

Johann Gottlob Krüger on science and religion

SUMMARY

Johann Gottlob Krüger was an eighteenth-century German physician and naturalist and an author of scholarly works and works popularizing science. He was also keenly interested in theology and in the age of popularity of physico-theology, he could easily use his scholarly knowledge in pursuing some theological issues. In particular, as presented in this article, he wrote about the Leibnizian thesis about this world being the best possible and about theodicy.

KEYWORDS: Johann Gottlob Krüger, physico-theology, theodicy

Johann Gottlob Krüger (1715-1759) was a German physician and natural scientist. In 1730 (at the age 15!), he entered the University of Halle to study philosophy and medicine. In 1737, he received the Master (Magister atrium) degree. In 1742, he became a doctor of medicine, the next year, a professor of medicine in Halle and in 1751, in the University of Helmstedt. He was also a member of several academic societies¹. He was a prolific author of works on natural sciences and medicine, in particular of his very popular, massive, 4-volume *Naturlehre*. He was also interested in theological aspects of scientific research, as summarized in his statement that “the influence of natural science on theology is so big and it is so undeniable that the world is a ladder on which rational creatures climb to the Creator whom they glorify more

¹ Io[hann] Christian Wernsdorf, *Memoria Io. Gottl. Krügeri* [1759], in: Samuel Mursinna (ed.), *Biographia selecta sive Memoriae aliquot virorum doctissimorum*, Halae: Typis et impensis viduae Ioh[annis] Iac[obi] Curtii 1782, vol. 1, 259-274; Johann Georg Meusel, *Lexikon der vom Jahr 1750 bis 1800 verstorbenen teutschen Schriftsteller*, Leipzig: Gerhard Fleischer der Jüngere 1808, vol. 7, 381-385.

in silent admiration when they try to ponder his attributes by their curiosity that exceeds their powers” (G 17)².

1. The marvelous nature

Krüger believed that human thought can easily be lost in the order and beauty found in the immense cosmic space, but the mind is even more amazed by the perfection of the makeup and the orderliness of motions observed under the microscope of creatures that are smaller than the grain of sand (Ph 23)³. This beauty and order are thus ubiquitous, from the largest cosmic scale of innumerable worlds showing on the sky to the smallest microscopic scale of the world of bacteria. On each level of nature, the observation of nature indicates that everything in the world had its reason, its design, its ground why something is made in a particular way (Ph 30). If the world were the result of chance, why is everything so orderly, so perfect: wouldn't there be, for instance, animals with useless eyes (31)? On the contrary, what can be observed is the variety of eyes fitting an animal's makeup and environment as exemplified by the eyes of a fly (27), spider, cat (28), and fish (29). Moreover, human eyes are made just right, without an ability to see clearly specks of dust or objects which are far afar. These eyes suffice “to see that is needed for [human] pleasure, for the maintenance of his life and, what can be summarized as: for the contribution to furthering his happiness.” And thus, “a machine [such as a bodily organ] which is built so perfectly that it had been impossible to build it better ... must be built by design and be a work of a wise builder” (G 15).

The complexity and the regularity that can be found in the world clearly point to the design by the Creator (Ph 43). Consider just a great variety of shells, their makeup and colors. Consider, as one example, pinna marina, a mollusk, which “attaches itself with a fine thread [secreted as byssus (48)]

² The following references are made to Krüger's publications:

E – *Gedancken von den Ursachen des Erdbehens, nebst einer moralischen Betrachtung*, Halle: Carl Hermann Hemmerde 1756.

G – *Gedanken von Gott*, Helmstadt: Carl Hermann Hemmerde 1757.

Ph – *Physicotheologische Betrachtungen einiger Thiere*, Halle: Carl Hermann Hemmerde 17462 [1741].

T – *Träume*, Halle: Carl Hermann Hemmerde 17653 [1754].

³ Cf. Johann Gottlob Krüger, *Gedancken von dem Kalten Winter des Jahres 1740*, Halle: Carl Hermann Hemmerde 1741, 97.

which it weaves to large rocks to withstand the striking waves, so that it cannot be detached, dislodged or wracked. This thread is good and strong silk which does not lose its color by any means when it is worn/used. It is shiny and brown, but can also have other colors” (45).

All organs of living beings are crafted in the way fitting their environment and are sufficient for their survival. Consider the senses. Humans have five of them and the humankind has thrived because of them. On the other hand, the five human senses are not necessarily the only possible senses (Ph 4). It is difficult to say what the sixth sense could be and could do, but it is possible that some animals have it just as some animals do not have all the five senses humans have (5). In his playful visions, Krüger spoke about trees having senses that animals do not have, but they have two senses in common: taste and touch (T 5). The human inability to envision the sixth sense, Krüger represented by a vision of a discussion among the fish and oysters that don't believe that there are more than three senses namely hearing and smell (140), since they cannot grasp it and thus there is for them no sufficient ground for it and such a claim is presumptuous, as the oysters claimed, they were the most perfect of all animals, although the fish claimed the same for themselves and, on the similar note, so do people claim that inhabitants of other worlds cannot have more than five senses (141).

2. The best of all worlds

Was Leibniz right that this world is the best possible? In the face of the criticism of the imperfection of nature, the very investigation of nature should help in defending the Leibnizian position. Krüger presented his argument rather in passing, but his position is quite clear. For instance, some grumble, why there is winter if having spring all year round would be much more pleasant? However, this would mean unbearable cold for some parts of the world and unendurable heat in others, and Krüger explained it in some detail by discussing the motion of the earth and its position in respect to the sun (Ph 19; cf. G 13-14), and he challenged the critics: may anyone try to remove from nature one imperfection without introducing something worse⁴. Local imperfections serve their purpose unknown to humans because of their limited vision. How limited human vision can be, Krüger tried to convey in one

⁴ Krüger, *Gedancken von dem Kalten Winter*, 42-43.

of his *Dreams* in which he saw himself as a tiny insect whose world was limited to one side of a leaf on which lived other tiny insects for which a fly that sat on this leaf looked like a giant and was an existential danger. The resettlement to the back side of the leaf looked like changing the world (T 394-398).

When God allows small evil in a part of His realm, it is a means for the good of the whole (E 188). It is the result of pride and self-importance which leads humans to blame the Creator because of their lack of universal vision which is accessible only to God. This human pride is best reflected in frequently voiced opinion that the world was created for humans and Krüger derided this view in his literary *Dreams*, where he spoke about a flea that said that the world is in the middle of the cosmos and all exists in the service of fleas: rain makes grass grow to feed cows for them to produce milk for people to make cheese to provide food for fleas (T 72). The inhabitants of the moon believed that the earth was created for the sake of the moon (99). The moral is that humans know so very little about the world and themselves; they are ridiculous figures, they are amazingly small, a point, a nothing; however, they can find themselves in God (434). And people should not forget apostle Paul's admonition that God's ways are inscrutable (Rom. 11:33) (E 151).

In all this, every physician, naturalist, and astronomer has to admit that with all its imperfections, the world is so constructed that it cannot be made any better and that a wise Builder made it. Who denies that, should not eat any bread since he cannot be certain that there is no poison in it that he could not detect (G 16-17).

3. Theodicy

Krüger was interested in the problem of earthquakes as a scientist investigating their mechanism and proposed a solution stating that electricity was a driving force of earthquakes. In his view, in the face of the recent discovery of electricity, weather is the action of electricity (E 8). Lightning is a strong electrical spark, thunder is its sound, an action of repeated enkindling, although it was still unknown how this electricity originated (9). In this light, in his opinion, an earthquake is just underground weather (13, 19). There is an enkindling of the mixture of various matters caused by an underground lightning (13). This lightning does not have to cause enkindling (14), but electricity caused by it may be instantly spread over hundreds of miles causing an earthquake in places where there is no lightning nor enkindling (14, 24).

However, there is also a theological aspect to earthquakes. The Scripture speaks about the fearsome power of God (Ps. 46:10) (E 92). The power of God shows in the fact that all the worlds have been created in an instant out of nothing and they can also be in one instant turned into nothingness (95); on a smaller scale this power was exhibited in the 1755 Lisbon earthquake: in seven minutes, a city was destroyed which had been built through centuries (96). The topic of the Lisbon earthquake was widely discussed at that time in Europe.

One question which was asked about this earthquake was: how can it be said in the presence of several thousand bodies, God is love? (E 134). But what are 30,000 dead vs. 730 million people on earth who are alive? asked Krüger rhetorically (135). Everywhere we see proofs of God's goodness: against one destroyed city there are 100,000 blooming and happy cities; against 30,000 dead, there are millions healthy, blooming, and satisfied people. The earth is full of the goodness of the Lord! (136). God should destroy all the cities because of sin, but He does not, He destroyed just one, although reverberations were felt in Germany, France, and Holland, without destroying one house and killing no one (137). God was satisfied with showing people what He can do in just one city as a manifestation of His power and as a warning (138).

Also, quick death is preferable over protracted dying (E 142). There were wounded who were caught under the rubble, but they were not worse off than wounded soldiers or people suffering from an illness (144). Such people turn in this situation to God, repenting their sins and recognize the fact that God destroys their body to save their soul (145), thereby finding refuge in Christ (146). On the other hand, the unrepented become the subject of God's justice (147), although Krüger was silent about the specifics of this justice.

The pity we feel for the dead of Lisbon makes us forget their sins and makes us see them as innocent. People often consider a punishment of a person to be too harsh; they excuse the perpetrator and diminish his crimes. Experience shows that in prosperous cities there is more vice than anywhere else (E 158). It does not mean that Lisbon deserved punishment more than other cities (161). There were likely more innocent people among the dead in Lisbon than the godless (162), but the innocent will be saved and "they will not in the least consider such a sudden death as harsh fate" (163).

The whole world pays attention to such disasters as earthquakes during which even the worst criminals beg for God's mercy; through such phenomena God calls people to recognize His majesty (E 169). Such phenomena show that the external things considered to bring blessing are not the reward for believers (E 170). If God rewarded with riches those who keep His commandments,

then there would not be any true virtuous person, but people would keep commandments because of the expected earthly reward. A truly pious person loves God over all, does not act against His will, and sees in God the source of all perfection (172). King David and apostle Paul worshiped God in the midst of their misfortunes. If external goods are not a reward for piety, then the loss of these goods is not a punishment (173). God prepares people in this life to eternity; death is not an evil, not a punishment (174).

Second, through such phenomena, people should see the life on earth in the right perspective. The survival instinct is the strongest (E 174). Two things make this life worthwhile: as long as I live, I have each day an opportunity to do something for the glory of God; also, this life is a school for my soul to prepare it for eternal communion with God and with other souls (176).

Generally, as personified reason stated, nature was not obligated to give people anything; thus, why complain (T 612)? Everything in the world is God's gift to rational beings; God does not owe anyone anything. Incidentally, evil in the world is grounded in its perfection and brings perfection with it and teaches people to treasure it. Who would appreciate health if there were no illnesses (456)?

4. Physico-theology

It was clear for Krüger that God's wisdom and power will best recognized by the investigation of the world; this investigation will also help to explain why there are some unpleasant things in the world (Ph 18). Everything in the natural world is an indication of divine wisdom including elements that are considered harmful.

The investigation of nature leads people to greater appreciation of God's power and wisdom. Can it lead an atheist to the recognition of the existence of God? This was a goal of physico-theology and Krüger saw himself as part of this movement as indicated by the titles of two of his publications, but did he see the naturalist to lead anyone to the recognition of the existence of God? In his view, we already have ideas from natural and revealed religion about God's omnipotence, wisdom, goodness, and justice: "this teaching is so certain that anyone who contradicts it becomes an opponent of anyone with sane reason. No one comes to his side, but rejects his statements as dreams of a deceiving intellect" (E 155). Natural and revealed religion can lead a person to God; the investigation of nature can lead to a better knowledge of God's attributes.

Is thus science excluded from the possibility of establishing the existence of God? By Krüger's own admission, the sheer complexity of the natural world in the large and in the small indicates that the world is not a result of chance, or random motion of atoms (cf. T 413). Harmony means design, means the purpose in creating particular elements and thus points to the teleological view of nature. Natural things have their active/efficient causes, but they also have goals, why they exist, and both these causes must be considered by naturalists (17). They see it very well and theology would become "much nobler and more attractive through thorough investigation of nature" in which way "natural science becomes a ladder to climb to God, the Creator of nature" (Ph 18). So, science explains the complexity and harmoniousness of the world by teleology, by the existence of final causes and it is difficult to think about such causes without their source, a designer, whom theology considers to be the divine Designer. The reach of science in respect to the knowledge of God is limited; as Krüger said about his exploration of fauna, he would look at some animals to appreciate the wisdom of the Creator, not to "explore the essence of God, but only to admire [Him]" (Ph 6). However, this is a statement of someone who already believed in the existence of God and had some ideas about God's attributes, and science only added to them. He personally may not have been led to the belief in God by science, but this does not mean that some explorers could not. In fact, Krüger himself endorsed such a view when stating that the proof of the existence of God proposed by Christian Wolff, which was basically physico-theological in nature, was preferable over the proof of Maupertuis (the proof from the law of least action) since the former can fairly easily be understood by everyone, whereas the latter requires a good background in mathematics to be comprehended.⁵ Stronger yet, "the proof that derived the existence of God from the order of the world leaves no escape to the God-denier" (G 16).

Importantly, the belief in God can also be evoked by education in which Krüger agreed with Locke that, first, the concept of God must be provided to pupils: that He is the highest being and the Creator of all things, who loves people, and He should be worshiped. Fear and love of God and the love of the Christian religion should be instilled in children which is taught by example of parents and teachers and when always speaking about God with

⁵ Ioh[ann] Gottlob Krüger, *Dissertatio philosophica de demonstratione existentiae Dei ex lege minimae actionis*, Helmstadii: Litteris Leuckardianis [1754], 22.

respect. Also, science should be taught for which, as he modestly notices, his *Naturlehre* is the best for young people.⁶

Krüger, a scholar, a naturalist, a physician living at the height of the age of reason, was also a believer and he wanted to lead others to Christian faith. He rejected faith acquired by rote, by memorizing catechism without any explanation,⁷ but being ardent about his own observations and experiments, he referred to experience and reason, to observation of nature as a guide leading people – of all ages – to faith. In his view, the observation of nature allows people to glorify God not relying on prejudices and love Him without denigrating reason (Ph. 39).

JOHANN GOTTLÖB KRÜGER O NAUCE I RELIGII

STRESZCZENIE

Johann Gottlob Krüger był XVIII-wiecznym niemieckim lekarzem i przyrodnikiem oraz autorem prac naukowych i popularyzatorskich. Żywo interesował się też teologią, a w dobie popularności fizykoteologii mógł z łatwością wykorzystać swoją wiedzę naukową w prezentowaniu niektórych zagadnień teologicznych. W szczególności, jak przedstawiono w niniejszym artykule, pisał o tezie Leibniza dowodzącej, że ten świat jest najlepszym z możliwych światów oraz o zagadnieniach teodycealnych.

SŁOWA KLUCZE: Johann Gottlob Krüger, fizykoteologia, teodycea.

⁶ Johann Gottlob Krüger, *Gedanken von Erziehung der Kinder*, Halle: Carl Hermann Hemmerde 17602 [1752], 129, 259, 161.

⁷ Krüger, *Gedanken von Erziehung der Kinder*, 129.