

Zeitschrift: Theologische Zeitschrift
Herausgeber: Theologische Fakultät der Universität Basel
Band: 80 (2024)
Heft: 1

Artikel: Montane theology of Élie Bertrand
Autor: Drozdek, Adam
DOI: <https://doi.org/10.5169/seals-1055463>

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

Download PDF: 07.03.2026

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

Montane theology of Élie Bertrand

Adam Drozdek

Introduction

At the beginning of the 17th century, two important discoveries have been made: the telescope and the microscope. Suddenly, the limits of the known universe have been extended in two directions, upwards and downwards. The world turned out to be much larger than previously imagined and also much finer-grained on the micro level when even a drop of water turned out to be teeming with life. This led to the outburst of scientific research, but, at the same time, the traditional view of the world has been shattered, which directly endangered religion that has endorsed this view. But this was not to be; religion not only survived, but also thrived. The new image of the physical world only strengthened religion by providing a powerful argument in its favor. The world was so large with so many stars with very likely their own planetary systems, possibly inhabited – how great and powerful must be the Creator to be able to create out of nothing such an immense world. On the micro level, the microscope shown an amazing complexity of minuscule creatures invisible to the human eye, the intricate makeup of their tiny bodies composed of innumerable harmoniously working parts – how wise must be the Creator to bring all these creatures into existence. Thereby, physico-theology was born with twofold task: proving the existence of God based on the investigation of the universe and, secondly, bringing believers closer to God by showing them His greatness in His creation. In the first half of the 17th century, the term «physico-theology» was coined, and the area of physico-theology got spurred on the organizational level by the Boyle lectures in England conceived by naturalist Robert Boyle as a means of combatting atheism and started in 1692, continued until today. The trend spilled over quickly to the rest of Europe, it was continued in Holland and France reverberating fairly strongly even in Russia, but it was particularly well-flourishing in Germany. This is where it was also terminologically blooming. Physico-theology was subdivided into many areas which have been investigated for their theological relevance. Some areas encompassed large swaths of the world: e.g., cosmo-theology (Johann Gottlieb Walpurger), astro-theology (William Derham); some of medium size: e.g., hydro-theology (Johann Albert Fabricius), phyto-theology concerning plant (Julius Bernhard von Rohr),

petino-theology about birds (Johann Heinrich Zorn); and some very narrow: e.g., akrido-theology related to locust (Ernst Ludewig Rathlef), chiono-theology concerning snow (Balthasar Heinrich Heinsius), chorto-theology about grass (Johann Daniel Denso). Physico-theology was very popular particularly in the 18th century and was developed by naturalists, professional and amateur, and it was frequently interwoven into sermons by clergymen as one way of bringing people closer to God.

One element of the physical world that physico-theologians found appealing were mountains, a majestic element of landscape, particularly prominent in Switzerland and, as such, mountains drew naturalist and theological attention to Élie Bertrand (1713–1797), who was a Swiss naturalist and a Protestant pastor, a descendent of a French Huguenot family that left France in 1684 right before the revocation of the Edict of Nantes. In 1728–1738, he studied theology, mathematics, and science in Lausanne, Geneva, and Leyden. In 1740, he was ordained in Lausanne to become a pastor in Ballaigues, Orbe, and Bern. In 1765, he became a privy councilor of the Polish king Stanisław August Poniatowski. In 1768, he was granted an indygenat (Polish citizenship). After taking residence in 1767 in Yverdon, he was active in scholarly pursuits. He authored books on geology and linguistics, but also in philosophy and theology. His scholarly contribution was widely recognized in Europe as reflected by his membership in numerous European scientific societies and academies.¹

Bertrand was an amateur but competent naturalist and a pastor and he was very passionate in his naturalist research and in theological endeavors. Very much in the spirit of physico-theology, he wanted to combine the two and use the naturalist research to strengthen theology and use religion to indicate proper direction of scholarly research since the revelation should be respected to the smallest detail (MS 114).²

Mountains: oro-theology

In Bertrand's view, «there is no investigation more pleasant than the [investigation] of the works of nature. Also, there is nothing more worthy of curiosity of a rational Being» (EU 3). People rather study history of various rascals, languages, music, sculpture (EU 4-5), they pursue various «ill-directed studies, fruitless

1 Weidmann 1986; Bratuń 2013.

2 For the abbreviations for the works of Bertrand see bibliography.

sciences, the fruit of caprice or of the human vanity, the studies that distance us from God, instead of directing us to him» (6). People should admire «real goods, true beauties, veritable harmony, proper proportions» in nature, in particular, in mountains and valleys (EU 7-8). The choice of mountains as a physico-theological subject is not surprising for an inhabitant of Switzerland, a mountainous country, a researcher, who himself investigated various aspects of the Alps. Bertrand was captivated by the majesty and beauty of the Alps and, as a pastor, he wanted to show that mountains have a very important role to play in the life of the earth and that their existence is one trace on earth of God's care for the earth.

Bertrand could not agree with Thomas Burnet's, an English clergyman's, orogenic theory which saw mountains to be the result of the flood (MS 73). He could not accept Burnet's general view when Burnet considered the earth to be disordered (EU 177) and saw ruin where everything was artfully arranged (EU 180). «Perish forever the speculations or hypotheses which distance us from the Sovereign Being. We should seek him everywhere and he shows himself everywhere to those who seek him» (EU 192). For Bertrand, the Scriptural authority stood in the matters of faith, but also in the matter of the natural order of the earth and thus in the assessment of Burnet's theory which contradicted the Mosaic system (MS 75). Following Sulzer (MS 139-152),³ in Bertrand's view, mountains have existed since the creation of the world; they are not the result of an accident, of an earthquake, or of the flood (MS 171, 95-96). The Scripture and the oldest monuments confirm it (EU 172). After creation, mountains were changed by earthquakes, but very little (MS 145). To show it, Bertrand discussed the role and the indispensability of mountains in the terrestrial economy from the very inception of the earth.

It is likely that mountains keep the rotation of the earth on its axis stable and uniform (EU 17); if so, their existence would be necessary from the very moment of creation.

Mountains augment/increase the surface of the land – so important in a relatively small country like Switzerland, whereby more inhabitants can live within the same borders than it would be the case if the entire area had been flat (EU 20, MS 67).

Mountains separate peoples and serve as ramparts to some (EU 27).

Mountains provide a healthy environment: pure air, water, healthy food (EU 31).

3 Sulzer 1746.

Mountains contribute to the diversity of the flora and fauna of the earth: there are 500 kinds of plants that grow only in the Alps (EU 45; S 1.34). It is a great environment for some plants, which includes vine since flat areas never produce good wine (EU 43-44). There are also fertile soils in the mountains (EU 51); in fact, the most fertile soils are in the mountains, so, it seems that mountains were created to produce such soils (EU 208). They also provide good pastures for animals (EU 52). In many cases, detailed factual information is provided coming from Bertrand's own observations or from the many sources referred to in the many footnotes. For example, about trees he said that «in general, the trees which grow on the mountains and which are also found in the plains are lower on these mountains; but also, all other things being equal, they are harder, more compact, and stronger: the air, the soil and the juices contribute to it. The plants there have invariably also more value: it is there that we should look for the most potent medicinal plants; there they have a stronger odor, and a more aromatic or more acrid taste» (EU 43). When discussing the hibernation of some animals in the Alps, the reader learns that «one can consider this lethargy as a very deep sleep, in which the animal actions are stopped and the vital actions weakened. The progressive movement of the blood seems suppressed; if any remains, it is an internal movement of the parts. The excretions are almost nil. No more respiration or discernible perspiration; no chylification: no more peristaltic movement. The intestines drop; the lungs relax; in this state, the animal, seems to be closer to death than to life; but, upon the return of spring, it will revive, to appear in a few days as vigorous as ever» (EU 69-70).

Mountains are the source of the many natural resources, which Bertrand divided into five categories: earths, stones, salts, bitumens, minerals, and metals (EU 74). For a good measure, Bertrand provided a fairly detailed classification of metals and minerals (EU 215-290) and an index of locations where noteworthy fossils and waters were found (EU 299-351).

A particular mention is needed of stones *figurées*, stones in the form of parts of animals and plants, in the form of shells and fish (EU 77), that is, fossils. Their origin was widely discussed at that time and it was most often attributed to the flood, but this is where Bertrand departed from the common opinion by seeing such fossils as being of an inorganic origin. The state in which these fossils were found indicated to him that they had never been plants or animals (MS 103): «it is easy to say that these are petrified, crystalized or metalized Animals, but it is difficult to comprehend it» since the entire substance is stone or marble; «that would be a true transubstantiation» (MS 104). Being of the same material as

their environment, fossils are of the same origin as this environment (MS 91). Moreover, Bertrand himself observed in the Jura that these figured stones found in the mountains were of far greater variety and quantity than those found in any sea (MS 92-93). In his view, they had been created to better show the gradation of beings, «a more precise concatenation» (EU 106), «a more perfect ladder between the Animal or Vegetative Realm and the Realm of Fossils/minerals. This analogy, this similarity [of fossils with living animals and plants] is a point of reunion and of correspondence preventing [the existence of] a leap in nature» (EU 107, 79), thereby establishing «more harmony in his [God's] works, more correspondence between things in waters and on earth and those underground» (MS 78). This, however, was his opinion expressed in the first edition of his *Structure de la terre*. In the second edition, which was included in a collection of his works, the discussion of figured stones was presented with a remark given in a footnote that «it is not possible to deny that the petrifications of Marine bodies were not living bodies of Plants which indeed belonged to the sea.»⁴

Mountains contribute to the formation of winds and storms caused by mountains refresh air and dissipate insects (EU 82, 89).

Importantly, rivers have their sources in the mountains due to watery vapors that gather near mountains (EU 98) and to these vapors are added snow, hail, dew, haze (EU 101), and underground vapor coming from subterranean lakes (EU 102, MS 70). It is certain that the place of mountains in the mechanism of the formation of water sources is most important. There is no life without water, and so, mountains exist since the moment of creation. Without them, the earth would be uninhabitable and devoid of vegetation and animals (MS 1.37). Thus, people should «recognize and celebrate the infinite wisdom of the benevolent Creator who provided this marvelous construction for the maintenance and conservation of all that grows, all that vegetates, all that lives and breathes on earth» (EU 114).

Not only do rivers originate in mountains, but they exist due to them and so, mountains are necessary for the distribution of waters on earth (EU 115). The

4 Bertrand 1766: 74; however, cf. pp. 80ff. In his solitary musings, he said that «only those who have not frequently seen these petrifications, or who have not taken the trouble to compare them carefully with analogous marine bodies, can cast doubt on whether they are real and true remains from the ocean.» This means that waters covered mountains, which is «an impenetrable enigma» (S 1.82-83). In his *Dictionnaire universel des fossiles propres et des fossiles accidentels* (1763, vol. 2: 113) he explicitly renounced his view on fossils as being created. See also Carozzi/Carozzi, 1984: 265-300.

elevation of mountains is just right; higher mountains would create torrential and thus destructive water sources; lower mountains would create sluggish flows of water that would eventually stagnate. Mountains are in the middle of continents for a more regular distribution of waters (116). Moreover, waters carry various saline and mineral particles contributing to the saltiness of seas and to depositing minerals on the ground to fertilize it (EU 126-127). This also leads to the creation of mineral sources whereby «the goodness of the Creator prepared for People the remedies and aids easy to find and to use» (EU 131). Water that comes from glaciers and from mountain snow is the healthiest and good even has medicinal properties (EU 134-135). For these reasons, those who complain about the existence of glaciers show their ignorance and their «darkest ingratitude» (EU 136).

Mountains act as natural limits, whereby they contain water in seas and lakes the latter being a source of vapors which fall on lands (EU 138).

A special consideration is needed for volcanoes, widely considered a rather nasty element of nature. However, even from the naturalist point of view, this opinion is unjustified. Volcanos are valves making earthquakes less severe (EU 153). Inside the earth there are materials which are easily enflamed with various manifestations (EU 155). «These inflammations, these exhalations, these shocks, these very eruptions – all that is necessary in nature to favor the circulation of things, to give rise to useful mixtures, to purify the air, to give birth to aqueous and igneous meteors; and if there result some subversions/destructions, some small inconveniences, they are without a doubt nothing in comparison with the universal and considerable advantages which result from this entire mechanism» (EU 156). A little harm should be endured for a greater good.

As a naturalist and as a theologian, Bertrand was convinced that mountains were a very important element on earth significantly contributing to its stability and bounty. In this, he followed very closely Derham, stronger yet, in Bertrand's view, Derham opened an avenue on which he should be followed (EU xi). William Derham, an English clergyman and a competent naturalist, one of the most important representatives of physico-theology, presented this avenue to be followed in his widely popular *Physico-theology* (1713) and *Astro-theology* (1714). Derham argued in his Boyle lectures that there is nothing accidental in the existence, the form, and the position of mountains on earth since, as everything else, they are God's creations. Thus, «the Hills and Vales, though to a peevish weary Traveller, they may seem incommodious and troublesome; yet are a noble Work of the great Creator, and wisely appointed by him for the Good of our sublunary World».

This is confirmed by providentially appointed usefulness of mountains on earth: they are beautiful to look at and allow for beautiful views from them, they provide a healthy environment for human habitation, offer a variety of plants and animals, mountains are a source of minerals, the origin of rivers, are, and are boundaries for nations.⁵ In this presentation of the usefulness of mountains Derham included long quotations from John Ray, an English clergyman and a preeminent botanist, also Derham's friend. Ray very forcefully argued in favor of «the great Use, Benefit, and Necessity» of mountains against those who saw them as merely «Warts and superfluous Excrescencies» systematically listing the areas in which mountains prove their usefulness, the list repeated by Derham.⁶

Probably unbeknown to Bertrand, there were two German publications devoted to the theological significance of mountains. Jakob Wilhelm Feuerlein, a clergyman, wrote a pamphlet directed against Burnet mostly repeating the arguments of Ray whom he quoted, with a theological conclusion stating that «there is necessarily a being far different from all other bodies and spirits, who is the Wisest, Most Benevolent, Most Powerful, the Supreme Founder of the Mountains and of the whole mountainous earth, i.e. God exists.»⁷ Also, at about the same time when Bertrand's book about mountains came out, also a slim book appeared that introduced the term oro-theology.⁸ In this book, Johann Christian Wolf rejected Burnet's theory that mountains were created by the flood, since the Bible says that the waters of the flood were 15 elbows above mountains, so mountains must have been created before the flood, although it was unclear whether they were created at the moment of the creation of the world, by an earthquake, by an outburst of an underground fire, or by the divinely caused pressure of the ground that elevated them (Wolf 2), but the flood undoubtedly changed the shape and the number of mountains considering shells and fossils found in them. Wolf's reason to write the book was to speak about the use of mountains and about the traces of the omnipotence, wisdom, and goodness of God found in them (Wolf 5). He provided

5 Derham 1720⁵ [1713]: 79, 70–75.

6 Ray 1735¹⁰ [1691]: 215; cf. 215–220. This is repeated from his *Three physico-theological discourses*, 1713³ [1691]: 34–42.

7 Feuerlinus 1729: 23.

8 Wolf 1756. He made a reference to «meine deutsche Rechtschreibung» (71), and in this book, *Gründlicher und vollkommener Unterricht zur Rechtschreibung der deutschen Sprache*, Hof: Vierling 1749, in the dedication in which he spelled his name as Wolff, he identified himself as a schoolmaster (Schuldiener) and an organist.

factual information about many mountains drawing from published sources,⁹ interleaving them with exclamations, such as, «O Lord, how amazed and petrified is our spirit before the height of your mountains! And how we will be when we'll direct it from them to the greatness of your majesty» (Wolf 13).

In Wolf's view, volcanoes testify about the wisdom and providence of God. Often, they serve as a rod to chastise people. They mainly warn many cities and lands about a destruction and frightful earthquakes (Wolf 32). Also, the outflowing matter eases the underground pressure. Thus, volcanoes are more of a blessing than a punishment. The dusts from volcanoes improve the fertility of the soil around them (Wolf 34). Among the usefulness of mountains, Wolf mentioned the fact that they limit valleys and the course of rivers; they are the source of metals and useful minerals (Wolf 44); mountains are very fruitful, they have excellent pastures for animals (Wolf 48-49); they have pure air, unlike valley (Wolf 51, 55); mountains adorn the earth and they bring pleasure to people; they are a place of refuge from floods and enemies; borderlines between nations; and they stop winds and clouds (Wolf 53-56). If the list is similar to Bertrand's, it is because Wolf also used Derham, and thus Ray as the source of his information (Wolf 52, 57). However, he apparently did not know Bertrand's publications (nor vice versa).

It appears that the usefulness of mountains was first systematically presented by Ray, but on a small scale, on a few pages, which was elevated to a book-long discussion, independently, by Wolf and Bertrand, all three of them fighting against Burnet who by, as it were, denigrating mountains as part of divine creation, demeaned the wisdom of God. Ray, Wolf, Derham, and Bertrand, as committed Christians firmly believing in the perfection of God could not have it. Thus, in their discussion of how useful mountains are for the earth as a whole and for individual living beings – plants, animals, and, of course, humans – they pointed to God's full control over His creation and its wise, purposeful, and also beautiful arrangement.

Earthquakes: sismo-theology

Since God created nature, all elements in it have something to tell people about Him. There is no event that would not instruct a Christian, no event that would not lead to the sovereign Ruler. However, some events speak more loudly than

9 He quoted dozens of times Berckenmeyer 1711.

others and the more some events are striking, the better they serve people to find God (MT 1). Hardly any event is more striking than an earthquake which was always a difficult problem from the standpoint of theodicy, the problem widely discussed in Europe particularly after the 1755 Lisbon earthquake.

Bertrand quoted some reasons that are almost lighthearted considering the thousands of victims of earthquakes: he said that earthquakes announce the fertility in next years, which is likely, since by an earthquake, the soil may become saturated by «a new mixture of salts and juices good for vegetation.» Also, perhaps earthquakes are necessary to agitate waters preventing them from corruption (MT 13). However, more important for Bertrand as a clergyman were religious reasons. God wants to teach people that they are not made for this earth which can collapse under their feet; that the immortal soul is not made for the riches of this earth and that they should not attach themselves to frivolous earthly goods which can vanish in an instant; what they should think of is the life to come and the prospective abode of happiness (MT 8). He sends afflictions to good people to test them, to make them more perfect, and to assure them of great rewards (MT 16). God chastises people to teach them and to save them so that by benefiting from His instruction, they will escape the future wrath, the frightful adversity which awaits the impenitents in the future life. By sending afflictions, God teaches people that they are dependent beings, that they are too attached to earthly things, that they are unworthy of His favors, and that they should resign themselves to the acceptance of these afflictions.¹⁰ People are placed on earth to prepare themselves for heaven and its blessings (MT 21). The disaster that afflicted others, including the Lisbon earthquake, was not a punishment that they deserved more than people in any other place did. This was a threat and all people should wise up (MT 43). And so, God sometimes strikes to inspire people to the fear of Him (MT 41), since the fear of God is a principle of all virtues, the motive of all duties, a support in all temptations, a true way to happiness, and the only way to God's favor (MT 46). Earthquakes are a manifestation of God's power and in past earthquakes, the Providence «wanted us to know with what ease we can be destroyed» (MT 84). Natural disasters thus do not appear to be natural evils for

¹⁰ Bertran [!] 1751: 16f.

which God could be blamed; evil seems to be only of moral provenance: «the evil is only in the dependent and limited being who suffers» (EU 178).¹¹

Bertrand's treatment of earthquakes is rather brief and not quite satisfactory from the naturalist as well as from theological point of view. However, it was important enough for physico-theologians and it was even elevated to a separate category of physico-theology as sismo-theology.¹²

Physico-theology

Physico-theology was interested in deriving some knowledge about God from the investigation of nature. Bertrand concentrated on oro-theological aspects of it and, to some extent on sismo-theological part as well. However, he made some general pronouncement about the use of nature as an avenue leading to God.

In his view, seeing effects leads to the idea of causes, seeing agreement of means leads to the concept of goals. Thus, we think that the eye was made for seeing, the ear for hearing, etc. (EM 17). The more nature is studied the more are discovered admirable ends and means wisely arranged to lead to these ends (cf. Ray, Nieuwentijt, Boyle, Derham, Lesser). Nature shows us final causes everywhere (MT 18). Final causes can be seen as a language by which God reveals Himself to humans. There is no more striking metaphysical proof than the admirable order that reigns in nature (MT 19), a remarkable statement considering all the proofs of the existence of God that have ever been proposed. Apparently, physico-theological proof suffices. In the world, people see the expressions of the perfections of God, the world preaches the glory of God, small wonder that the contemplation of the world was a popular theology (EU 166).

The attributes visible in His works are intelligence, power, wisdom, goodness, justice, and unity. The existence of design implies the intelligence of the Maker. Power is needed to generate the world, the power without limits; to that end, infinite wisdom is indispensable; His goodness is manifested in the creation of rational beings and providing them with all needed goods, making them perfectible, able of greater happiness, and preserving them by the order of the world. Justice follows from wisdom and goodness (EM 20-23). One God is enough to

11 «Earthquakes are signs of God; not of an evil God, but of a wise and benevolent regent who seeks to guide and perfect human beings. Evil is not denied in Bertrand's sermons, but redefined» (Gisler 2005: 262).

12 Preu 1772.

create the world. Polytheism is a corruption of ideas naturally presenting themselves to people (EM 24-25). And again, «the investigation of this *universe* and its marvels that can be seen such as the course of the sun and of the stars, the regularity of season, the generation of so many Creatures that perpetuate themselves and succeed one another» show God's wisdom, omnipotence, and goodness (IC 4).

All entities in the universe form an immense chain of beings and not one link can be taken out from it without undermining the perfection of the whole (S 1.34). For instance, without gravel, waters would be muddy; without circulating subterranean waters, there would be no salts and minerals to form spas, crystals, etc. (EU 170). Not always can a reason for the existence of many entities in the world be provided, but people should not consider them useless. «They, no doubt, are part of the design of the Creator, they have some use in the general system; as to us, they are at least the means for us to admire the power of the Creator» (EU 163). In particular, there is no useless plant. Each plant is food for some insects or animals (EU 68).

The greatest beauty is found in nature, although people cannot see everything (EU 35). «What an ineffable pleasure finds a modest but educated philosopher, since modesty grows with enlightenment, when constantly ascending while studying nature to the Creator to admire his works and to adore their author. He sees in the smallest insect that an ignoramus steps upon without paying any attention to it, thousands of organs, vessels, muscles, nerves, all intended for the needs of the animal ... that this sight alone would be enough to lead us to the grand Author of nature» (EU 36-37).¹³ The search for causes of natural events has its limits, the ultimate designs of God will never be reached; thus, people should investigate nature and its history «not to explain the origin of things or to guess what is veiled and what will remain hidden to your eyes as long as you will crawl down here. Admire what you see and adore the invisible Creator» (S 1.86).

Bertrand was a competent naturalist, but he was first and foremost a clergyman and nature was there for him an avenue leading to God, to the appreciation of His providential power, wisdom, and goodness: «The fixed order of nature / In all the diverse motions / Is for me a living picture / Of the wise Author of the universe. / When beings with constancy / Tend toward the same end, / [Then] my reason recognizes the hand / Of a supreme Intelligence. / Here's a lovely system / To which the right reason leads: / There is a supreme Being, / Wise, all-powerful,

13 Bertrand 1777: 35ff.

just and good» (S 1.192). This was Bertrand the physico-theologian speaking: the existence of God can be known rationally, which is the natural religion. The light of reason allows people to discover the fact that God exists necessarily from eternity, that He is the first Cause (IC 3). The knowledge of the existence of God can be known rationally when it is based on the observation of the world: the world and its mechanism is what people see first, and then, a reflection leads them to a theological conclusion. The world does exist, but where does it come from? And the better the complexity and harmoniousness of the world is known the better the theological conclusion presents itself. And this is the sentiment he wanted to convey by his research and instill in his readers.¹⁴

This has direct moral, and thus, practical consequences. First, the soul as a simple, indivisible substance is immortal; it could be annihilated by God, but nothing is annihilated in nature, and annihilation of the soul would be contrary to the goodness and wisdom of God; thus, there is reason to believe that the soul is immortal (EM 28). Second, the kind of life on earth determines the kind of life of the soul after the death of the body, and this requires leading moral life commensurate with the wisdom, goodness, and the justice of God so that people will be rewarded in the afterlife and the evil will be punished (EM 29-30).¹⁵ Thus, the belief in the wise God leads to morality which should illuminate conscience, direct the will, and regulate human passions thereby regulating behavior and human conduct in all aspects of life (EM 68-69). Also, «the contemplation of the altogether perfect Being ... which should lead us to the imitation of its wisdom, its goodness, its moral virtues to resemble it» – with eternal consequences (EM 41-42). And thus, an investigation of nature is proposed by the physico-theological approach as the way leading to the recognition of the existence of God the Creator and the investigation of orderliness and harmony of nature leads to the recognition of perfections of God, in particular, His power, wisdom, and goodness. And the contemplation on these attributes translates into moral life on earth with its eschatological consequences. From the majesty of the Alps a progression is made to the majesty of God, then to the majesty of moral life, to end with the majesty of the afterlife.

14 And so, «If human intellect could illuminate the workings of the Divine Plan, the progress could be made in science, while faith was strengthened,» Bork 1991: 85.

15 A long presentation of Bertrand's views on morality can be found in Dumont 1905.

Bibliography

Abbreviations for works of Élie Bertrand

- EM – *Éléments de morale universelle, ou tableau des devoirs de l'homme, considéré dans tous ses rapports*, Neuchâtel: L'imprimerie de la Société Typographique 1776.
- EU – *Essai sur les usages des montagnes, avec une lettre sur le Nil*, Zurich: Heidegger & Co. 1754.
- IC – *Instructions chrétiennes ou abrégé du catechism*, Zurich: Heidegger & Compagnie 1753.
- MS – *Mémoires sur la structure intérieure de la terre*, Zurich: Heidegger & Co. 1752.
- MT – *Mémoire sur les tremblements de terre avec quatre sermons à cette occasion*, Vevey: P.A. Chenebir 1756; sermons have a separate pagination.
- S – *Le solitaire du Mont Jura, ou récréations d'un philosophe*, Neuchâtel: L'imprimerie de la Société Typographique 1782, vol. 1–2.
- [Berckenmeyer, Paul Ludolph], [1711]. *Fortsetzung des curieuse Antiquarii*.
- Bertran [!], Elie, 1751. *La cause et l'usage des afflictions, ou sermon sur I. Corinth. XI. v. 32, prononcé à Berne, dans l'église française, le 18. Octobre 1750*, Neuchâtel: L'Imprimerie des Edit du Journal Helvetique.
- Bertrand, E[lie], 1752. *Mémoires sur la structure intérieure de la terre*, Zurich: Heidegger & Co.
- 1753. E.B.M. du S.E. [Elie Bertrand, Ministre du Saint Evangile], *Instructions chrétiennes ou abrégé du catechism*, Zurich: Heidegger & Compagnie, p. 4 (the full name is identified in German editions of the book, Elias Bertrand, *Christliche Unterweisung*, Leipzig 1767).
- 1753. E.B.M. du S.E., *Instructions chrétiennes ou abrégé du catechism*, Zurich: Heidegger & Compagnie.
- 1754. *Essai sur les usages des montagnes, avec une lettre sur le Nil*, Zurich: Heidegger & Co.
- 1756. *Mémoire sur les tremblements de terre avec quatre sermons à cette occasion*. Vevey: P.A. Chenebir.
- 1763. *Dictionnaire universel des fossiles propres et des fossiles accidentels*. La Haye: Pierre Grosse et Daniel Pinet, vol. 1–2.
- 1766. *Recueil de divers traités sur l'histoire naturelle de la terre et des fossiles*. Avignon: Louis Chameau.
- 1776. *Éléments de morale universelle, ou tableau des devoirs de l'homme, considéré dans tous ses rapports*. Neuchâtel: L'imprimerie de la Société Typographique.
- 1777. *Essai philosophique et morale sur le plaisir*. Neuchâtel: L'Imprimerie de la Société Typographique.
- 1782. *Le solitaire du Mont Jura, ou récréations d'un philosophe*. Neuchâtel: L'imprimerie de la Société Typographique, vol. 1–2.
- Bork, Kennard B., 1991. Elie Bertrand (1713–1797) sees God's order in nature's record: The 1766 *Recueil de divers traités sur l'histoire naturelle*. *Earth Sciences History* 10, 73–88.
- Bratun, Marek, 2013. *Elie Bertrand a Polska*, Wrocław: Atut.
- Carozzi, Marguerite/Carozzi, Albert V., 1984. Elie Bertrand's changing theory of the Earth. *Archives des Sciences* 37, 265–300.
- Derham, W[illiam], 1713. *Physico-theology or, A demonstration of the being and attributes of God, from his works of creation*. London: W. Innys 1720^s [1713].
- Dumont, Paul, 1905. Jean-Élie Bertrand 1713–1797, Quelques pages de l'histoire des idées philosophiques, théologiques et morales dans la Suisse française, à la fin du dix-huitième siècle. *Revue de théologie et de philosophie* 38, 217–269.

- Feuerlinus, Iac[obus] Wilh[elmus], 1729. *Montes divinitatis testes contra Lucretium et Burnetium*. Altorfi Noric.: Typis Iod. Guil. Kollesii Acad. Typogr.
- Gisler, Monika, 2005. Optimism and theodicy: perceptions of the Lisbon earthquake in protestant Switzerland. Th.E.D. Braun/J.B. Radner (eds.), *The Lisbon earthquake of 1755: representations and reactions*, Oxford: Voltaire Foundation.
- Preu, Johann Samuel, 1772. *Versuch einer Sismotheologie, oder physikalisch-theologische Betrachtungen über die Erdbeben*. Nördlingen: Karl Gottlob Becken.
- Ray, John, 1735. *The wisdom of God manifested in the works of the creation*. London: William Innys and Richard Manby 1735¹⁰ [1691].
- 1713. *Three physico-theological discourses*. London: William Innys 1713³ [1691].
- Sulzer, Johann Georg, 1746. *Untersuchung von dem Ursprung der Berge, und anderer damit verknüpften Dinge*. Zürich: David Geßner.
- Weidmann, Marc, 1986. Un pasteur-naturaliste du XVIII^e siècle. Elie Bertrand (1713–1797). *Revue historique vaudoise* 94, 63–108.
- Wolf, Johann Christoph, 1749. *Gründlicher und vollkommener Unterricht zur Rechtschreibung der deutschen Sprache*. Hof: Vierling.
- 1756. *Orotheologie, oder Erbauliche Betrachtung über die Berge, als wichtige Zeugen der Allmacht, Weisheit, Vorsehung und Güte Gottes*. Hof: Johann Gottlieb Vierling.

Abstracts

Élie Bertrand, ein Schweizer Naturforscher und protestantischer Pfarrer aus dem 18. Jahrhundert, war ein leidenschaftlicher Gelehrter und Theologe. Im Sinne des Zeitgeistes stellte er seine Forschungen in den Dienst der physikalischen Theologie und zeigte insbesondere, dass die Unverzichtbarkeit der Berge im natürlichen Leben der Erde und im sozialen Leben der Menschen unmittelbar auf die Macht, Weisheit und Vorsehung Gottes hinweist.

Élie Bertrand, an eighteenth-century Swiss naturalist and a Protestant pastor, was passionate in his scholarly pursuits as he was in theological investigation. In the spirit of the age, he enlisted his research in the service of physico-theology showing, in particular, that the indispensability of mountains in the natural life of the earth and the social life of people directly points to the power, wisdom, and providential care of God.

Adam Drozdek, Pittsburgh, USA