it should be said that methodological naturalism, as a set of three methodological decisions, is grounded in a particular metaphysics. These stipulative commitments derive their *raisons d'être* from metaphysical theses, called "hard-cores", such as delimit the scope of what exists in very general terms.[31] The hard core of anti-supernaturalism can be presented in the form of the following thesis: either God does not exist, or, if he does exist, he does not act in nature in a direct way.[32] Meanwhile, the hard core of anti-artificialist naturalism states that the course of events in the universe is not influenced by any intelligent factor.[33]

A counterproposal to anti-supernaturalist naturalism will be furnished by the supernaturalist EF associated with the supernaturalist interventionism of creationism. According to this approach, supernatural explanations − the intervention of a supernatural being, i.e. God − should be allowed to figure in the explanation of natural phenomena, in addition to natural causes: "explanations in terms of the direct and immediate activity of a divine agent may constitute a proper part of natural science".[34]

Incidentally, it is worth mentioning at this point that neither within supernaturalism, nor within artificialism (which we shall characterize in due course), is it assumed that *explanations* that pretend to be scientific can refer to

[30] In the case of archaeology, it is tacitly assumed that every artefact studied by archaeologists is a man-made product.

[31] See Kazimierz Jodkowski, 'Darwinowska teoria ewolucji jako teoria filozoficzna', in Stefan Konstańczak, Tomasz Turowski (eds.), *Filozofia jako mądrość bycia*, Oficyna Wydawnicza Uniwersytetu Zielonogórskiego, Zielona Góra 2009, p. 19, https://tiny.pl/q3m56 (accessed Mar. 21, 2024). Such a basing of methodological decisions on metaphysical assumptions is not only a characteristic of EFs: "The standards we use and the rules we recommend make sense only in a world that has a certain structure. They become inapplicable, or start running idle in a domain that does not exhibit this structure" (Paul K. Feyerabend, *Against Method. Third Edition*, Verso, London 1993, p. 233).

[32] Cf., on this issue, the remarks of Jodkowski ('Darwinowska teoria ewolucji…', p. 19) and Nagel, 'Public Education…', p. 205.

[33] See Charles Thaxton, 'A New Design Argument', *Discovery.org*, https://tiny.pl/wwfgd (accessed Mar. 21, 2024).

[34] Robert C. O'Connor, 'Science on Trial: Exploring the Rationality of Methodological Naturalism', *Perspectives on Science and Christian Faith*, vol. 49, no. 1, 1997, p. 15, https://tiny.pl/wwfg5 (accessed Mar. 21, 2024).

deities or non-human intelligences deliberately intervening in the natural world. In other words, within these approaches, it is not claimed that *the premises* in scientific explanations are claims that appeal to deities or non-human intelligences.[35]

The hard core of the supernaturalist EF can be expressed like this: God exists and acts in nature in a direct way, while life is the unique work of the creation period. Creation took place by virtue of unique processes that no longer occur nowadays.[36]

Meanwhile, the counterproposal to anti-artificialistic naturalism will be the artificialistic EF associated with the theory of intelligent design (ID). The latter can be presented as a prescription to allow artificial, intelligent causes in scientific research alongside natural causes:

> the central claim [of artificialism] is that only intelligent causes can adequately explain the complex, information-rich structures of biology and that these causes are empirically detectable.[37]

The hard core of artificialism can be formulated thus: in addition to chance and necessity, intelligent causes also operate in nature in a direct way.[38]

The EFs presented so far can be arranged in the following pairs:

anti-supernaturalist naturalism − supernaturalism;

anti-artificialist naturalism − artificialism.

However, there is another EF, which is a variant of naturalism – namely, naturalistic theism – which targets both supernaturalism and artificialism.

Naturalistic theism, as a worldview, is supposed to be oriented towards defending Christian civilization against attempts to turn the latter into something post-Christian. The aforementioned naturalistic and anti-naturalistic EFs are intended to form the most general cognitive framework for the pursuit of science.

---

[35] See e.g., Ronald H. Pine, 'But Some of Them Are Scientists, Aren't They?', *Creation/Evolution Journal*, vol. 4, no. 4, 1984, p. 10, https://tiny.pl/g2vxk (accessed Mar. 21, 2024); Stephen C. Meyer, *Signature in the Cell: DNA and the Evidence for Intelligent Design*, Harper One, New York 2009, p. 171.

[36] See Henry M. Morris, *Scientific Creationism*, Creation-Life Publishers, San Diego 1974, p. 46.

[37] William A. Dembski, 'Intelligent Design: A Brief Introduction', *4Truth.NetScience* February 5, 2008, https://tiny.pl/tmkvf (accessed Mar. 21, 2024).

[38] It is widely accepted that ID separates the question of the recognition of design from the question of the identity of the designer. It should be noted, however, that Behe and Dembski, for example, agree with this thesis, while Ratzsch disagrees. Cf. Ratzsch, *Nature, Design and Science*..., pp. 41-60, sections 4 and 5 entitled "Identifying Supernatural Design: Primary Marks"; "Identifying Supernatural Design: Secondary Marks".

Naturalistic theism, meanwhile, also seeks to create such a framework, and at the same time gives rise to another, *sui generis* worldview framework for scientific practice. Of course, at the heart of the previously discussed EFs there are also to be found certain worldviews that give meaning to some human actions while denying it to others.[39] However, such theism is primarily stated as a worldview:

> By naturalistic theism I mean a comprehensive theistic worldview that takes the existence and non-coercive action of God to be essential to the nature of Nature. This worldview sees supernatural (coercive) divine intervention as something that is precluded by the very natures of God, the World, and the God/World relationship […].[40]

Naturalistic theism is such an EF, it being primarily intended to obviate "the crisis of faith among educated people, especially scientists, which is the result of the incompatibility of the traditional theistic and contemporary scientific description of the world",[41] and to restore this faith to scientists. This crisis is alleviated by an important and religiously significant *change in the content of faith*: God does not act in nature in a special, empirically recognizable way. (God, as thus conceived by such naturalistic theists themselves, is referred to as "the God of a believing scientist".)[42] In turn, the effect of this change is to reconcile the worldview of the contemporary natural sciences with Christian theism.

Naturalistic theists also believe that "the evolutionary vision of nature expresses the Christian doctrine of creation and the immanence of God much better than pre-Darwinian biology did".[43] The latter suggested that God created a ready-made world, while Darwinian biology is supposed to lead to the belief that God created a world that is self-creating. According to this belief, evolution

---

[39] See Krzysztof J. Kilian, "Światopoglądowy i ideologiczny wymiar epistemicznych układów odniesienia a teistyczno-naturalistyczny epistemiczny układ odniesienia", *Filozoficzne Aspekty Genezy*, Vol. 15, 2018, pp. 142-194, https://tiny.pl/w4chg (accessed Mar. 21, 2024).

[40] Howard J. Van Till, 'Cosmic Evolution, Naturalism, and Divine Creativity, or Who Owns the Robust Formational Economy Principle?', in Gordon and Dembski (eds.), *The Nature of Nature*…, p. 540.

[41] Piotr Bylica, 'Główne założenia i problemy teizmu naturalistycznego w sprawie relacji sfery nadprzyrodzonej i świata przyrodniczego', in Wiesław Dyk (ed.), *Sozologia systemowa. Vol. IV. Biosfera. Człowiek i jego środowisko w aspekcie przyrodniczym, filozoficznym i teologicznym*, Wydawnictwo Naukowe Uniwersytetu Szczecińskiego, Szczecin 2012, p. 88, https://tiny.pl/q3m1d (accessed Mar. 21, 2024).

[42] See George V. Coyne SJ, 'Evolution and Intelligent Design. Who Needs God?', in Seckbach, Gordon (eds.), *Divine Action and Natural Selection*…, p. 24.

[43] Józef Życiński, Bóg i ewolucja. Podstawowe pytania ewolucjonizmu chrześcijańskiego, Prace Wydziału Filozoficznego, vol. 89, Towarzystwo Naukowe KUL, Lublin 2002, p. 24.

not only does not stand in opposition to creation, but together with it provides a synthetic picture of the world.[44]

The EF of naturalistic theism is the injunction to accept only naturalistic explanations for natural phenomena, accompanied by prohibitions against appealing to supernaturalistic and artificialistic explanations ("creation, a creator, an intelligent designer are simply outside the confines of scientific investigation").[45] Moreover, the hard core of this EF can be formulated in terms of the idea that God exists and is immanently present in the laws of nature, while not acting in nature in an empirically detectable way. Thus:

> God does not act on the world by some extraordinary interventions, but always through the natural course of the world. His action is not revealed in the natural course of the world not because His action is not there, but because the entire natural course of the world is His action.[46]

The hard cores of naturalistic and anti-naturalistic EFs indicate how these EFs differ on the metaphysical level. This leads directly to the thesis stating that they also differ on the methodological level.[47] However, the dispute over the scientific status of the theories behind these different EFs is not about what methods these theories apply, but about *what kind of explanations they allow for.*[48] This state of affairs is not always recognised:

> An application of the scientific method to the question of origins should make it clear that ID is science. A design inference veritably leaps from the data, not from a religious text.[49]

---

[44] See Michael Heller, *The New Physics and a New Theology*, transl. by G.V. Coyne, S.J.S. Giovannini, T.M. Sierotowicz, Vatican Observatory Publications, Vatican 1996, p. 44.

[45] Coyne SJ, 'Evolution and Intelligent…', p. 18. See also e.g., Van Till, 'Cosmic Evolution…', p. 539; Francisco J. Ayala, 'Darwin's Greatest Discovery: Design without Designer', in John C. Avise and Francisco J. Ayala (eds.), *In the Light of Evolution. Volume I: Adaptation and Complex Design*, The National Academies Press, Washington, DC 2007, p. 20, https://tiny.pl/tx8s2 (accessed Mar. 22, 2024).

[46] Michał Heller, 'Chrześcijański naturalizm', *Roczniki Filozoficzne*, vol. 51, no. 3, 2003, p. 47, https://tiny.pl/tq2q2 (accessed Mar. 22, 2024).

[47] This also leads directly to the thesis that they are different in terms of worldview as well, but this issue will not be discussed here.

[48] See e.g., Michael J. Behe, 'Irreducible Complexity: Obstacle to Darwinian Evolution', in Michael Ruse and William A. Dembski (eds.), *Debating Design: From Darwin to DNA*, Cambridge University Press, Cambridge 2004, p. 355.

[49] William S. Harris, and John H. Calvert, 'Intelligent Design. The Scientific Alternative to Evolution', *The National Catholic Bioethics Quarterly*, vol. 3, no. 3, 2003, p. 557, https://tiny.pl/wngpt (accessed Mar. 22, 2024).

And, consequently, the nature of the explanations allowed is not always seen as a key determinant of scientificity.

3. ARGUMENTS AGAINST METHODOLOGICAL NATURALISM

Adherence to the principles of methodological naturalism has contributed significantly to the development of knowledge. These principles are also considered "the standard view of the proper discourse and practice of modern science".[50] Arguments against naturalistic EFs are simultaneously arguments for one or another of the aforementioned anti-naturalistic EFs. It is worth looking at these arguments because, combined with the comments presented in the previous section, they show even more clearly that the question of choosing the "right" EF is neither obvious nor unambiguously settled.

A number of critical theses and arguments have been formulated against methodological naturalism, such as might be regarded as speaking in favour of the admissibility of anti-naturalistic explanations.[51] I will now present eight such theses, along with the various arguments deployed in support of them.

3.1 *Methodological naturalism affects the development of knowledge negatively as it limits scientific research, and therefore should not be considered a prerequisite for the pursuit of science.*[52] Various arguments have been proposed in support of this thesis. According to one of these, naturalism stands as an obstacle to fruitful dialogue between science and

---

See also e.g., John Mark Reynolds, 'Intelligent Design and the Contemporary Christian', *The Southern Baptist Journal of Theology*, vol. 11, no. 1, 2007, p. 74, https://tiny.pl/tmdc3 (accessed Mar. 22, 2024).

[50] Stephen Dilley, 'The Evolution of Methodological Naturalism in the **Origin of Species**', *HOPOS: The Journal of the International Society for the History of Philosophy of Science*, vol. 3, no. 1, 2013, p. 20, https://tiny.pl/tr3v9 (accessed Mar. 22, 2024). See also e.g., Stephen Dilley, 'Philosophical Naturalism and Methodological Naturalism Strange Bedfellows?', *Philosophia Christi*, vol. 12, no. 1, 2011, p. 118, https://tiny.pl/tm9lr (accessed Mar. 22, 2024); Eugenie C. Scott, *Evolution vs. Creationism. An Introduction. Second Edition*, Greenwood Press, Westport, Connecticut, London 2009, p. 56; Robert Wright, *Three Scientists and Their Gods: Looking for Meaning in an Age of Information*, Times Books, New York 1988, pp. 71-72; Scott F. Aikin, Michael Harbour, and Robert B. Talisse, 'Nagel on Public Education and Intelligent Design', *Journal of Philosophical Research*, vol. 35, 2010, p. 211, https://tiny.pl/gkfh3 (accessed Mar. 22, 2024); Tor Egil Førland, *Values, Objectivity, and Explanation in Historiography*, Routledge, New York 2017, p. 160; Brad S. Gregory, 'No Room for God?: History, Science, Metaphysics, and the Study of Religion', *History and Theory*, vol. 47, no. 4, 2008, p. 497, https://tiny.pl/w4zxv (accessed Mar. 22, 2024); Coyne SJ, 'Evolution and Intelligent…', p. 18.

[51] See Krzysztof J. Kilian, 'Argumenty przeciwko naturalizmowi jako epistemicznemu układowi odniesienia', *Filozoficzne Aspekty Genezy*, vol. 15, 2018, pp. 71-137, https://tiny.pl/w4r73 (accessed Mar. 22, 2024).

[52] See, e.g., Leonard Brand, 'Naturalism: Its Role in Science', *Origins*, no. 64, 2015, pp. 34-35, https://tiny.pl/ww5q9 (accessed Mar. 22, 2024).

religion, and to the synthesis of knowledge within these fields, because it prevents "scientific discussion" of many important issues, including human freedom, morality, purposefulness in nature, and God.[53] In this form, the argument involves some equivocation. On the one hand, it defines "science" through the prism of the modern understanding of scientificality, as a naturalistic explanation of reality.[54] On the other, it also employs the same term to refer to a broader understanding of what this involves – one no longer in use in English-speaking countries – when talking about the scientific debate over such issues as God or purposefulness in nature. These issues are problems of metaphysics and theology – disciplines that, in the Middle Ages, together with natural science, were called "scientia", while today the former has no place within science. The argument does not postulate that we should return to an older and now abandoned understanding of scientificality[55] (whose acceptance at the present moment would be by no means straightforwardly accomplishable)[56] and see what results issue from doing so. Moreover, contrary to what the argument says, fruitful dialogue between science and religion is not hindered by the impossibility of giving naturalistic explanatory accounts for things such as God or morality – matters that are, after all, themselves actually in receipt of such explanations.[57] In fact, the science-religion conflict will never find a solution, just because miracles are an irreducible component of the real and great monotheistic religions, while modern science excludes their occurrence. Consequently, religion cannot be reconciled with science.[58]

---

[53] See Robert A. Delfino, 'Replacing Methodological Naturalism', *Metanexus* 24th May 2007, p. 1, https://tiny.pl/thmmz (accessed Mar. 22, 2024).

[54] See Delfino, 'Replacing Methodological…', p. 1.

[55] See McMullin's comments on this issue in 'Varieties of Methodological…', p. 89.

[56] See, e.g., William A. Dembski, 'Reinstating Design within Science', in John Angus Campbell and Stephen C. Meyer (eds.), *Darwinism, Design and Public Education*, Michigan State University Press, East Lansing 2003, pp. 405-406.

[57] See, e.g., Edward O. Wilson, *On Human Nature*, Harvard University Press, Cambridge Mass., London 1978, p. 178.

[58] See, e.g., Kazimierz Jodkowski, 'Konflikt nauka-religia a teoria inteligentnego projektu', in Kazimierz Jodkowski (ed.), *Teoria inteligentnego projektu – nowe rozumienie naukowości?*, *Biblioteka Filozoficznych Aspektów Genezy*, vol. 2, Wydawnictwo MEGAS, Warsaw 2007, p. 157, https://tiny.pl/qzq8f (accessed Mar. 22, 2024); Piotr Bylica, 'NOMA as the Cure for Conflict Between Science and Religion: Reply to Ludwik Kowalski's Commentary on the NOMA Principle', *Filozoficzne Aspekty Genezy*, vol. 11, 2014, pp. 30-31,

Another line of thinking seeks to convince us that accepting only naturalistic explanations makes it difficult to "follow the evidence wherever it might take us",[59] and that "science should follow the evidence wherever it seems to lead".[60] But the belief that it is possible to be responsive to the data in this kind of way suggests an acceptance of the long-rejected idea, couched in terms of propositions "collected by general induction from phenomena"[61] or "deduced from the observations",[62] according to which there exists some un-theorized data.[63] On the other hand, one cannot but agree with the first part of this argument, to the effect that accepting only naturalistic explanations will make it difficult to follow the empirical data, because insisting on one theoretical perspective effectively makes it difficult to pick out those facts that can only come to light when alternative viewpoints are taken seriously. This part of the argument goes against the assumption of the relative autonomy of facts, according to which facts that can testify in favour of or against a theory are available regardless of whether we know of any alternatives to the latter.[64]

On an argumentative approach very similar to the above, accepting only naturalistic explanations will prevent any unbiased examination of evidence.[65] Yet the impossibility of any such examination of evidence issues from something much more fundamental than simply disallowing anti-naturalistic explanations: no science considers evidence impartially, because it always makes some assumptions.

Still another argument holds that an uncritical acceptance of naturalism can lead to a situation where greater confidence is placed in speculations devoid of

---

https://tiny.pl/tq5v2 (accessed Mar. 22, 2024); Joseph Seckbach and Julian Chela-Flores, 'Preface 1. Where Did We Come From?', in Seckbach, Gordon (eds.), *Divine Action and Natural Selection*…, p. xxxvi.

[59] See Delfino, 'Replacing Methodological…', p. 9.

[60] Behe, 'Irreducible Complexity…', p. 357.

[61] Isaac Newton, *The Mathematical Principles of Natural Philosophy*, transl. by Andrew Motte, Daniel Adee, New York 1846, p. 385, https://tiny.pl/ww5nf (accessed Mar. 22, 2024). See Pierre Duhem's comments on this issue in his *The Aim and Structure of Physical Theory*, Atheneum, New York 1962, https://tiny.pl/ww5xc (accessed Mar. 22, 2024), p. 321.

[62] Newton, *The Mathematical Principles*…, p. 484. "Deduction from evidence" also figures in the work of certain contemporary writers; see Harris, and Calvert, 'Intelligent Design. The Scientific Alternative…', p. 535.

[63] See, e.g., Duhem, *The Aim and Structure*…, p. 159.

[64] See Feyerabend, 'Problems of Empiricism…', p. 174-175.

[65] See Erkki Vesa Rope Kojonen, 'Methodological Naturalism and the Truth-Seeking Objection', *International Journal for Philosophy of Religion*, vol. 81, 2017, p. 346.

proper empirical support than in anti-naturalistic explanations excluded *ex definitione* from the field of science.[66] Admittedly, this may indeed be the case. However, such a line of thought erroneously assumes that it is possible to define a period of time after which naturalism should be abandoned, should it not yield the sort of results originally intended. The problem here is that, as has been repeatedly emphasized, such a procedure cannot be implemented,[67] in that even the most overwhelming difficulties faced by a given approach can be overcome.[68]

Assigning such time limits also faces another difficulty: "if you are permitted to wait, why not wait a little longer?"[69] It has also been noted that "proliferation and tenacity do not belong to successive periods of the history of science, but are always copresent".[70]

We may also consider an approach asserting that naturalism is based on an "exclusionary logic".[71] Thus, it represents the adoption of an erroneous attitude, because it excludes anti-naturalistic explanations *a priori*. This argument is very pertinent, and its validity can be seen as manifesting itself on three levels. When seeking explanations for the phenomena under study, all logically possible states of affairs should be taken into account, as the knowledge gained may lead to the conclusion that natural forces alone are insufficient to explain some phenomena.[72]

---

[66] See Dariusz Sagan, 'Naturalizm metodologiczny – konieczny warunek naukowości?', *Roczniki Filozoficzne*, vol. 51, no. 1, 2013, p. 83, https://tiny.pl/q33sb (accessed Mar. 22, 2024).

[67] See, e.g., Paul K. Feyerabend, 'First Dialogue', in Paul K. Feyerabend, *Three Dialogues on Knowledge*, Basil Blackwell Ltd., Oxford UK & Cambridge USA 1991, p. 29; Paul K. Feyerabend, 'Consolations for the Specialist', in Paul K. Feyerabend, *Philosophical Papers. Vol. 2. Problems of Empiricism*, Cambridge University Press, Cambridge – New York – Port Chester – Melbourne – Sydney 1981, pp. 137-139; Paul K. Feyerabend, 'Science, Freedom, and the Good Life', *The Philosophical Forum*, vol. 1, no. 2, 1968, pp. 131-132.

[68] See Paul K. Feyerabend, 'Outline of a Pluralistic Theory of Knowledge and Action', in Paul K. Feyerabend, *Philosophical Papers. Vol. 3. Knowledge, Science and Relativism*, Cambridge University Press, Cambridge – New York – Port Chester – Melbourne – Sydney 1999, p. 108.

[69] Feyerabend, 'Consolations for the Specialist…', p. 148.

[70] Feyerabend, 'Consolations for the Specialist…', p. 144.

[71] See Stephen C. Meyer, 'DNA and the Origin of Life: Information, Specification, and Explanation', in Campbell and Meyer (eds.), *Darwinism, Design and Public…*, p. 271.

[72] See, e.g., Paul D. Ackerman and Bob Williams, *Kansas Tornado: The 1999 Science Curriculum Standards Battle*, Institute for Creation Research, El Cajon, California 1999, p. 43; Bruce L. Gordon and William A. Dembski, 'Introduction. The Nature of Nature Confronted', in Gordon and Dembski (eds.), *The Nature of Nature…*, p. xix.

Otherwise, there is a possibility of overlooking the best explanation,[73] resulting in an erroneous picture of the world.[74]

Incidentally, Charles Darwin himself conducted his research under the banner of not overlooking the best explanation:

> I have always looked at this doctrine of natural selection as a hypothesis, which if it explained several large classes of facts would deserve to be ranked as a theory deserving acceptance […].[75]

> [I]t seems to me, that supposing that such hypothesis was to explain general propositions, we ought, in accordance with the common way of following all sciences, to admit it, till some better hypothesis be found out.[76]

Of course, it is a well-known fact that the possibility of adopting an erroneous worldview is inherent in all scientific research. However, and this is hard to disagree with, the aprioristic elimination of certain explanations simply because they do not conform to a commonly accepted methodological perspective increases such a probability. It is also hard to disagree with the thesis that naturalism, which works well within certain fields of science (for example, physics), can limit research in others.

According to the last argument examined here, naturalism should not even be considered a provisional principle, as it implies that there is no supernatural realm, which is not at all so certain.[77]

Leaving aside two issues here – these being the theistic-naturalistic interpretation of methodological naturalism and the fact that science had already moved away from certainty as a determinant of scientificality by the turn of the 20th century – it should be noted that the problematic nature of this argument lies primarily in this: that denying the requirement of methodological naturalism the

---

[73] See, e.g., O'Connor, 'Science on Trial…', p. 18; Stephen C. Meyer, 'The Use and Abuse of Philosophy of Science: A Response to Moreland', *Perspectives on Science and Christian Faith*, vol. 46, no. 1, 1994, p. 16, https://tiny.pl/w28q5 (accessed Mar. 22, 2024).

[74] See, e.g., Del Ratzsch, 'Natural Theology, Methodological Naturalism, and «Turtles All the Way Down»', *Faith and Philosophy*, vol. 21, no. 4, 2004, pp. 439-440.

[75] Letter from Charles Darwin to Joseph Dalton Hooker, February 14th, 1860 (DCP-LETT-2696), in: James A. Secord (dir.), *Darwin Correspondence Project*, Cambridge University Library and the Department for the History and Philosophy of Science, https://tiny.pl/tmfj9 (accessed Mar. 22, 2024).

[76] Letter from Charles Darwin to Asa Gray, June 20th, 1857 (DCP-LETT-2125), in: Secord (dir.), *Darwin Correspondence*…, https://tiny.pl/ttmhh (accessed Mar. 22, 2024).

[77] See Delfino, 'Replacing Methodological…', p. 8.

status of even a provisional principle amounts to a gross misunderstanding. It can, after all, be pointed out that following this principle has indubitably had a number of positive effects on science. The problem with this principle, as with all others, as was noted some time ago, arises when it is transformed into an absolute directive that must be applied regardless of circumstances.[78]

3.2 *Naturalism impedes competition in science.* On this line of approach, such an impeding of free competition amongst views manifests itself in the fact that naturalism promotes "scientific laziness" and excludes all anti-naturalistic explanations.[79] (There is even a term in play here, "naturalism-of-the-gaps", to denote such a disparaging of the acceptance of explanations other than naturalistic ones.)[80] The weakness of this argument is demonstrated by the fact that it is a double-edged sword: proponents of naturalism can level a similar charge against their adversaries. The latter accept anti-naturalistic explanations when naturalistic explanations fail.[81] A ruthlessly adhered to naturalism will hinder competition not because it promotes scientific laziness, but because – as was mentioned during our analysis of the previous argument – it excludes alternative approaches to explanation (i.e., EFs other than that of methodological naturalism) *a priori.*

3.3 *Naturalism is part of the Enlightenment tradition, which has been somewhat too hastily absolutized.* In support of this, it is argued that naturalism forms part of the Enlightenment's conception of the relationship between faith and reason. According to that understanding, science makes objective assertions about reality based only on reason and the senses – powers identical for all people. By contrast, faith and religion are expressions of no more than subjective beliefs, which latter

[78] See e.g., Paul K. Feyerabend, *Against Method. Outline of an Anarchistic Theory of Knowledge*, New Left Books, London 1975, p. 23.

[79] See Delfino, 'Replacing Methodological…', p. 11.

[80] This expression was introduced by Beckwith in 1989. See Francis J. Beckwith, 'Public Education, Religious Establishment, and the Challenge of Intelligent Design', *Notre Dame Journal of Law, Ethics and Public Policy*, vol. 17, no. 2, 2003, p. 468, n. 30, https://tiny.pl/tmp7d (accessed Mar. 22, 2024). See also, e.g., Erkki Vesa Rope Kojonen, *Intelligent Design: A Theological and Philosophical Analysis*, University of Helsinki Press, Helsinki 2014, p. 87, https://tiny.pl/tmc7b (accessed Mar. 22, 2024).

[81] See, e.g., Robert Pennock, 'Naturalism, Evidence, and Creationism: The Case of Phillip Johnson', in Pennock (ed.), *Intelligent Design Creationism…*, p. 90; Robert Pennock, *Tower of Babel: The Evidence Against the New Creationism*, MIT Press, Cambridge 1999, p. 294.

cannot themselves be the starting point for science.[82] The line of justification for this thesis also emphasizes that such Enlightenment foundationalism already amounts to an outdated approach ("the classical foundationalism upon which methodological naturalism is based has run aground"),[83] so methodological naturalism should not itself be granted a privileged status in science either.

The argument thus formulated is unsound regardless of whether or not there actually are, construed in either Aristotelian or Cartesian terms, absolute foundations of cognition – in the sense of first principles. This is primarily because it fails to recognize that modern classical foundationalism of the sort ascribed to Descartes[84] has little in common with that advocated by Newton.

Newton's abandonment of a fundamentalism of first principles did not go hand in hand with an acceptance of the view that any subjective beliefs (even those understood in the Cartesian way) can be the starting point of science ("whatever is not deduced from the phenomena is to be called a hypothesis; and hypotheses, whether metaphysical or physical, whether of occult qualities or mechanical, have no place in experimental philosophy").[85] As is well known, he also accepted the idea that considerations relating to God form a part of science ("All that diversity of natural things which we find suited to different times and places could arise from nothing but the ideas and will of a Being necessarily existing. […] And thus much concerning God; to discourse of whom from the appearances of things, does certainly belong to Natural Philosophy").[86] And, more importantly, he did not base his theories on first principles, or believe that this disqualified his explanations – which, it has long been assumed, were supposed to possess the character of demonstrably justified, apodictically certain claims about reality. It was not Descartes, or any other classical foundationalist, who imposed on other modern scientists – be they naturalistic or not[87] – this

[82] See 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 Inc., Lanham – New York – London 1996, p. 194.
[83] Plantinga, "Methodological Naturalism…", p. 194.
[84] See Plantinga, "Methodological Naturalism…", p. 194.
[85] Newton, The Mathematical Principles…, p. 506.
[86] Newton, The Mathematical Principles…, p. 506.
[87] A comprehensive overview of approaches that refer to supernaturalistic explanations can be found in the work of a member of The Royal Society, William Derham, *Physico-theology or A Demonstration of The Being and*

particular sort of fundamentalism in regard to the understanding of science.[88]

3.4 *Naturalism is only a provisional principle, not a necessary condition for conducting science.*[89] This stance can be defended by appealing to anarchist positions such as maintain that there is no principle that is to be followed regardless of all and any circumstances.[90] In support of the above, it can also be argued that there is no universally accepted definition of science, so naturalism cannot be the only possible approach to the latter.[91] However, this is not an argument that undermines naturalism alone, as nothing prevents it from being reversed, e.g., artificialism is only a provisional principle, not a necessary condition for conducting science.

On another argumentative approach, methodological naturalism "is based on an inductive generalization derived from 300 to 400 years of scientific experience",[92] but "[i]nductive arguments, however, do not demonstrate their conclusions with certainty; therefore this is not enough to justify its use as a necessary condition of science".[93]

In *de facto* terms, methodological naturalism has only been fully operative since 1859, where this resulted from its imposition on science by Darwin. This

---

Attributes of God from His Works of Creation, W. Innys and J. Richardson, London 1754, https://tiny.pl/tmrg4 (accessed Mar. 22, 2024).

[88] Such a stance has gone down in history under the name of "classical empiricism". Its success is evidenced by the fact that the Royal Society recognized it as its official philosophy; see Feyerabend, 'Problems of Empiricism…', pp. 154, 156, 219 n. 4. In order to distinguish between the foundationalisms of Descartes (and, for example, Aristotle) and of Newton, it seems appropriate to refer to these, respectively, as "ultimatism" (the requirement that we explain things through an appeal to first, i.e. ultimate, principles) and "certism" (the prescription to explain matters through demonstration).

[89] See, e.g., Delfino, 'Replacing Methodological…', p. 6; Dallas Willard, 'Naturalism's Incapacity to Capture the Good Will', in Gordon and Dembski (eds.), *The Nature of Nature*…, p. 869.

[90] Far from endorsing methodological anarchism, Plantinga talks about "pursuing science using all that we know" ('Methodological Naturalism…', pp. 213-214), while Brand maintains that "[s]cience has a bright future if all scientists have the freedom to think for themselves, within the worldview they choose, as long as they practice quality scientific work" (Brand, 'Naturalism: Its Role in Science…', pp. 28-29).

[91] See, e.g., Thomas Fowler, 'Naturalism and Science', *Metanexus* 2011 September 1, p. 2, https://tiny.pl/tmg8x (accessed Mar. 22, 2024); Raymond E.Grizzle, 'Some Comments on the «Godless» Nature of Darwinian Evolution, and a Plea to the Philosophers among Us', *Perspectives on Science and Christian Faith*, vol. 43, 1992, p. 175, https://tiny.pl/gzj7d (accessed Mar. 22, 2024).

[92] Niall Shanks, God, the Devil, and Darwin: A Critique of Intelligent Design Theory, Oxford University Press, New York 2004, p. 141.

[93] Delfino, 'Replacing Methodological…', p. 2. In his argument, this author cites the previously quoted statement from Shanks.

sort of naturalism, as was already mentioned in the present discussion, is nothing more than a small set of methodological decisions, and this means that the above argument, thus formulated, involves a category error. When one speaks of methodological decisions, meaning conventions of a certain kind, one evaluates them not in alethic terms (true/certain/probable – false/uncertain/improbable) but in pragmatic ones (effective – ineffective). Hence, such decisions taken in the context of science are neither certain nor uncertain. They are, at most, either effective or ineffective.

3.5 *Naturalism is an arbitrary and dogmatic rule, harmful to the practice of science.* In the words of one of the arguments invoked in support of the above thesis:

> [s]cience is not a game in which arbitrary rules are used to decide what explanations are to be permitted. Rather, it is an effort to make true statements about physical reality.[94]

Viewed from the perspective of scientific realism, however, the thesis that the aim of science is to search for truth is not the only approach that can be taken when it comes to justifying scientific activity in terms of its goals. Moreover, regardless of the approach we endorse in this regard, the first part of the argument (namely, that science is not a game in which arbitrary rules are applied) amounts to a false assertion. That science makes use of arbitrary rules that inform us about what explanations are allowed (or forbidden) has long been known: the role of methodological decisions has been emphasized by philosophers of science of all orientations, from conventionalism to logical empiricism, and from critical rationalism to the historicized philosophy of science. Poincaré,[95] Popper,[96] Lakatos[97] and Kuhn[98] – to name but a few – have certainly spoken about it.

On another approach, methodological naturalism "takes a sound

---

[94] Michael J. Behe, 'Molecular Machines: Experimental Support for the Design Inference', in: Pennock (ed.), *Intelligent Design Creationism*…, p. 255.

[95] "The rules of the [scientific] game are arbitrary conventions […]" (Henri Poincaré, *The Value of Science*, Dover Publications Inc., New York 1958, p. 114).

[96] See, e.g., Karl R. Popper, *The Logic of Scientific Discovery*, Routledge Classics, London and New York 2002, pp. 27-29. Incidentally, Popper would also agree with the theses that in science arbitrary rules are applied and objective truth is sought.

[97] See, e.g., Imre Lakatos, 'Falsification and the Methodology of Scientific Research Programmes', in Imre Lakatos, *Philosophical Papers. Vol. 1. The Methodology of Scientific Research Programmes*, Cambridge University Press, Cambridge, New York, Port Chester, Melbourne, Sydney 1978, pp. 8-101.

[98] See, e.g., Kuhn, *The Structure*…, pp. 39-40.

methodological premise of natural science and transforms it into a dogmatic statement about the nature of the universe",[99] "[b]ut dogma does not belong in science".[100]

Whether scientific dogmatism should be valued positively (e.g., because it prevents the over-hasty acceptance of poorly justified views)[101] or negatively (e.g., because it prevents the recognition of alternatives)[102] is a question that remains controversial.[103] Yet the approach we are considering at this point does not address these problems. It is merely an implausible statement about the mechanisms of science, devoid of reference to the history of the philosophy of science[104] and guilty of failing to engage with the thesis of the "dogmatism of mature science".[105]

There is also a line of argument that seeks to convince us that if some empirical evidence incompatible with methodological naturalism speaks in favour of an explanation of irreducible or specified complexity, then it should be assumed that such naturalism is not a necessary condition for the practising of science.[106] At the heart of this, however, lies the misconception that empirical

---

[99] Phillip E. Johnson, 'Evolution as Dogma: The Establishment of Naturalism', *First Things* October 1990, https://tiny.pl/thtmg (accessed Apr. 22, 2023).

[100] Delfino, 'Replacing Methodological…', p. 2. Delfino, in his argument, cites the previously quoted statement of Johnson.

[101] See, e.g., Michael Polanyi, 'The Republic of Science: Its Political and Economic Theory', *Minerva*, vol. 38, 2000, pp. 8-9.

[102] See, e.g., Paul K. Feyerabend, 'On the Improvement of the Sciences and the Arts and the Possible Identity of the Two', in Robert S. Cohen and Marx W. Wartofsky (eds.), *Proceedings of the Boston Colloquium for the Philosophy of Science, 1964/1966. In Memory of Norwood Russell Hanson*, *Boston Studies in the Philosophy of Science*, vol. 3, D. Reidel Publishing Company, Dordrecht 1967, pp. 410-411.

[103] See, e.g., Henry H. Bauer, Dogmatism in Science and Medicine: How Dominant Theories Monopolize Research and Stifle the Search for Truth, McFarland & Company, Jefferson 2012, pp. 5-12.

[104] "Probably none of us believes that in practice the real-life scientists quite succeed in fulfilling this ideal […] of the scientist as the uncommitted searcher after truth. He is the explorer of nature − the man who rejects prejudice at the threshold of his laboratory, who collects and examines the bare and objective facts, and whose allegiance is to such facts and to them alone" (Thomas S. Kuhn, 'The Function of Dogma in Scientific Research', in Alistair Cameron Crombie (ed.), *Scientific Change: Historical Studies in the Intellectual, Social and Technical Conditions for Scientific Discovery and Technical Invention, from Antiquity to the Present, Symposium on the History of Science, University of Oxford 9th-15th July 1961*, Heinemann, London 1963. p. 347).

[105] See Kuhn, 'The Function of Dogma…', p. 349.

[106] See Beckwith, 'Public Education…', p. 469. See also William A. Dembski, 'The Act of Creation: Bridging Transcendence and Immanence', in Mehrdad M. Zarandi (ed.), *Science and the Myth of Progress*, *The Library of Perennial Philosophy*, World Wisdom Inc., Bloomington Ind. 2003, p. 289.

evidence can, independently of theorizing, determine whether we should come out in favour of or against a given theory. After all,

> the overwhelming appearance of design strongly affects the burden of proof: in the presence of manifest design, the onus of proof is on the one who denies the plain evidence of his eyes.[107]

What the above suggests is that those who maintain the above thesis are not proponents of the thesis of strong (complete) theoreticality (according to which observations are not merely theory-laden but fully theoretical). According to supporters of the latter position, there is no way to verify evidence independent of theory, as there is no neutral observational language through which such validation can be accomplished.[108] Recognizing that an error or oversight was made in the very process of observing a phenomenon is not the only reason for cancelling observational results. Observations can be cancelled independently of this process, under the influence of changes that have taken place in the theoretical part of knowledge.[109]

Moreover, contrary to what the powerfully persuasive language of the cited argument ("the overwhelming appearance of design", "the plain evidence") would have us believe, the *onus probandi* here rests with proponents of ID, as they are the ones defending a thesis that is widely regarded – never mind, whether rightly or not – as less credible. Shifting the burden of proof onto the opponent in an ongoing dispute in this way is therefore nothing more than a mere eristic

---

[107] Michael J. Behe, *Darwin's Black Box. The Biochemical Challenge to Evolution*, Free Press, New York, London, Toronto, Sydney 2006, p. 265.

[108] See, e.g., Paul K. Feyerabend, 'Reply to Criticism. Comments on Smart, Sellars and Putnam', in Feyerabend, *Philosophical Papers. Vol. 1*…, pp. 124-127.

[109] "Witchcraft is […] 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 […]. 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" (Paul K. Feyerabend, 'How to Be a Good Empiricist. A Plea for Tolerance in Matters Epistemological', in Feyerabend, *Philosophical Papers. Vol. 3*…, pp. 98-99).

ploy.

3.6 *Naturalism is an irrational approach.* In support of this, the claim has been made that since it is *de facto* impossible to provide naturalistic explanations for all phenomena, insisting on naturalism is tantamount to adopting an irrational approach.[110]

Despite the fact that, for example, Kuhn's view of science confirms the first part of this argument, the argument is unsound because it leads to unacceptable consequences. The long-term effect of routine research within normal science is a progressive increase of the number of anomalies. The latter, in turn, is one of the factors contributing to the spread of the belief that a given paradigm is flawed. Consequently, it can lead to attempts to abandon the paradigm. However, if the determinant of the rationality of scientists' actions were to be the belief that, in the end, a situation might anyway arise where the accepted theoretical approach yields to an excess of anomalies, and that therefore one should not insist on its adoption, then scientists would never be in a position to legitimately adopt any theoretical approach whatsoever. The obvious consequence of the latter would be an inability to conduct scientific research of any kind, since it is the paradigm that provides scientists with the criteria for selecting solvable problems, and from paradigms come the methods, the exemplars of solutions, and even the very issues that, at any given time, the scientific community is prepared to engage with.

According to another more general line of attack, proponents of methodological naturalism can be accused of lapsing into irrationalism, because naturalism excludes belief in the existence of an order transcendentally imposed onto the realm of nature:[111]

> without belief in the existence of such an order, scientific practice would seem little better than reading patterns into tea leaves or chicken entrails.[112]

---

[110] See O'Connor, 'Science on Trial…', p. 20. The thesis is attributed by O'Connor to the authors of the articles collected in the book *The Creation Hypothesis: Scientific Evidence for an Intelligent Designer* (James Porter Moreland (ed.), InterVarsity Press, Downers Grove 1994). See also Ronald G. Larson, 'Revisiting the God of the Gaps', *Perspectives on Science and Christian Faith*, vol. 61, no. 1, 2009, p. 15 [13-22], https://tiny.pl/ww5gr (accessed Mar. 23, 2024). The latter author talks about "weaknesses [...] of materialistic naturalism" and defends the thesis presented here.

[111] See Bruce L. Gordon, 'The Rise of Naturalism and Its Problematic Role in Science and Culture', in Gordon and Dembski (eds.), *The Nature of Nature*…, p. 5.

[112] Gordon, 'The Rise of Naturalism…', p. 5.

The argument is weak, primarily because its second part is historically false.[113] It is refuted by the existence of scholars who simultaneously claim on the one hand that "the enormous usefulness of mathematics in the natural sciences is something bordering on the mysterious and that there is no rational explanation for it",[114] and on the other that there is no Transcendence behind this order.[115]

3.7 *Naturalism is simply poor philosophy*. In support of this particular thesis it has been argued, on the basis of empirical evidence, that naturalism is not a scientific view; instead, it is merely a philosophical doctrine almost entirely devoid of empirical support.[116] Leaving aside the question of how one might assess the degree of empirical support for Darwinian evolutionism, it should be noted that this type of argumentation sets forth the false belief that if any scientific approach, such as evolutionism, is supported by philosophy, then it cannot be reliable as science.[117] Moreover, as was already mentioned, there is an even more fundamental issue in play here that was also long ago recognized: that it is impossible to eliminate philosophy from science.[118] And, by extension, the alternatives to evolutionism − namely, scientific creationism and ID − are also based on philosophy and, according to the argument above, are philosophical doctrines to the same extent as evolutionism. One other point worth

[113] The author of this argument has also chosen to assign their own preferred meaning to the term "rational", inasmuch as the latter, in his opinion, denotes conformity with some supra-historical, universal standards whose validity is guaranteed by the existence of some sort of Transcendence. However, there are many more meanings the term can have, at least some of which can be conjoined with methodological naturalism: (a) rationality is identified with maximization of utility − one acts rationally when one brings about the fulfilment of one's expectations or is someone whose actions, viewed in the light of the knowledge one possesses, ought to accomplish the realization of one's intentions; (b) one acts rationally insofar as one has good reasons for so acting; (c) an action is rational when there are no counter-indications preventing the realization of the goal; (d) to act rationally is to adhere strictly to a predetermined plan; (e) acting rationally means obeying the particular set of methodological rules according to which the development of science is proceeding during a given period of time. The enumeration of these given here does not pretend to be exhaustive.

[114] Eugene Wigner, 'The Unreasonable Effectiveness of Mathematics in the Natural Sciences', *Communications in Pure and Applied Mathematics*, vol. 13, 1960, p. 2.

[115] See Andrew Szanton, *The Recollections of Eugene P. Wigner*, Plenum Press, New York 1992, p. 60.

[116] See, e.g., Phillip E. Johnson, 'What Is Darwinism?', in Michael Bauman (ed.), *Man and Creation. Perspectives on Science and Theology*, Hillsdale College Press, Hillsdale, Michigan 1993, pp. 177-178.

[117] See Jodkowski, 'Metafizyczne opowieści…', p. 80; Keith B. Miller, 'The Misguided Attack on Methodological Naturalism', in Jill S. Schneiderman and Warren D. Allmon (eds.), *For the Rock Record: Geologists on Intelligent Design*, University of California Press, Berkeley, Los Angeles, London 2009, p. 120.

[118] Cf. text of footnote 2.

recapitulating here is that the acceptance or rejection of methodological naturalism is a methodological decision. Like any other methodological decision, its acceptance can hardly be based on empirical evidence, as it is precisely a decision of this kind that makes it possible for something or other to be recognized (or not) as empirical evidence.

In line with what another line of argument encourages us to accept, naturalism is a philosophical belief that cannot be justified by natural science:

> the question of whether methodological naturalism is necessary for natural science is a philosophical claim that must be justified philosophically, it cannot be justified by natural science, if it is alleged to be a presupposition for the practice of natural science.[119]

To be sure, this position is pertinent insofar as each and every EF amounts to a set of such methodological decisions that cannot be scientifically justified without the risk of falling into a vicious circle. However, this is hardly an argument against maintaining methodological naturalism, as it can be extended to all EFs. At the same time, an even more radical approach seeks to persuade us that

> no good philosophical arguments support […] [methodological naturalism]. Indeed, those arguments […] are circular, presupposing the very naturalism they are supposed to underwrite.[120]

Such an argument against methodological naturalism, thus formulated, can at first glance seem persuasive. For example:

> By "scientific methodology" or "attitude" in this case, I mean a commitment to the idea of the world being law-bound – that is, subject to unbroken regularity – and to the belief that there are no powers, seen or unseen, that interfere with or otherwise make inexplicable the normal workings of material objects.[121]

However, the reasoning can easily be turned around and levelled at both artificialism and supernaturalism, since both presuppose anti-naturalism. Moreover, the argument fails to recognize the fact of the irreducible presence of philosophy in science. It perceives the arguments for naturalism as being circular

---

[119] Beckwith, 'Public Education…', p. 469.
[120] Dembski, 'The Act of Creation…', p. 289.
[121] Michael Ruse, 'Darwinism: Philosophical Preference, Scientific Inference, and Good Research Strategy', in Jon Buell and Virginia Hearn (eds.), *Darwinism: Science or Philosophy. Proceedings of a Symposium Entitled "Darwinism: Scientific Inference or Philosophical Preference?" Held on the Southern Methodist University campus in Dallas, Texas, USA, March 26-28, 1992*, Foundation for Thought and Ethics, Dallas 1997, p. 21.

in nature, where this is considered a flaw in these, yet fails to recognize that the arguments for anti-naturalism likewise presuppose anti-naturalism. For example, the same author maintains that

> [m]y strongest argument against the sufficiency of natural causes to account for intelligent agency, however, comes from the complexity-specification criterion. This empirically-based criterion reliably discriminates intelligent agency from natural causes. Moreover, when applied to cosmology and biology, it demonstrates not only the incompleteness of natural causes, but also the presence of transcendent design.[122]

So the author's criterion, of which he is deeply convinced, itself "demonstrates [...] the presence of transcendent design". It was noted long ago, however, that such reasoning is circular in nature:

> [w]hen we collect design and purpose from the arrangements of the universe, we do not arrive at our conclusion by a train of deductive reasoning, but by the conviction which such combinations as we perceive immediately and directly impress upon the mind. "Design must have had a designer." But such a principle can be of no avail to one whom the contemplation or the description of the world does not impress with the perception of design. It is not therefore at the end, but at the beginning of our syllogisms, not among remote conclusions, but among original principles […].[123]

Another approach here is to assert that naturalism leads to a commitment to scientific anti-realism, in the context of which, as in idealism, reality must agree with ideas – something which, in this particular case, means that the interpretation of empirical evidence must conform to the requirements of methodological naturalism:

> Methodological naturalism is closest to the idealist kind of antirealism. This is because in idealism reality must conform to ideas instead of ideas conforming to reality. Methodological naturalism is guilty of idealism because the interpretation of evidence and the construction of theories must conform to a naturalistic framework since supernatural explanations are prohibited.[124]

On the classical view of scientific realism, scientific theories are either true or false, and what a theory is depends on the structure of the world. If a theory is

---

[122] Dembski, 'The Act of Creation…', p. 289.
[123] William Whewell, *Astronomy and General Physics Considered with Reference to Natural Theology*, *Bridgewater Treatises. Treatise III*, William Pickering, London 1833, p. 344, https://tiny.pl/ww5s9 (accessed Mar. 23, 2024).
[124] Delfino, 'Replacing Methodological…', p. 4.

true, then its theoretical terms denote real objects. The latter are causally responsible for the occurrence of the observed phenomena that serve to confirm the theory. We can entertain reasonable beliefs about the truth or falsity of our theories and the existence of theoretical entities. The goal of science is to discover, or get closer to, the truth. Science accomplishes this goal.[125]

The author of the argument presented above accepts those claims. However, the thesis, which, according to how he intend his position to be understood, fundamentally defines scientific realism, could well sound like this: objective reality is given in the sensory data, in that the latter reflect it – or, in other words, there are stark facts ("scientists in their search for truth should follow the evidence wherever it leads"; "[i]f we gather evidence that conflicts with a theory we must modify or abandon that theory"),[126] and the removal of all obstacles (metaphysical superstitions) standing in the way of the subject-object enables the cognitive schema to match reality ("our theories must conform to reality in order to be true").[127]

This strongly resembles the fundamental thesis of the theory of reflection, according to which

> objective reality […] is given to man by his sensations, and […] is copied, photographed and reflected by our sensations, while existing independently of them.[128]

It is worth noting at this point that the addition of this thesis to the characterization of scientific realism narrows the scope of this conception to just those positions that accept the thesis of the receptive (passive) nature of cognition. Thus, the argument is based on a certain understanding of scientific realism, according to which the latter excludes belief in the theory-ladenness (or theoreticality) of observations,[129] and amounts to an approach that is akin to a

---

[125] See William H. Newton-Smith, 'The Underdetermination of Theory by Data', *Proceedings of the Aristotelian Society*, *Supplement*, vol. 52, 1978, pp. 71-72.

[126] Delfino, 'Replacing Methodological…', p. 4

[127] Delfino, 'Replacing Methodological…', p. 4.

[128] Vladimir Ilyich Lenin, Materialism and Empirio-criticism: Critical Comments on a Reactionary Philosophy, Progress Publishers, Moscow 1987, p. 114.

[129] If one were to accept such a state of affairs, then Karl Popper, for example – one of the best-known proponents of scientific realism – could hardly be considered a scientific realist. Nevertheless, it should be noted here that acceptance of the thesis that there is no such thing as pure experience shifts the view regarding the theory-ladenness of observation closer to constructivism. "Constructivism", however, is a term

theory of reflection.

Such a way of thinking, though, also excludes from the realm of scientific realism the two anti-naturalistic EFs – namely, the creationist and artificialist ones. For, within their framework, the interpretation of empirical evidence must conform to the patterns shaped by their hard-core too.

Another argument advocates the position that naturalism does not free science from metaphysical ballast – the latter can only be removed by adopting metaphysical neutralism:

> the method of science is not based on naturalism or any other metaphysic. It is based on metaphysical neutralism.[130]

Nevertheless, what metaphysical neutralism exactly is has not been clearly articulated by the proponents of this line of thinking. One may suppose that it is a thesis postulating some form of *epoché* – refraining, when confronting evidence, from making convictions about the way the world exists. Indeed, the only context provided by their statements that would allow one to infer what neutralism amounts to for these authors is as follows:

> […] [Lewis Wolpert, a biologist at University College London] concludes, "We have to both respect, if we can, the beliefs of others, and accept the responsibility to try and change them if the evidence for them is weak or scientifically improbable."
>
> This is where the scientific method comes in. If scientists are prepared to state their hypotheses, describe how they tested them, lay out their data, explain how they analyse their data and the conclusions they draw from their analyses — then it should not matter if they pray to Zeus, Jehovah, the Tooth Fairy, or nobody.
>
> Their work will speak for itself.[131]

---

that should rather be applied to positions that differ from realist ones in important respects. See, e.g., Clifford A. Hooker, 'Systematic Realism', *Synthese*, vol. 26, nos. 3-4, 1974, pp. 420-421; Michael Devitt, 'Incommensurability and the Priority of Metaphysics', in Paul Hoyningen-Huene, Howard Sankey (eds.), *Incommensurability and Related Matters*, Kluwer Academics Publishers, Dordrecht 2001, p. 145.

[130] Harry Lee Poe and Chelsea Rose Mytyk, 'From Scientific Method to Methodological Naturalism: The Evolution of an Idea', *Perspectives on Science and Christian Faith*, vol. 59, no. 3, September 2007, p. 217, https://tiny.pl/ww5qq (accessed Mar. 23, 2024).

[131] Cornelia Dean, 'Faith, Reason, God and Other Imponderables', *The New York Times* 25 July 2006, https://tiny.pl/gsx76 (accessed Mar. 23, 2024). Poe and Mytyk ('From Scientific Method to Methodological...', p. 218) cite only the last two paragraphs of Dean's statement. I have added the first paragraph of her statement here.

And, from someone with a similar approach:

> [t]he principle of methodological neutralism states that scientists should simply search for causes without setting any *a priori* conditions on what ontological status those causes must have. […] By not setting any *a priori* conditions with respect to ontological status we can follow the evidence wherever it might take us.[132]

Thus, what this neutralism corresponds to, more or less, is the thought that refraining from entertaining *a priori* beliefs about the way the world is basically serves the purpose of enabling scientists to pursue the facts unimpeded by extraneous considerations. Only the freedom to do so permits one to discover how, genuinely, the world is.

Even so, contrary to the optimistic declarations just quoted it is neither the case that the work of scientists could eventually speak for itself, nor the case that we can pursue the facts freely. On the neutralist approach, the best explanations – be they naturalistic, supernaturalistic, or ones invoking intelligent causes – should be determined by empirical data, not by restrictive *a priori* assumptions about the nature of science. At the same time, according to the moderate stance on the theory-ladenness of observations shared by the advocates of the neutralist approach presented above, it is assumed that it is possible, with more or less difficulty, to separate the empirical data itself from our interpretation of it. Such data, in turn, leaves room for us to make choices about what we consider its best explanation. Yet both of these approaches to theorizing are now held to be obsolete, reflecting broad acceptance of the thesis that it is impossible to separate out theoretical concepts from observational ones, and thus also theoretical from observational language.[133]

In short, the belief that it is possible to pursue facts freely – which, in this context, means nothing more than to study such facts in an entirely non-theoretical or non-theory-laden way – is a pernicious myth. In reality, the basis

---

[132] Delfino, 'Replacing Methodological…', p. 9.

[133] Incidentally, separating out such concepts can only be done in a specific way – only conventionally, on the basis of the pragmatic theory of observation. The latter says that the division of the language of science into observational and theoretical aspects is conventional, depending as it does on both the degree of training of the scientist and the knowledge he or she possesses. Expressing the matter slightly differently, concepts should be considered observational or theoretical depending on who is making the observation. See Feyerabend, 'Explanation, Reduction…', pp. 36-37; Paul K. Feyerabend, 'The Problem of the Existence of Theoretical Entities', in Feyerabend, *Philosophical Papers. Vol. 3*…, pp. 20-22.

of any scientific method will always be some kind of metaphysics. Any methodology is entangled with cosmological assumptions,[134] and the effect of a change in metaphysics is always a change in methodology.[135] The decision about *epoché* is therefore by no means such a simple matter as the authors of the argument discussed here suggest.

3.8 *Naturalism is a view that is adopted uncritically*. In support of the above thesis, the following argument has been set forth. It happens that naturalistic explanations, along with criticism of other types of explanations, are the result of an overly hasty assimilation, presented by authorities in the field, of erroneous arguments. An illustration of the above statement is the situation that arose from the misinterpretation[136] of test results presented in an article analysing the blood-clotting process.[137] Such an interpretation was made by the prominent protein biochemist Russell Doolittle. The problem is not whether Doolittle was right. His arguments were cited by another scientist, the pathologist Neil S. Greenspan, and by the Editor-in-Chief of *Scientific American*, John Rennie.[138] Greenspan argued, based on Doolittle's arguments, that proponents of ID do not understand what irreducibly complex systems are.[139]

This argument is very weak indeed, as it is a double-edged sword – in that reliance on authority is hardly a trait exclusively characterizing naturalists. Design theorists can be subjected to a similar charge. In one of his works, Michael Polanyi maintained that some structures of living organisms appear irreducible to the laws of physics and chemistry.[140] At the same time, Behe, Dembski and Thaxton have invoked Polanyi's thinking about this to lend support to their own

---

[134] See, e.g., Paul K. Feyerabend, 'The Methodology of Scientific Research Programmes', in Feyerabend, *Philosophical Papers. Vol. 2*…, p. 215, n. 24.

[135] See, e.g., Feyerabend, *Against Method. Third Edition*…, p. 233.

[136] See Behe, 'Irreducible Complexity…', pp. 361-364.

[137] See T.H. Bugge, K.W. Kombrinck, M.J. Flick, C.C. Daugherty, M.J. Danton, and J.L. Degen, 'Loss of Fibrinogen Rescues Mice from the Pleiotropic Effects of Plasminogen Deficiency', *Cell*, vol. 87, 1996, pp. 709-719.

[138] See John Rennie, "15 Answers to Creationist Nonsense", *Scientific American* July 1st, 2002, https://tiny.pl/ww5x4 (accessed Mar. 23, 2024).

[139] See Behe, 'Irreducible Complexity…', p. 364.

[140] "When I say that life transcends physics and chemistry, I mean that biology cannot explain life in our age by the current workings of physical and chemical laws" (Michael Polanyi, 'Life Transcending Physics and Chemistry', *Chemical and Engineering News*, vol. 45, iss. 21, 1967, p. 54).

rationale.[141] Incidentally, Kepler had earlier levelled the same charge against himself:

> My first error was to take the planet's path as a perfect circle, and this mistake robbed me of the more time, as it was taught on the authority of all philosophers, and consistent in itself with Metaphysics.[142]

Reliance on authority is a consequence of a particular mode of education that cannot be found anywhere outside of the natural sciences.[143] The hallmark of scientific education is the development in adepts of an exceptionally strong commitment to a particular way of seeing the world, shaped by participation in a particular scientific community. And whether the occurrence of such a state of affairs is something that hinders or accelerates the growth of knowledge is, of course, a debatable issue, and one that involves a critique of Kuhn's concept of normal science.[144]

5. CONCLUDING REMARKS

In this article I have examined the potentially plausible arguments that may be levelled against methodological naturalism. These are used to justify the following claims with regard to the latter: that it badly affects the development of knowledge, hinders competition in science, has elevated a mere part of one specific tradition to an absolute status, is only a provisory principle, is arbitrary and harmful as a principle, is irrational as an approach, amounts to bad philosophy, and involves uncritical acceptance. Most of these antinaturalistic arguments do not turn out to be convincing, but a few can be considered well-founded.

However, the latter are not enough to abandon naturalism, as other factors also come into play in its eventual abandonment. Treating methodological

---

[141] See Jonathan Witt, 'A Brief History of the Scientific Theory of Intelligent Design', *Discovery Institute* October 30, 2007, https://tiny.pl/w2sj4 (accessed Mar. 23, 2024).

[142] An excerpt cited from A. Rupert Hall, *The Scientific Revolution 1500–1800: The Formation of the Modern Scientific Attitude*, Longmans, Green and Co., London – New York – Toronto 1954, p. 124.

[143] Pedagogy and theology are, according to Kuhn (see 'The Function of Dogma...', p. 350), exceptions to this – being as dogmatic in their training as the natural sciences are.

[144] See, e.g., John W.N. Watkins, 'Against «Normal Science»', in Imre Lakatos and Alan Musgrave (eds.), *Criticism and the Growth of Knowledge*, Cambridge University Press, Cambridge 1970, pp. 28-29; Karl R. Popper, 'Replies to My Critics', in: Paul A. Schilpp (ed.), *The Philosophy of Karl Popper*, *The Library of Living Philosophers*, vol. 14, Open Court, La Salle, Illinois 1974, pp. 1144-1148.

naturalism and methodological anti-naturalisms as EFs makes it possible to notice that each EF is a small set of methodological decisions underpinned by metaphysical theses (here called *hard cores*). This is crucial for understanding that the process of testing and abandoning theories based on different EFs is very complicated. The exchange of one EF for another is inextricably linked to the rejection of one hard core and its replacement by another. Expressed differently, without exchanging one metaphysics for another, no change will take place in the most elementary methodological decisions on which EFs are based.

Philosophers of science long ago relinquished the belief that a theory's incompatibility with facts is enough to reject it. Subsequently, an approach emerged according to which the process of rejection is more complicated, with the correct account of the theory-experiment relationship being held to be of a tripartite kind: namely, *theory – alternative theory – empirical testing*. At the same time, investigation of EFs has since led to the belief that the relationship between theory and experience may be more complicated than established solutions to the problem suggest. The same investigations have shown that in at least some cases, when dealing with incommensurable approaches,[145] the correct account of the theory-experience relationship is actually a four-part one: *theory – alternative theory – accepted EF – empirical test.*[146] Even if the facts speak against a theory, and there is another alternative theory compatible with them, this is not enough to eliminate the former in cases where it is compatible with the commonly accepted mode of explanation in science (EF), but its rival is not. Acceptance of a particular theoretical approach renders alternative approaches meaningless, and the authority of a commonly accepted EF can be invoked, as well, to neutralize any

[145] Naturalistic and anti-naturalistic theories amount to incommensurable views (see e.g., James T. Robinson, "Incommensurability of Evolution and Special Creation", *The American Biology Teacher*, vol. 33, no. 9, 1971, pp. 535-538 and p. 545; Kazimierz Jodkowski, *Metodologiczne aspekty kontrowersji ewolucjonizm-kreacjonizm*, *Realizm. Racjonalność . Relatywizm*, Vol. 35, Wydawnictwo Uniwersytetu Marii Curie Skłodowskiej, Lublin 1998, pp. 204-318). This fact leads to a different understanding of the nature of science in each case. It makes it difficult, but not impossible, for proponents of differing views to communicate, as at least some participants in this debate are aware (see, e.g., Theodore Arabatzis, 'Can a Historian of Science Be a Scientific Realist?', *Philosophy of Science*, vol. 68, no. 3, Supplement, 2001, pp. S536-S538). These issues lie far beyond the scope of this paper.

[146] See Kazimierz Jodkowski, 'Filozofia przyrody a nauki przyrodnicze', *Colloquia Communia*, nos. 1-2 (82-83), 2007, pp. 21-22, https://tiny.pl/tlkgz (accessed Mar. 23, 2024).

difficulty facing a theory that accepts that particular EF.[147]

In conclusion, it should be pointed out that the next fundamental issue that arises in the context of the abandonment of naturalistic EFs is as follows: that they are widely accepted as criteria for scientificality. The abandonment of these EFs can be compared to the intellectual upheaval associated with attempts to abandon geocentrism and replace it with heliocentrism.[148] It was long ago observed that it is generally difficult to make up one's mind when it comes to changing one's most basic assumptions, as violating them will radically undermine one's previously accepted points of view.[149]

University of Zielona Góra
al. Wojska Polskiego 71A
65-762 Zielona Góra, Poland
+48 789442022
k.kilian@ifil.uz.zgora.pl
https://orcid.org/0000-0002-8235-0578
+48 887959075

REFERENCES

Ackerman Paul D. and Williams Bob, *Kansas Tornado: The 1999 Science Curriculum Standards Battle*, Institute for Creation Research, El Cajon, California 1999.

Aikin Scott F., Harbour Michael, and Talisse Robert B., 'Nagel on Public Education and Intelligent Design', *Journal of Philosophical Research*, vol. 35, 2010, pp. 209-219, https://tiny.pl/gkfh3 (accessed Mar. 22, 2024).

Akins Kathleen (ed.), *Perception*, *Vancouver Studies in Cognitive Science*, vol. 5, Oxford University Press, New York, Oxford 1996.

Arabatzis Theodore, 'Can a Historian of Science Be a Scientific Realist?', *Philosophy of Science*, vol. 68, no. 3, Supplement, 2001, pp. S531-S541.

Ayala Francisco J., 'Darwin's Greatest Discovery: Design without Designer', in Avise and

[147] See Kazimierz Jodkowski, 'Eskapizm teologii i filozofii katolickiej w sprawie «nauka a religia»', *Na Początku…* 2005, nos. 7-8 (196-197), pp. 273-274, https://tiny.pl/gztl8 (accessed Mar. 23, 2024).

[148] See, e.g., Fred Hoyle and Nalin Chandra Wickramasinghe, *Evolution from Space: A Theory of Cosmic Creationism*, Simon & Schuster Inc., New York 1984, pp. 137-138.

[149] See Otto Neurath, 'Soziologie im Physikalismus', *Erkenntnis*, vol. 2, 1931, p. 396.

Ayala (eds.), *In the Light of Evolution*…, pp. 3-21, https://tiny.pl/tx8s2 (accessed Mar. 22, 2024).

Ayala Francisco J., 'Darwin's Revolution', in Campbell and Schoff (eds.), *Creative Evolution*…, pp. 1-18.

Avise John C. and Ayala Francisco J. (eds.), *In the Light of Evolution: Volume I: Adaptation and Complex Design*, The National Academies Press, Washington, DC 2007.

Baergen Ralph, 'The Influence of Cognition Upon Perception: The Empirical Story', *Australasian Journal of Philosophy*, vol. 71, no. 1, 1993, pp. 13-23.

Bartlett Jonathan and Holloway Eric (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.

Bartlett Jonathan, 'Philosophical Shortcomings of Methodological Naturalism and the Path Forward', in Bartlett and Holloway (eds.), *Naturalism and Its Alternatives*…, pp. 13-37.

Bartlett Jonathan, 'Philosophical Shortcomings of Methodological Naturalism and the Path Forward', in Bartlett and Holloway (eds.), *Naturalism and Its Alternatives*…, pp. 13-37, https://tiny.pl/tr32k (accessed Mar. 21, 2024).

Bauer Henry H., *Dogmatism in Science and Medicine: How Dominant Theories Monopolize Research and Stifle the Search for Truth*, McFarland & Company, Jefferson 2012.

Bauman Michael (ed.), *Man and Creation. Perspectives on Science and Theology*, Hillsdale College Press, Hillsdale, Michigan 1993.

Beckwith Francis J., 'Public Education, Religious Establishment, and the Challenge of Intelligent Design', *Notre Dame Journal of Law, Ethics and Public Policy*, vol. 17, no. 2, 2003, pp. 461-520, https://tiny.pl/tmp7d (accessed Mar. 22, 2024).

Behe Michael J., *Darwin's Black Box. The Biochemical Challenge to Evolution*, Free Press, New York, London, Toronto, Sydney 2006.

Behe Michael J., 'Irreducible Complexity: Obstacle to Darwinian Evolution', in Ruse and Dembski (eds.), *Debating Design*…, pp. 352-370.

Behe Michael J., 'Molecular Machines: Experimental Support for the Design Inference', in Pennock (ed.), *Intelligent Design Creationism*…, pp. 241-256.

Brand Leonard, 'Naturalism: Its Role in Science', *Origins*, no. 64, 2015, pp. 21-37, https://tiny.pl/ww5q0 (accessed Mar. 22, 2024).

Brightman Edgar Sheffield, 'An Empirical Approach to God', *The Philosophical Review*, vol. 44, no. 2, 1937, pp. 147-169, https://tiny.pl/wwfgs (accessed Mar. 21, 2024).

Brunschvicg Leon, *L'Expérience Humaine Et La Causalité Physique*, Felix Alcan, Paris 1922, https://tiny.pl/wwftj (accessed Mar. 21, 2024).

Buell Jon and Hearn Virginia (eds.), *Darwinism: Science or Philosophy. Proceedings of a Symposium Entitled Darwinism: Scientific Inference or Philosophical Preference? Held on the*

Southern Methodist University campus in Dallas, Texas, USA, March 26-28, 1992, Foundation for Thought and Ethics, Dallas 1997.

Bugge T.H., Kombrinck K.W., Flick M.J., Daugherty C.C., Danton M.J., and Degen J.L., 'Loss of Fibrinogen Rescues Mice from the Pleiotropic Effects of Plasminogen Deficiency', *Cell*, vol. 87, 1996, pp. 709-719.

Bylica Piotr, 'Główne założenia i problemy teizmu naturalistycznego w sprawie relacji sfery nadprzyrodzonej i świata przyrodniczego', in Dyk (ed.), *Sozologia systemowa. Vol. IV*…, pp. 55-95, https://tiny.pl/q3m1d (accessed Mar. 21, 2024).

Bylica Piotr, 'NOMA as the Cure for Conflict Between Science and Religion: Reply to Ludwik Kowalski's Commentary on the NOMA Principle', *Filozoficzne Aspekty Genezy*, vol. 11, 2014, pp. 29-34, https://tiny.pl/tq5v2 (accessed Mar. 22, 2024).

Campbell John Angus and Meyer Stephen C. (eds.), *Darwinism, Design and Public Education*, Michigan State University Press, East Lansing 2003.

Campbell John H. and Schoff J.W. (eds.), *Creative Evolution!?*, Jones and Bartlett, New York 1994.

Chela-Flores Julian and Seckbach Joseph, 'Divine Action and Evolution by Natural Selection. A Possible and Necessary Dialogue', in Seckbach, Gordon (eds.), *Divine Action and Natural Selection*…, pp. 1035-1048.

Cohen Robert S. and Wartofsky Marx W. (eds.), *Proceedings of the Boston Colloquium for the Philosophy of Science, 1964/1966. In Memory of Norwood Russell Hanson*, *Boston Studies in the Philosophy of Science,* vol. 3, D. Reidel Publishing Company, Dordrecht 1967.

Colodny Robert G. (ed.), *Beyond the Edge of Certainty. Essays in Contemporary Science and Philosophy*, Prentice-Hall, Englewood Cliffs, New Jersey 1965.

Coyne George V., Heller Michael [Michał], *A Comprehensible Universe. The Interplay of Science and Theology*, Springer-Verlag, New York 2008

Coyne SJ George V., 'Evolution and Intelligent Design. Who Needs God?', in Seckbach, Gordon (eds.), *Divine Action and Natural Selection*…, pp. 9-26.

Crombie Alistair Cameron (ed.), *Scientific Change: Historical Studies in the Intellectual, Social and Technical Conditions for Scientific Discovery and Technical Invention, from Antiquity to the Present, Symposium on the History of Science, University of Oxford 9th-15th July 1961*, Heinemann, London 1963.

Darwin Charles, *Autobiography of Charles Darwin with Two Appendices by His Son Francis Darwin*, Rupa & Co., New Delhi 2003, https://tiny.pl/wwfgl (accessed Mar. 21, 2024).

Darwin Charles, *The Origin of Species*, P. Collier & Son, New York 1909, https://tiny.pl/wwfg9 (accessed Mar. 21, 2024).

Dean Cornelia, 'Faith, Reason, God and Other Imponderables', *The New York Times* 25 July 2006, https://tiny.pl/gsx76 (accessed Mar. 23, 2024).

Delfino Robert A., 'Replacing Methodological Naturalism', *Metanexus* 24th May 2007, pp. 1-14, https://tiny.pl/thmmz (accessed Mar. 22, 2024).

Dembski William A., 'The Act of Creation: Bridging Transcendence and Immanence', in Zarandi (ed.), *Science and the Myth*…, pp. 269-302.

Dembski William A., 'Intelligent Design: A Brief Introduction', *4Truth.NetScience* February 5, 2008, https://tiny.pl/tmkvf (accessed Mar. 21, 2024).

Dembski William A., 'Reinstating Design within Science', in Campbell and Meyer, *Darwinism, Design and Public*…, pp. 403-417.

Derham William, *Physico-theology or A Demonstration of The Being and Attributes of God from His Works of Creation*, W. Innys and J. Richardson, London 1754, https://tiny.pl/tmrg4 (accessed Mar. 22, 2024).

Devitt Michael, 'Incommensurability and the Priority of Metaphysics', in Hoyningen-Huene, Sankey (eds.), *Incommensurability and Related Matters*…, pp. 143-157.

Dilley Stephen, 'Philosophical Naturalism and Methodological Naturalism Strange Bedfellows?', *Philosophia Christi*, vol. 12, no. 1, 2011, pp. 118-141, https://tiny.pl/tm9lr (accessed Mar. 22, 2024).

Dilley Stephen, 'The Evolution of Methodological Naturalism in the **Origin of Species**', *HOPOS: The Journal of the International Society for the History of Philosophy of Science*, vol. 3, no. 1, 2013, pp. 20-58, https://tiny.pl/tr3v9 (accessed Mar. 22, 2024).

Duhem Pierre, The *Aim and Structure of Physical Theory*, Atheneum, New York 1962, https://tiny.pl/ww5xc (accessed Mar. 22, 2024).

Dyk Wiesław (ed.), *Sozologia systemowa. Tom IV. Biosfera. Człowiek i jego środowisko w aspekcie przyrodniczym, filozoficznym i teologicznym*, Wydawnictwo Naukowe Uniwersytetu Szczecińskiego, Szczecin 2012.

Engels Frederick, *Dialectics of Nature*, transl. and ed. by Clemens Dutt, New York, International Publishers, 1940, https://tiny.pl/wwdk3 (accessed Mar. 20, 2024).

Feigl Herbert, Maxwell Grover (eds.), *Scientific Explanation, Space and Time*, *Minnesota Studies in the Philosophy of Science*, vol. III, Minneapolis, University of Minnesota Press, 1962.

Feyerabend PAUL K., *Against Method. Outline of an Anarchistic Theory of Knowledge*, New Left Books, London 1975.

Feyerabend Paul K., *Against Method. Third Edition*, Verso, London 1993.

Feyerabend Paul K., 'Consolations for the Specialist', in Feyerabend, *Philosophical Papers. Vol. 2*…, pp. 131-167.

Feyerabend Paul K., 'First Dialogue', in Feyerabend, *Three Dialogues*…, pp. 1-48.

Feyerabend Paul K., 'How to Be a Good Empiricist. A Plea for Tolerance in Matters

Epistemological', in Feyerabend, *Philosophical Papers. Vol. 3*…, pp. 78-103.
Feyerabend Paul K., 'Introduction to the Volumes 1 and 2', in Feyerabend, *Philosophical Papers. Vol. 1*…, pp. ix-xiv.
Feyerabend Paul K., 'On the Improvement of the Sciences and the Arts and the Possible Identity of the Two', in Cohen and Wartofsky (eds.), *Proceedings of the Boston Colloquium*…, pp. 387-415.
Feyerabend Paul K., 'On the Limited Validity of Methodological Rules', transl. by Eric Oberheim i Daniel Sirtes, in Feyerabend, *Philosophical Papers. Vol. 3*…, pp. 138-180.
Feyerabend Paul K., 'Outline of a Pluralistic Theory of Knowledge and Action', in Feyerabend, *Philosophical Papers. Vol. 3*…, pp. 104-111.
Feyerabend Paul K., *Philosophical Papers. Vol. 1. Realism, Rationalism & Scientific Method*, 3 vols., Cambridge University Press, Cambridge – New York – Port Chester – Melbourne – Sydney 1981.
Feyerabend Paul K., *Philosophical Papers. Vol. 2. Problems of Empiricism*, Cambridge University Press, Cambridge – New York – Port Chester – Melbourne – Sydney 1981.
Feyerabend Paul K., *Philosophical Papers. Vol. 3. Knowledge, Science and Relativism*, Cambridge University Press, Cambridge – New York – Port Chester – Melbourne – Sydney 1999.
Feyerabend Paul K., 'Problems of Empiricism', in Colodny (ed.), *Beyond the Edge of Certainty*…, pp. 145-260.
Feyerabend Paul K., 'Reply to Criticism. Comments on Smart, Sellars and Putnam', in Feyerabend, *Philosophical Papers. Vol. 1*…, pp. 104-131.
Feyerabend Paul K., 'Science, Freedom, and the Good Life', *The Philosophical Forum*, vol. 1, no. 2, 1968, pp. 127-135.
Feyerabend Paul K., 'The Methodology of Scientific Research Programmes', in Feyerabend, *Philosophical Papers. Vol. 2*…, pp. 202-230.
Feyerabend Paul K., 'The Problem of the Existence of Theoretical Entities', in Feyerabend, *Philosophical Papers. Vol. 3*…, pp. 16-49.
Feyerabend Paul K., *Three Dialogues on Knowledge*, Basil Blackwell Ltd., Oxford UK & Cambridge USA 1991.
Forrest Barbara Carroll, 'Inside Creationism's Trojan Horse: A Closer Look at Intelligent Design', *Georgia Journal of Science*, vol. 63, no. 3, 2005, pp. 153-166.
Førland Tor Egil, *Values, Objectivity, and Explanation in Historiography*, Routledge, New York 2017.
Fowler Thomas, 'Naturalism and Science', *Metanexus* 2011, September 1, pp. 1-17,

https://tiny.pl/tmg8x (accessed Mar. 22, 2024).

Gordon Bruce L. and Dembski William A., 'Introduction. The Nature of Nature Confronted', in Gordon and Dembski (eds.), *The Nature of Nature*…, pp. xix-xxiv.

Gordon Bruce L. and Dembski William A. (eds.), *The Nature of Nature: Examining the Role of Naturalism in Science*, ISI Books, Wilmington, Delaware 2011.

Gordon Bruce L., 'The Rise of Naturalism and Its Problematic Role in Science and Culture', in Gordon and Dembski (eds.), *The Nature of Nature*…, pp. 3-44.

Gregory Brad S., 'No Room for God?: History, Science, Metaphysics, and the Study of Religion', *History and Theory*, vol. 47, no. 4, 2008, pp. 495-519, https://tiny.pl/w4zxv (accessed Mar. 22, 2024).

Grimes John, 'On the Failure to Detect Changes in Scenes across Saccades', in Akins (ed.), *Perception*…, pp. 89-110.

Grizzle Raymond E., 'Some Comments on the «Godless» Nature of Darwinian Evolution, and a Plea to the Philosophers among Us', *Perspectives on Science and Christian Faith*, vol. 43, 1992, pp. 175-177, https://tiny.pl/gzj7d (accessed Mar. 22, 2024).

Hall A. Rupert, *The Scientific Revolution 1500–1800: The Formation of the Modern Scientific Attitude*, Longmans, Green and Co., London – New York – Toronto 1954.

Harris William S., and Calvert John H., 'Intelligent Design. The Scientific Alternative to Evolution', *The National Catholic Bioethics Quarterly*, vol. 3, no. 3, 2003, pp. 531-561, https://tiny.pl/wngpt (accessed Mar. 22, 2024).

Heller Michał, 'Chrześcijański naturalizm', *Roczniki Filozoficzne*, vol. 51, no. 3, 2003, pp. 41-58, https://tiny.pl/tq2q2 (accessed Mar. 22, 2024).

Heller Michael (Michał), *The New Physics and a New Theology*, transl. by G.V. Coyne, S.J.S. Giovanninni, T.M. Sierotowicz, Vatican Observatory Publications, Vatican 1996.

Holloway Eric, 'Problems with Non-Naturalistic Theories of Science', in Bartlett and Holloway (eds.), *Naturalism and Its Alternatives*…, pp. 163-176.

Hooker Clifford A., 'Systematic Realism', *Synthese*, vol. 26, nos. 3-4, 1974, pp. 409-497.

Hovis R. Corby and Kragh Helge, 'P.A.M. Dirac and the Beauty of Physics', *Scientific American*, vol. 268, no. 5, May 1993, pp. 104-109.

Hoyle Fred and Wickramasinghe Nalin Chandra, *Evolution from Space: A Theory of Cosmic Creationism*, Simon & Schuster Inc., New York 1984.

Hoyningen-Huene Paul, Sankey Howard (eds.), *Incommensurability and Related Matters*, Kluwer Academics Publishers, Dordrecht 2001.

Jodkowski Kazimierz, 'Antynaturalizm teorii inteligentnego projektu', *Roczniki Filozoficzne*, vol. 54, no. 2, 2006, pp. 63-76, https://tiny.pl/tdzjz (accessed Mar.

21, 2024).
Jodkowski Kazimierz, '*Curriculum Vitae*', https://tiny.pl/wwd24 (accessed Mar. 20, 2024).
Jodkowski Kazimierz, 'Darwinowska teoria ewolucji jako teoria filozoficzna', in Stefan Konstańczak, Tomasz Turowski (eds.), *Filozofia jako mądroś bycia*, Oficyna Wydawnicza Uniwersytetu Zielonogórskiego, Zielona Góra 2009, pp. 17-23, https://tiny.pl/q3m56 (accessed Mar. 21, 2024).
Jodkowski Kazimierz, 'Dlaczego kreacjonizm jest pseudonauką?', in Zon (ed.), *Pogranicza nauki*…, pp. 317-323, https://tiny.pl/q3m5b (accessed Mar. 21, 2024).
Jodkowski Kazimierz, 'Epistemiczne układy odniesienia i «warunek Jodkowskiego»', in Latawiec and Bugajak (eds.), *Filozoficzne i naukowo-przyrodnicze elementy obrazu świata*…, pp. 108-123, https://tiny.pl/q3m5s (accessed Mar. 21, 2024).
Jodkowski Kazimierz, 'Eskapizm teologii i filozofii katolickiej w sprawie «nauka a religia»', *Na Początku*…, nos. 7-8 (196-197), 2005, pp. 261-284, https://tiny.pl/gztl8 (accessed Mar. 23, 2023).
Jodkowski Kazimierz, 'Filozofia przyrody a nauki przyrodnicze, *Colloquia Communia*, nos. 1-2 (82-83), 2007, pp. 15-22, https://tiny.pl/tlkgz (accessed Apr. 22, 2023).
Jodkowski Kazimierz, 'Kreacjoniści przed sądem. Aspekty filozoficzne «małpich procesów»', in Michalczenia, Mizińska, Ossowska (eds.), *Poszukiwania filozoficzne. Tom I*…, pp. 175-198, https://tiny.pl/xhz82 (accessed Mar. 21, 2024).
Jodkowski Kazimierz, 'Konflikt nauka-religia a teoria inteligentnego projektu', in Jodkowski (ed.), *Teoria inteligentnego projektu*…, pp. 145-180, https://tiny.pl/qzq8f (accessed Mar. 22, 2024).
Jodkowski Kazimierz, 'Metafizyczne opowieści nauki jako fundament pluralizmu naukowego', in Johnson, *Wielka metafizyczna opowieś nauki*…, pp. 74-85, https://tiny.pl/q3m5p (accessed Mar. 20, 2024).
Jodkowski Kazimierz, *Metodologiczne aspekty kontrowersji ewolucjonizm-kreacjonizm*, *Realizm. Racjonalnoś . Relatywizm*, vol. 35, Wydawnictwo Uniwersytetu Marii Curie Skłodowskiej, Lublin 1998.
Jodkowski Kazimierz, 'Nienaukowy fundament nauki', in Pietrzak (ed.), *Granice nauki*…, pp. 59-108, https://tiny.pl/q3m1q (accessed Mar. 20, 2024).
Jodkowski Kazimierz, 'Racjonalność Kopernika i Darwina. Polemika z drem Eugeniuszem Moczydłowskim', *Na Początku*…, no. 11-12A (174-175), 2003, pp. 433-448, https://tiny.pl/trs79 (accessed Mar. 20, 2024).
Jodkowski Kazimierz (ed.), *Teoria inteligentnego projektu – nowe rozumienie naukowości?*, *Biblioteka Filozoficznych Aspektów Genezy*, vol. 2, Wydawnictwo MEGAS, Warsaw 2007.
Johnson Phillip E., 'Evolution as Dogma: The Establishment of Naturalism', *First Things*

October 1990, https://tiny.pl/thtmg (accessed Apr. 22, 2023).

Johnson Phillip E., 'What Is Darwinism?', in Bauman (ed.), *Man and Creation*…, pp. 177-190.

Johnson Phillip E., *Wielka metafizyczna opowieść nauki (z posłowiem Kazimierza Jodkowskiego)*, *Archiwum Na Początku*..., vol. 13, Polskie Towarzystwo Kreacjonistyczne, Warsaw 2003.

Kilian Krzysztof J., 'Arguments for Methodological Naturalism and Their Roots in a Particular Metaphysics', *Cosmos and History: The Journal of Natural and Social Philosophy*, vol. 19, no. 1, 2023, pp. 113-157, https://tiny.pl/c32z4 (accessed Mar. 20, 2024).

Kilian Krzysztof J., 'Argumenty przeciwko naturalizmowi jako epistemicznemu układowi odniesienia', *Filozoficzne Aspekty Genezy*, Vol. 15, 2018, pp. 71-137, https://tiny.pl/w4r73 (accessed Mar. 22, 2024).

Kilian Krzysztof J., 'Czym są epistemiczne układy odniesienia?', *Filozoficzne Aspekty Genezy*, vol. 14, 2017, pp. 191-235, https://tiny.pl/g86dn (accessed Mar. 21, 2024).

Kilian Krzysztof J., 'Geneza idei epistemicznych układów odniesienia i ich odmiany', *Filozoficzne Aspekty Genezy*, vol. 14, 2017, pp. 137-190, https://tiny.pl/wwd2w (accessed Mar. 20, 2024).

Kilian Krzysztof J., "Światopoglądowy i ideologiczny wymiar epistemicznych układów odniesienia a teistyczno-naturalistyczny epistemiczny układ odniesienia", *Filozoficzne Aspekty Genezy*, Vol. 15, 2018, pp. 139-222, https://tiny.pl/w4chg (accessed Mar. 21, 2024).

Kilian Krzysztof J., *Współczesne epistemiczne układy odniesienia w nauce*, *Biblioteka Filozoficznych Aspektów Genezy*, vol. 9, Oficyna Wydawnicza Uniwersytetu Zielonogórskiego, Zielona Góra 2021, https://tiny.pl/99l82 (accessed Mar. 21, 2024).

Kitcher Phillip, 'Born-again Creationism', in Pennock (ed.), *Intelligent Design Creationism*…, pp. 257-288.

Kojonen Erkki Vesa Rope, *Intelligent Design: A Theological and Philosophical Analysis*, University of Helsinki Press, Helsinki 2014, https://tiny.pl/tmc7b (accessed Mar. 22, 2024).

Kojonen Erkki Vesa Rope, 'Methodological Naturalism and the Truth-Seeking Objection', *International Journal for Philosophy of Religion*, vol. 81, 2017, pp. 335-355.

Konstańczak Stefan, Turowski Tomasz (eds.), *Filozofia jako mądrość bycia*, Oficyna Wydawnicza Uniwersytetu Zielonogórskiego, Zielona Góra 2009.

Koperski Jeffrey, *The Physics of Theism: God, Physics, and the Philosophy of Science*, Wiley-Blackwell, Chichester, UK 2015.

Krausz Michael (ed.), *Is There a Single Right Interpretation?*, The Pennsylvania State

University Press, University Park, PA 2002.
Kuhn Thomas S., 'The Function of Dogma in Scientific Research', in Crombie (ed.), *Scientific Change*…, pp. 347-369.
Kuhn Thomas S., *The Structure of Scientific Revolutions*, The University of Chicago Press, Chicago 1970.
Lakatos Imre and Musgrave Alan (eds.), *Criticism and the Growth of Knowledge*, Cambridge University Press, Cambridge 1970.
Lakatos Imre, 'Falsification and the Methodology of Scientific Research Programmes', in Lakatos, *Philosophical Papers. Vol. 1*…, pp. 8-101.
Lakatos Imre, *Philosophical Papers. Vol. 1. The Methodology of Scientific Research Programmes*, Cambridge University Press, Cambridge – New York – Port Chester – Melbourne – Sydney 1978.
Laplane Lucie, Mantovani Paolo, Adolphs Ralph, Chang Hasok, Mantovani Alberto, McFall-Ngai Margaret, Rovelli Carlo, Sober Elliott and Pradeu Thomas, 'Why Science needs Philosophy', *PNAS*, vol. 11, no. 10, March 5, 2019, pp. 3948-3952, https://tiny.pl/wwd2t (accessed Mar. 20, 2024).
Larmer Robert A., 'Is Methodological Naturalism Question-Begging?', *Philosophia Christi*, vol. 5, no. 1, 2003, pp. 113-130, https://tiny.pl/g2sgc (accessed Mar. 21, 2024).
Larson Ronald G., 'Revisiting the God of the Gaps', *Perspectives on Science and Christian Faith*, vol. 61, no. 1, 2009, pp. 13-22, https://tiny.pl/ww5gr (accessed Mar. 23, 2024).
Latawiec Anna, Bugajak Grzegorz (eds.), *Filozoficzne i naukowo-przyrodnicze elementy obrazu świata 7*, Wydawnictwo Uniwersytetu Kardynała Stefana Wyszyńskiego, Warsaw 2008.
Lenin Vladimir Ilyich, *Materialism and Empirio-criticism: Critical Comments on a Reactionary Philosophy*, Progress Publishers, Moscow 1987.
Lewens Tim, 'Realism and the Strong Program', *British Journal for the Philosophy of Science*, vol. 56, 2005, pp. 559-577.
Mach Ernst, *Die Principien der Wärmelehre. Historisch-kritisch entwickelt*, Johan Ambrosius Barth, Leipzig 1900.
Malec Grzegorz, 'Teologiczne dylematy Karola Darwina', *Roczniki Filozoficzne*, vol. 60, no. 1, 2012, pp. 67-85, http://tiny.pl/g4751 (accessed Mar. 21, 2024).
McMullin Ernan, 'Varieties of Methodological Naturalism', in Gordon and Dembski (eds.), *The Nature of Nature*…, pp. 82-92.
Mehlberg Henryk, 'O niesprawdzalnych założeniach nauki', *Przegląd Filozoficzny*, vol. 44, iss. 4, 1948, pp. 319–335.

Meyer Stephen C., 'DNA and the Origin of Life: Information, Specification, and Explanation', in: Campbell and Meyer (eds.), *Darwinism, Design and Public*…, pp. 223-285.

Meyer Stephen C., 'Scientific Tenets of Faith', *Journal of the American Scientific Affiliation*, vol. 38, no. 1, 1986, pp. 40-42, https://tiny.pl/wwfqv (accessed Mar. 21, 2024).

Meyer Stephen C., *Signature in the Cell: DNA and the Evidence for Intelligent Design*, Harper One, New York 2009.

Meyer Stephen C., 'The Use and Abuse of Philosophy of Science: A Response to Moreland', *Perspectives on Science and Christian Faith*, Vol. 46, No. 1, 1994, pp. 14-18, https://tiny.pl/w28q5 (accessed Mar. 22, 2024).

Michalczenia Jakub, Miziński Jadwiga, Ossowska Katarzyna (eds.), *Poszukiwania filozoficzne. Tom I: Nauka, Prawda. Panu Profesorowi Józefowi Dębowskiemu w darze*, Instytut Filozofii Uniwersytetu Warmińsko-Mazurskiego w Olsztynie, Olsztyn 2014.

Miller Keith B., 'Countering Public Misconceptions about the Nature of Evolutionary Science', *Georgia Journal of Science*, vol. 63, no. 3, 2005, pp. 175-189, https://tiny.pl/tqw12 (accessed Mar. 20, 2024).

Miller Keith B., 'The Misguided Attack on Methodological Naturalism', in Schneiderman and Allmon (eds.), *For the Rock Record*…, pp. 117-140.

Mohanty Jitendranath, 'Intentionality, Meaning, and Open-Endedness of Interpretation', in Krausz (ed.), *Is There a Single Right Interpretation*…, pp. 63-75.

Moreland James Porter, *Scientism and Secularism: Learning to Respond to a Dangerous Ideology*, Crossway, Wheaton Ill. 2018.

Moreland James Porter (ed.), *The Creation Hypothesis: Scientific Evidence for an Intelligent Designer* InterVarsity Press, Downers Grove 1994.

Morris Henry M., *Scientific Creationism*, Creation-Life Publishers, San Diego 1974.

Munévar Gonzalo, *A Theory of Wonder: Evolution, Brain and the Radical Nature of Science*, Vernon Press, Wilmington, Malaga 2021.

Nagel Thomas, 'Public Education and Intelligent Design', *Philosophy & Public Affairs*, vol. 36, no. 2, 2008, pp. 187-205.

Neurath Otto, 'Soziologie im Physikalismus', *Erkenntnis*, vol. 2, 1931, pp. 393-431.

Newton Isaac, *The Mathematical Principles of Natural Philosophy*, transl. by Andrew Motte, Daniel Adee, New York 1846, https://tiny.pl/ww5nf (accessed Mar. 22, 2024).

Newton-Smith William H., 'The Underdetermination of Theory by Data', *Proceedings of the Aristotelian Society, Supplement*, vol. 52, 1978, pp. 71-91.

O'Connor Robert C., 'Science on Trial: Exploring the Rationality of Methodological Naturalism', *Perspectives on Science and Christian Faith*, vol. 49, no. 1, 1997, pp. 15-31,

https://tiny.pl/wwf95 (accessed Mar. 21, 2024).
Oldroyd David R., *Darwinian Impacts: An Introduction to the Darwinian Revolution*, Humanities Press, Atlantic Highlands, New Jersey 1980.
Pennock Robert T. (ed.), *Intelligent Design Creationism and Its Critics: Philosophical, Theological, and Scientific Perspectives*, MIT Press, Cambridge, MA 2001.
Pennock Robert, 'Naturalism, Evidence, and Creationism: The Case of Phillip Johnson', in Pennock (ed.), *Intelligent Design Creationism*…, pp. 77-97.
Pennock Robert T., *Tower of Babel: The Evidence Against the New Creationism*, MIT Press, Cambridge 1999.
Pietrzak Zbigniew (ed.), *Granice nauki*, *Lectiones & Acroases Philosophicae*, vol. VI, no. 1, 2013.
Pine Ronald H., 'But Some of Them Are Scientists, Aren't They?', *Creation/Evolution Journal*, vol. 4, no. 4, 1984, pp. 6-18, https://tiny.pl/g2vxk (accessed Mar. 21, 2024).
Plantinga Alvin, 'Methodological Naturalism?', in Van Der Meer (ed.), *Facets of Faith and Science*…, pp. 177-221.
Poe Harry Lee and Mytyk Chelsea Rose, 'From Scientific Method to Methodological Naturalism: The Evolution of an Idea', *Perspectives on Science and Christian Faith*, vol. 59, no. 3, September 2007, pp. 213-218, https://tiny.pl/ww5qq (accessed Mar. 23, 2024).
Poincaré Henri, *The Value of Science*, Dover Publications Inc., New York 1958.
Polanyi Michael, 'Life Transcending Physics and Chemistry', *Chemical and Engineering News*, vol. 45, iss. 21, 1967, pp. 54-66.
Polanyi Michael, 'The Republic of Science: Its Political and Economic Theory', *Minerva*, vol. 38, 2000, pp. 1-32.
Popper Karl R., 'A Metaphysical Epilogue' in Popper, *Quantum Theory and the Schism in Physics*…, pp. 159-211.
Popper Karl R., *Logik der Forschung. Zur Erkenntnistheorie der Modernen Naturwissenschaft*, Springer-Verlag, Wien GmbH 1935.
Popper Karl R., 'Replies to My Critics', in Schilpp (ed.), *The Philosophy of Karl Popper*…, pp. 961-1197.
Popper Karl R., *Quantum Theory and the Schism in Physics. From the Postscript to The Logic of Scientific Discovery*, Roman and Littlefield, Totowa 1982.
Popper Karl R., *The Logic of Scientific Discovery*, Routledge Classics, London and New York 2002.
Ratzsch Del, 'Natural Theology, Methodological Naturalism, and «Turtles All the Way Down»', *Faith and Philosophy*, vol. 21, no. 4, 2004, pp. 436-455.
Ratzsch Del, *Nature, Design and Science. The Status of Design in Natural Science*, State University of New York Press, Albany 2001.

RENNIE John, "15 Answers to Creationist Nonsense", *Scientific American* July 1st, 2002, https://tiny.pl/ww5x4 (accessed Apr. 22, 2023).

Reynolds John Mark, 'Intelligent Design and the Contemporary Christian', *The Southern Baptist Journal of Theology*, vol. 11, no. 1, 2007, pp. 64-77, https://tiny.pl/tmdc3 (accessed Mar. 22, 2024).

Robinson James T., 'Incommensurability of Evolution and Special Creation', *The American Biology Teacher*, vol. 33, no. 9, 1971, pp. 535-545.

Ruse Michael, 'Darwinism: Philosophical Preference, Scientific Inference, and Good Research Strategy', in Buell and Hearn (eds.), *Darwinism: Science or Philosophy*…, pp. 21-28.

Ruse Michael and Dembski William A. (eds.), *Debating Design: From Darwin to DNA*, Cambridge University Press, Cambridge 2004.

Sagan Dariusz, 'Naturalizm metodologiczny – konieczny warunek naukowości?', *Roczniki Filozoficzne*, vol. 51, no. 1, 2013, pp. 73-91, https://tiny.pl/q33sb (accessed Mar. 22, 2024).

Seckbach Joseph, Gordon Richard (eds.), *Divine Action and Natural Selection. Science, Faith and Evolution*, World Scientific, New Jersey, London, Singapore, Beijing, Shanghai, Hong Kong, Tai Pei, Chennai, 2009.

Schilpp Paul A. (ed.), *The Philosophy of Karl Popper*, *The Library of Living Philosophers*, vol. 14, Open Court, La Salle, Illinois 1974.

Schneiderman Jill S. and Allmon Warren D. (eds.), *For the Rock Record: Geologists on Intelligent Design*, University of California Press, Berkeley, Los Angeles, London 2009.

Scott Eugenie C., *Evolution vs. Creationism. An Introduction. Second Edition*, Greenwood Press, Westport, Connecticut, London 2009.

Seckbach Joseph and Chela-Flores Julian, 'Preface 1. Where Did We Come From?', in Seckbach, Gordon (eds.), *Divine Action and Natural Selection*…, pp. xxxv-xxxvii.

Secord James A. (dir.), *Darwin Correspondence Project*, Cambridge University Library and the Department for the History and Philosophy of Science, https://tiny.pl/tmfqw (accessed Mar. 22, 2024).

Shanks Niall, *God, the Devil, and Darwin: A Critique of Intelligent Design Theory*, Oxford University Press, New York 2004.

Stilwell Phil, "The Status of Methodological Naturalism as Justified by Precedent", *Studies in Liberal Arts and Sciences* 2009, No. 41, pp. 229-247.

Szanton Andrew, *The Recollections of Eugene P. Wigner*, Plenum Press, New York 1992.

Thaxton Charles, 'A New Design Argument', *Discovery.org*, https://tiny.pl/wwfgd (accessed Mar. 21, 2024).

Van Der Meer Jitse M. (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 Inc., Lanham – New York – London 1996.

Van Till Howard J., 'Cosmic Evolution, Naturalism, and Divine Creativity, or Who Owns the Robust Formational Economy Principle?', in Gordon and Dembski (eds.), *The Nature of Nature*…, pp. 535-546.

Vries De Paul, 'Naturalism in the Natural Sciences: A Christian Perspective', *Christian Scholar's Review*, vol. 15, no. 4, Summer 1986, pp. 388-396.

Watkins John W.N., 'Against «Normal Science»', in Lakatos and Musgrave (eds.), *Criticism and the Growth*…, pp. 25-38.

Whewell William, *Astronomy and General Physics Considered with Reference to Natural Theology*, *Bridgewater Treatises. Treatise III*, William Pickering, London 1833, https://tiny.pl/ww5s9 (accessed Mar. 22, 2024).

Wigner Eugene, 'The Unreasonable Effectiveness of Mathematics in the Natural Sciences', *Communications in Pure and Applied Mathematics*, vol. 13, 1960, pp. 1-14.

Willard Dallas, 'Naturalism's Incapacity to Capture the Good Will', in Gordon and Dembski (eds.), *The Nature of Nature*…, pp. 865-879.

Wilson Edward O., *On Human Nature*, Harvard University Press, Cambridge Mass., London 1978.

Witt Jonathan, 'A Brief History of the Scientific Theory of Intelligent Design', *Discovery Institute* October 30, 2007, https://tiny.pl/w2sj4 (accessed Mar. 23, 2024).

Wright Robert, *Three Scientists and Their Gods: Looking for Meaning in an Age of Information*, Times Books, New York 1988.

Zarandi Mehrdad M. (ed.), *Science and the Myth of Progress*, *The Library of Perennial Philosophy*, World Wisdom Inc., Bloomington Ind. 2003.

Zon Józef (ed.), *Pogranicza nauki. Protonauka – paranauka – pseudonauka*, Wydawnictwo KUL, Lublin 2009.

Zybertowicz Andrzej et al., *Samobójstwo Oświecenia?*, Wydawnictwo Kasper, Krakow 2015.

Życiński Józef, *Bóg i ewolucja. Podstawowe pytania ewolucjonizmu chrześcijańskiego*, *Prace Wydziału Filozoficznego*, vol. 89, Towarzystwo Naukowe KUL, Lublin 2002.