

John Calvin and the Development of Natural Sciences in Europe

Botond Gaal

Professor of Systematic Theology
Debrecen Reformed Theological University

The Reformers and the contemporary fields of science

Some branches of science were held in high regard by the Reformers and have expressed their opinions frequently about their importance. Luther very much enjoyed mathematics.¹ Calvin raises the following: “Shall we say that the philosophers, in their exquisite researches and skilful description of nature, were blind? Shall we deny the possession of intellect to those who drew up rules for discourse, and taught us to speak in accordance with reason? Shall we say that those who, by the cultivation of the medical art, expended their industry in our behalf were only raving? What shall we say of the mathematical sciences? Shall we deem them to be the dreams of madmen? Nay, we cannot read the writings of the ancients on these subjects without the highest admiration; an admiration which their excellence will not allow us to withhold. But shall we deem anything to be noble and praiseworthy, without tracing it to the hand of God?”² Whom does he refer to in “the writings of the ancients”, we could only speculate. We will shed light on two important details of the Reformers’ works of principle.

Luther fought vehemently against adopting Aristotle’s doctrines in theology. He speaks with true fury about the “Philosopher”, and faults Thomas Aquinas: “He is responsible that Aristotle, destroyer of all piety, rules.”³ Calvin, a generation younger, didn’t have to struggle as much with the Thomas’ theology. He regarded it as “fait accompli”, and only a matter of time before it would fall apart. Thomistic philosophy however was attacked by the Reformers not from a philosophical angle but as an ideological system which derailed theology. Thomas Aquinas was corrected primarily on theology, but this was consequential in other aspects also. They promoted that knowledge of nature is indeed important but not in order to attain a perfect knowledge of God. This would be an impossible feat and is concealed from mankind. Natural Theology therefore cannot be handled *more geometrico*, achieving God as a final solution, with the expectation that God will stamp His seal of approval upon the point of origin also, validating thereby its righteousness and justness through faith, – as this was the case with Thomas. This is mere speculation, not theology. If one wishes to practice theology, one may not do otherwise, but follow the biblical revelation, – stressed the Reformers. There is no path leading through nature to attain true knowledge of God, the way is only through Jesus Christ. Faith itself is only a free gift of God’s grace. Therefore in opposition to

¹ Luther got carried away beyond the competencies of theology when he said the following: “Through the aide of mathematical sciences, which reveals and demonstrates God, mankind’s thinking soars high.” (János Bolyki quotes Süssmann in : “Natural Sciences and Theology II”., Theological Review, 1975. 3-4. 74.)

² Institutes II. 2. 15. (A New Translation by Henry Beveridge, Esq) In Institutes I. 8.1. he mentions names, but others could be considered as well.

³ Quotation by János Bolyki: Natural Sciences and Theology II., op. cit. 74.

Aquinas' "Natural Theology" they favored the "Theology of Revelation".⁴ One of the most important lifetime achievements of the Reformers was that, by meticulously detailing their theology, they put to rest Thomas Aquinas' theology of the Middle Ages⁵, which hoped for its scientific domination based on its philosophical roots.

The other essential factor in the Reformers ideology greatly influencing all their contemporary thinkers was the issue of the relationship between God and the created universe. As we saw, this could no longer be regarded resolved as explained by the scholastic Natural Theology. Science wasn't meant to be used in deliberating certainties of given creeds. Calvin understood these as God's useful gifts: "But if the Lord has willed that we be helped in physics, dialectic, mathematics, and other like disciplines, by the work and ministry of ungodly, let us use this assistance. For if we neglect God's gift freely offered in these arts, we ought to suffer just punishment for our sloths."⁶ Therefore the Reformers primarily navigated by the theology of the church fathers, reaching behind the scholastics of the Middle Ages, gathering leads which could be entwined with the Biblical theological ideology of the New Ages. They went back as far as Augustine, sometimes even farther.

Should we further explore Calvin's theological thought process we may encounter some surprising discoveries which seem to have accentuated the prestige and independence of the exact sciences. We must have this quotation verbatim: "In attestation of his wondrous wisdom, both the heavens and the earth present us with innumerable proofs not only those more recondite proofs which astronomy, medicine, and all the natural sciences, are designed to illustrate, but proofs which force themselves on the notice of the most illiterate peasant, who cannot open his eyes without beholding them."⁷ In regard to the debate about Lord's Supper he says the following: "What is our flesh? Is it not that which consists of certain dimensions? is confined within a certain place? is touched and seen? ... why do you require the power of God to make a thing to be at the same time flesh and not flesh? ... Flesh must therefore be flesh, and spirit spirit; each under the law and condition on which God has created them. How the condition of flesh is, that it should have one certain place, its own dimension, its own form. On that condition, Christ assumed the flesh..."⁸ Here Calvin evidently argues that sciences must attain their due respect and independence. In other words this means that God's created dominion and human intellect are congruent, thus it is open to be explored, interrogated by means of experiments, for the universe had been created in such manner, collectively with mankind.

Calvin's significance in the development on natural sciences – matters of principle

⁴ See John Hesselink's description in Encyclopedia of the Reformed Faith, under the entry: Natural Theology, Pub. Donald McKim, Westminster and John Knox Press, Louisville, KY, 1992.

⁵ Calvin uses brief but sharp words to refute the theological concepts of Thomas Aquinas on the election by grace: "... would not be difficult to refute the sophistry of Thomas." (Institutes III. 22, 9)

⁶ Institutes II. 2. 16.

⁷ Institutes I. 5.2.

⁸ Institutes IV. 17. 24.

Calvin's principal opus, the Institutes, has been published many times, must have been broadly known in the scientific circles of the 16th and 17th centuries.⁹ His views had an encouraging affect among natural scientists as well. He often formulates firm opinions on the sciences. How and to what extent did he contribute to the development of the exact sciences is rather a matter of inkling. Alister E. McGrath bravely raises this question and concludes that "Calvin addressed this topic on two important issues": "on one hand he decisively promotes scientific study,¹⁰ ... On the other, Calvin eliminated the largest obstacle before the development of natural sciences – the literal interpretation of the Bible"¹¹ We must be thankful for both these remarks, but observing Calvin's ideology from the perspective of natural sciences, we may draw stronger conclusions, therefore we need to complete these, and stating our expert opinion by modifying our argument.

1. According to the previously quoted texts and reading other portions of the Institutes also, it shows that Calvin encourages sciences because they reveal the structure of God's created world. "...the elegant structure of the world serving us as a kind of mirror..." – exclaims Calvin.¹² The world order serves as a mirror, reflecting to us the Creators image. This is the order attainable by mankind, so, nature can be explored by intellect, and it can be analyzed, researched, interrogated, because its revelations place God's glory in the forefront. Near one hundred years later Galileo's "sin" still was that he experimented!
2. Calvin and his followers read persistently in the Scriptures that God's glory is the supreme good. And should we exclusively be in this service, all other esteem becomes relative. Consequently, all those other, highly regarded entities, which previously defined our perception of nature, or prohibited its exploration, now vanish from the path of human reasoning. Mankind's free examination no longer has barriers built on human factors. "Philosophus dicit" ("the Philosopher said so") can no longer be claimed!
3. The Scriptures continue to remain the authority for Calvin, but in a different manner. Authority in the sense that it imparts to us God's revelations, which naturally contain such words, expressions, descriptions which although have to do with nature, their designation is not for the practice of science, but a better understanding of these revelations. Plainly stated, they facilitate our understanding of who God is in his eternal domain, and all that he has done for His creation.
4. In spite that Calvin's discernment also assigns principal authority to the Scriptures, its language is bound by eras and cultures. Therefore all of its text cannot be taken literally. Writers of different texts formulated their ideas on the language of the given period and cultural backdrop, which reflects the given age's spiritual level. The imagery is "adapted" to the societal developmental stage. McGrath fittingly calls this "*accommodation principle*".

⁹ See James Brown: A History of Western Education, Civilization of Europe. Vol. 2. Methuen and Co. Ltd., London, 1975. 375.

¹⁰ Alister E. McGrath: Life of John Calvin. A Study in the Shaping of Western Culture. Osiris Pub. Budapest, 1996. 270.

¹¹ Alister E. McGrath: Life of John Calvin. A Study in the Shaping of Western Culture. op. cit. 272.

¹² Institutes I. 5.1.

Thus even the expressions perceived to be of scientific nature must only be regarded as “adaptations” to God’s revelations, not as scientific information or communication. Such accounts are that of the creation, or Jesus’ parables, and thousands of other biblical depictions.

5. It was important for Calvin for theology to be a discipline built upon the Bible. That is the reason he calls the Scriptures “hedges”, which in turn leads to a disciplined practice of the sciences.¹³ Thereby theology becomes an independent science, and no surprise that the Geneva Academy, founded in 1559 can be regarded as the first university ranked theological institution.¹⁴
6. He further attracts attention to the strict theological method of studying all issues in the context of the entire Scriptures. Through this the role of colloquial speech gains center stage in theological thought processes, and this resulted in obvious implications in other fields as well.
7. Calvin never used “Sola Scriptura” as an expression,¹⁵ only as a *guiding concept*.¹⁶ In other words it was a point of reference or orientation in his theological practice. To this day many view it as remnants of authoritarianism.¹⁷ Let’s avoid becoming victims of a misunderstanding, so we will examine what exactly does this mean. Firstly, we may appreciate that Calvin often mentions mathematics. It is peculiar that Luther often argued using mathematical aides. Wherefrom could they have knowledge of this science? We may suppose that Euclid’s “Elements” was their source. Its Latin translation was completed in the 15th century, based on prior Arabic translations and Greek texts found during the Renaissance, and soon translations in a variety of national languages followed. The first Latin and Greek translations might have been known to Luther and Calvin also.¹⁸ Given its axiomatic construction, this work clearly is a challenge that sciences may only be studied with a proper foundation and adequate discipline, being clear from the get about the opening principles. Perhaps these scientific prerequisites played an important role in Luther’s and Calvin’s view of the Scriptures as a standard. Furthermore, already in the 15th and 16th centuries progress is made in the development of mathematics, and the contemporary mathematicians are well aware of and discuss the Euclidean model. It is peculiar that the majority of the era’s scientists were, physicians,

¹³ Institutes I. 6.1.

¹⁴ See James Bowen: A History of western Education. Civilization of Europe. Volume 2. Methuen and Co Ltd., London, 1975. 376.

¹⁵ The “Scripture alone” expression was used by Luther first, but neither he nor Calvin has used it yet as a theological lingo, it appears only as a concept yet to come. The following generations have solidified it in this form.

¹⁶ See Institutes I. 6. 3.

¹⁷ See Károly Simonyi: Cultural history of physics from its beginnings to 1990. Akademia Pub., Budapest, 1998. 163.

¹⁸ The first Latin edition saw daylight in 1482, followed by many others. In 1533 it was published in Greek as “Euclid’s Elements” in Basel. This most likely attracted Calvin’s attention, because it was a prominent event of its time.

mathematicians, physicists and astronomers, and Calvin exactly touches upon these scientific areas.¹⁹ Most likely he followed the closely.

8. One last, but important point. In the Institutes a number of times Calvin directs our attention to Aristotle and recommends it as a useful reading.²⁰ Later, however makes it unambiguous that: "...is declared, not by Aristotle, but by the Holy Spirit..."²¹ Calvin's preoccupation was the discernment of God's revelation in the complete context of the Scriptures. This is what he considers science in which he delights himself: "What wonderful accord exists among all parts!" Therefore if the Bible is God's revelation, the unveiling, the removal of whatever kept it hidden, then it must be comprehended that whenever God conveys to us something, and we get to know it, then by this at the same time we are presented with still new divine secrets. In other words, the realm of Biblical revelation is upward open. If we would observe it from an Aristotelian perspective, meaning that we would go through it following the logic of philosophy, we would need to envision a closed world, because human intellect would be able to discover it step by step, and come to conclusion about the facts of divine truths. But by the power of the Holy Spirit this revelation becomes open through faith. By this Calvin opens up a closed world. This scientific openness basically is his greatest contribution to the development of exact sciences. – In Hungary each of the first natural scientists had been Calvinist preachers.

¹⁹ Let's suffice to mention Regiomontanus, Leonardo, Chucket, Cardano, Vesalius and Galenus. When Columbus discovered the Americas he started out for "India" based on the mathematical calculations of Regiomontanus.

²⁰ See Institutes I. 8. 1.

²¹ Institutes IV. 17. 26.