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KSP 341

18 December 2018

Calvinism and Engineering

The Reformed Tradition is not just a faith-system that is relegated to the closet or the home. Rather, it is an “all-embracing life system” (Kuyper 26) that influences every area of life, whether traditionally seen as religious or secular. As a life system, Calvinism contains principles that are applicable to every area of life and every vocation. Its view of God’s sovereignty and His plan to reconcile everything to Himself are meaningful in our motives and our actions. The field of engineering is especially related to the reformed idea of reconciling the earth to God’s original design.

Engineering is a career that is often seen as a secular sphere, and even if a Christian chooses to study engineering, they often perceive themselves as being a Christian in a secular field. Dr. Charles Adams describes this perspective as “the idea that reality can be divided into two parts, the spiritual or sacred realm and the secular or neutral realm of nature” (58). Both Adams and Abraham Kuyper agree that this viewpoint is unbiblical. According to Adams, since all things were created by God, and sustained by Him, and since we are called to serve God and take care of His creation, there is no area of life that does not necessitate obedience to God. Kuyper states the Calvinism “puts an end once and for all to contempt for the world, neglect of temporal and under-valuation of cosmical things” (120). The Reformed Tradition values both spiritual and temporal things because of its view of God’s sovereignty. God is sovereign over all His creation, and He has given us the responsibility of bearing His image and to “fill the earth and subdue it” (*English Standard Version*, Gen. 1.28). We are called to take care of the earth, to unfold God’s creation and bring glory to Him.

Many people view engineering as closely related to science. For instance, an article on Life Science describes engineering as “the application of science and math to solve problems” (Lucas). This is consistent with many other sources. Because of this close relation, the perception of the scientific world will greatly affect the perception of the engineering profession. According to a 2015 Pew Research Survey, about 59% of Americans perceive that in general, science and religion are often in conflict (Funk). In addition to this general idea of science being secular, atheists like Richard Dawkins and Stephen Hawking also reject faith in favor of science. Science is viewed as the means of knowledge about the universe, and belief in God is seen as irrelevant to this pursuit, a crutch to try to support beliefs without evidence. It would follow then, that since engineering is a field of applied science, belief in God would seem to be irrelevant as well.

Kuyper argues that science and faith are not opposed to each other, however. Rather “*two scientific systems... are opposed to each other, each having its own faith*” (133, Kuyper’s emphasis). Although some scientists claim that science does not rely on faith, they forget that the assumptions on which science is based are believed by faith. Instead of eliminating God from science, they have instead elevated science to the position of God. Roy A. Clouser states, “All of them have only one thing in common: every religion takes something to be divine...They all agree that the divine is whatever has utterly unconditional reality; it’s what is ‘just there’” (5). Another way to say this is that the divine is the “ultimate explainer”, that which does not depend on anything else (Clouser 5). While many would not consider science to be religion, it does share the characteristic of having various “ultimate explainers”. Whether one relies on the physical universe or human rationality or the process of science, something is still elevated above all else with the power to explain all else. Relying just on science, then, demands faith in science and rationality, perhaps even more faith than believing that God created and upholds the universe.

Engineering and Science are based on the presupposition that the universe is orderly. Kuyper states that the development of science “presupposes a cosmos which does not fall prey to the freaks of chance” (115). This matches with the Christian God’s sovereignty over nature, He is a rational God who created a rational universe. Only with this belief that the universe is ordered can we study it and obtain meaningful results. These results can then be applied to real life problems through the process of engineering, again relying on the universe functioning consistently. The consistency and reliability of nature that the Reformed tradition teaches is further evidence that faith and science are not mutually exclusive.

Science is not completely secular, although science and religion do have their own spheres of influence. Kuyper upholds “free science”, in which every person, regardless of their belief, has the liberty to build up a science that is self-consistent and coherent (138). Rather than completely separate science and faith, the Reformed tradition encourages the exploration and development of this world. Kuyper even states that “faith, which does not lead to science, is mistaken faith or superstition, but real, genuine faith it is not.” (131). He goes on to say that faith has a need to speak out, to express itself in thought and words that are coherent with the world around us, giving rise to science (131). Knowing the proper way in which to integrate science, and more specifically engineering, and faith is important. Neither one should dominate the other, but they should work together.

To more fully understand the relationship between engineering and religion, we should consider what Albert Wolters calls “structure and direction” (59). The structure, or essence, of the subject is that which is essential to its existence. The structure of an object remains intact from its creation; it is based on God’s original design. The direction, however, is the effect of humanity’s sin on the subject. As a result of the Fall, creation is distorted and no longer completely follows God’s design for it. Direction involves this orientation toward God and His perfect design, or against God

and toward the distortion of sin. By God's common grace, He does not allow the misdirection of an object to completely destroy its structure (Wolters 61).

The structure of engineering is found in the early chapters of Genesis. After God created humans, He gave them the Creation Mandate, and directive to develop what He had given them. In order to fully develop something, and understanding of what it is, how it works, etc. is needed. Science fills this responsibility regarding creation. As a human activity, science is the pursuit of knowledge about the creation and its workings. Engineering, then, is our application of the knowledge that we have learned through science to the world around us. It is through engineering that we design technology to improve the processes of daily life. The wheel is an example of a device created to make moving things easier. This improvement from sleds to wheels, and other improvements like it, are part of the structure of engineering.

The direction of engineering has multiple facets. On one hand, the Fall affected the entirety of creation. As a result of the fall, man's relationship with nature was broken, and the scope of engineering had to expand to deal with containing the effects natural disasters and fixing problems due to man's shortsightedness in developing the creation. The Fall also damaged man's relationship with each other, and as a result, engineering expanded to encompass various military weapons and defenses. The relationship between God and man was also damaged by the Fall, and now instead of pursuing a right relationship with God, man tries to glorify himself. This has crept into engineering. Although engineering focuses on preserving the earth and helping other humans, in my experience, a lot of people focus on the money that can be made in the profession. It is true that engineers are generally highly skilled people, and they should be compensated for their work. Despite this, like every other profession, engineering should be a way to glorify God by using the unique abilities He gives, not a focus on how much money it will make. Both Christians and non-Christians can have this

response to the Creation Mandate to fill and subdue the earth. Calvinism's doctrine of common grace teaches that even unregenerate people can make valuable and good contributions to the world.

A Reformed view of engineering must address each of these three relationships that dominate our lives: God and man, man and man, and man and world. Calvinism teaches that we have direct fellowship with God, and our response to his grace is to live every moment to the glory of God alone (Kuyper 21). In engineering, this results in doing everything "as for the Lord" (Col. 3.23), fulfilling the Creation Mandate by developing new technology that uncovers and improves our ability to do many other things. We bring glory to God when we develop His creation.

This right relationship with God will naturally flow into the other two relationships. Only when we "love the Lord your God with all your heart and with all your soul and with all your mind" can you "love your neighbor as yourself" (Matt. 22.37-39). When we focus on doing God's will, we also shift our focus away from ourselves and towards others. This results in engineering that meet legitimate needs, helping others to develop community better, work better, enjoy leisure time more, etc. Our purpose should be to help them flourish, to enable them to be who God made them to be. Rather than just give them what they need or want, we should encourage them to work to achieve what they need. We should follow the old proverb, "Give a man a fish and he will eat for a day. Teach a man to fish and he will eat for a lifetime."

The final relationship between man and the earth is impacted by the previous two relationships. When we follow God and work for His glory, then we will take care of the earth that He has given us. Conversely, we will not be as careful with how we treat the earth if we do not focus on glorifying a higher authority. The earth is also affected by the relationships among humans. Wars between countries and peoples affect not only the people that are involved, but the earth itself. For instance, nuclear bombs and poisonous chemicals have a detrimental effect on the environment. These effects can linger for many years after their cause. In addition to these effects on the earth, man also

affects the earth by using resources, manufacturing goods, and providing services. The over-use of resources such as wood, oil, natural gas, etc. damages the ecosystems and depletes our reserves of these resources. Although wood grows back, we are cutting it down faster than it can grow, resulting in deforestation in several of the world's forests. Manufacturing plants and transportation vehicles also produce many pollutants that permeate the air, damaging the atmosphere and affecting our lungs. To minimize these effects, effective engineering should strive to design more efficient systems to conserve fuel and limit waste output. We should develop alternative methods that have a smaller effect on the earth, such as using solar energy and electricity. We should use our skills to preserve the planet we live on.

James K. A. Smith describes the purpose of engineers, and believers in general, as doing what we are created for. We were saved to bear God's image, to tend, govern, and unfold His creation (107-109). We are called to re-form God's creation, to take part in His redemption of all creation. Paul says that Christ is going to "reconcile to himself all things, whether on earth or in heaven, making peace by the blood of His cross" (Col. 1.20). Instead of withdrawing from the world like the monks of the middle ages did, or like the Anabaptists did during the Reformation, the Calvinist must "in every domain, discover the treasures and develop the potencies hidden by God in nature and in human life" (Kuyper 30-31). Engineering helps us to seek *shalom*, a state of right relationships between God, man, and the world. According to Smith, this is not a matter of "getting to heaven, but of seeing heaven on earth" (104).

Although many Christians may see engineering as part of the "secular world" and do not understand how a Christian can do engineering any different than a non-Christian, we need to realize that we cannot follow Jesus with only part of our life. Either we are completely committed to following Him with every part of our lives, or we are still in rebellion against Him. Even within a profession that is usually not seen as Christian, we can have an impact by honoring God first, and then designing

holistically, thinking of others needs first and striving to meet them to the best of our ability. Only when we intentionally put God first can we live the life that we were created to live and fulfill our purpose of glorifying God.

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