

## **A. Why I do not think that it is necessary to study the philosophy of mathematics before doing mathematics research**

- It is like asking a canoeist to study hydrodynamics before allowing her to paddle
- it is like asking an artist not to do art until they have had courses in philosophical aesthetics
- All our activities should be pursued from a deep joy at discovering, enjoying, and/or healing aspects of the world that belongs to God. They should always have an element of joy in their pursuit - a degree of playfulness<sup>1</sup>.
- The transformation that God works in us is a transformation of the heart; it is not a change in philosophy. So, for a Christian to do mathematics Christianly (or to do anything Christianly) is to do it from a transformed heart; from a new self; from a transformed naïve experience (to use Dooyeweerdian language). Naïve experience is not philosophical experience.
  - a scholar is always in conversation with the world as she experiences it<sup>2</sup>, and by extension always in conversation with other scholars, even those who experience the world differently. Differences are always traced back to differences of experience. By the gracious way in which God reveals himself in His creation<sup>3</sup> the experience of a Christian scholar has much in common with the experience of a non-believer, and when there is a difference between their experiences of the created world it is the result of sinful desire on one of the other party (or both).
  - This does not mean that a scholar whose heart has been transformed by God's indwelling will choose the same scholarly questions or come to the same conclusions as someone whose life is not transformed. But it does mean that a challenge to the way a field of scholarship is pursued generally should wait for the moment when that is done generally begins to look like a distortion resulting from an idolatrous impulse. We should always look for what Reformed theology refers to as common grace.

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<sup>1</sup> See Ecclesiastes 2:24-26, for example

<sup>2</sup> I think this is expressed poetically in Psalm 19. Philosophers will use more precise language, such as “self disclosure”. See, for example, pages 11-13 in Lambert Zuidervaart, “How Not to Be an Anti-Realist: Habermas, Truth, and Justification.” *Philosophia Reformata* 77 (2012): 1-18

<sup>3</sup> Matthew 5: 45

- Idolatrous impulses are much more likely to affect the findings of philosophers, psychologists, sociologists, and (I would add) theologians than, say mathematicians and chemists. Even so, I have the impression that many of the classical Christian philosophers were Aristotelians with a twist, and that the twists were always occasioned when the Christian scholars perceived a contradiction between Aristotle and their own Christian experience of life.

- The emphasis on experience - much like Dooyeweerd's emphasis on the primacy of naive experience - seems to be consistent with the understandings of the brain coming out of the fascinating book *The Master and His Emissary* by Iain McGilchrist. He sees the two halves of our brains as dividing our thinking into two kinds that complement each other. The right brain (which ought to be the master) processes our experiences in holistic fashion (I think of this as a bit like Dooyeweerd's naive experience), organizing and sorting them, and then sending those items that require closer analysis to the left brain (the emissary), where analysis is the rule. The two sides of the brain are meant to communicate back and forth between them to shape our thinking (not just our analytic thinking!), so the left brain is supposed to report back to the right when it does the analysing. McGilchrist argues that Western modernism encourages the left brain to think of itself as the master and discourages it from reporting back for integration into our thought. In my mind, it is essential to constantly check back with our right brain for synthesis with the right brain, especially for a scholar, who spends a lot of time in her left brain. It is this checking back that should then inform how the analysis might have to be adjusted.

- As an aside, I remember a conversation with Evan Runner at one of the Unionville conferences of the AACS during my undergraduate years. Runner was explaining the relationship between naïve experience and theoretical thought. He used a sunrise as an example. He said that when an astronomer is in his abstracting physicist mode, he would understand the sunrise in terms of the earth' turning in the face of a relatively stationary sun. But, claimed Runner, when he was back in his more immediate 'naïve' human mode of experience it would remain a sunrise rather than an earth turn. I up to him after the talk and asked him whether the analytic understanding of the astronomer might not also feed back into his naïve experience. Runner said not, but I felt uneasy about the answer then, and still disagree with him.

**B. Do I object to mathematics professors at Christian Colleges and Universities who focus on research in the philosophy of mathematics more than on research in mathematics itself?**

- I have no quarrel with those who have an interest in the philosophy of mathematics. It is a worthy and challenging field. I have paid some attention to it once in a while, but my heart has been in the research (and teaching) of mathematics itself. Also, I have never yet encountered a situation where my mathematics research, when checked against my Christian life and experience, has run into obstacle that says, "this is not consistent with my experience as a Christian, so I should look into the possibly idolatrous assumptions I have allowed to creep in". Nor can I think of an example of a Christian philosopher of Mathematics whose research has pointed out the need for a significant change in how mathematics research should be done.

- I have on occasion noted mathematicians whose statements of what mathematics *is* have seemed idolatrous to me. I am sure there are many, but I will name just two:

- a. Pythagoras of Samos (c. 570 – 495 BC). He is reported to have said that "Number is the ruler of forms and ideas, and the cause of gods and daemons." He saw the world as fundamentally mathematics and wove this thinking into a religious movement.
- b. Bertrand Russell (1872-1970 AD) wrote, "Mathematics, rightly viewed, possesses not only truth, but supreme beauty—a beauty cold and austere, like that of sculpture, without appeal to any part of our weaker nature, without the gorgeous trappings of painting or music, yet sublimely pure, and capable of a stern perfection such as only the greatest art can show." I do not deny that there is great beauty in mathematics, and a particular kind of truth; but the tone of the statement suggests, I think, an idolatrous view of mathematics that turns it into a cold and austere god.

Even so, Pythagoras continues to be a valuable discovery, and Bertrand Russell' work in the foundations of mathematics was valuable even as it undermined the hope that motivated him.

- I think I should be allowed to say that I cannot bring myself to think of either of these two descriptions of mathematics as consistent with my experience of the world without having to study the philosophy of mathematics from a Christian point of view.

### **C. Why might it be that some Kuyperian Reformed Christians feel that to do mathematics research honestly one should first study the philosophy of mathematics?**

- Over the years, when he was still with us, I had several friendly conversations with Henk Hart of the Institute of Christian Studies, in which he urged me to study the philosophy of mathematics. I don't recall whether he ever explicitly suggested that it was a

necessary prerequisite for being a mathematician. It may be, though, that as a philosopher he betrayed a bit of “*déformation professionnelle*”.

A lot of Reformed Christian mathematicians end up teaching at Christian Universities and Colleges, and I am pretty sure that sometimes these institutions put some pressure on their mathematics profs to articulate how their work is specifically Christian. After all the parents of their students pay a lot for a distinctly Christian education. If the reason for the pressure exerted in these schools is more that the protection of a Christian image, it only shifts Question C from the individual to the school. So, let me give it a try:

It seems to me that the claim "Every square inch belongs to God", so fundamental to Kuyperian Neo-Calvinism, can be understood in several ways.

1. You can take it to say no more than that - in spite of all the brokenness evil, and distortion - the world we inhabit remains at some deep level the world God created and sustains; that it is still the world about which God said "it is good;" that the fundamental laws that regulate its behaviour have not changed; and that its beauty still manages to reflect and praise its creator even as ugliness tries hard to drown out the song.

This is a something that most Christians would affirm, as well as many who do not identify as Christian.

2. "Every square inch belongs to God" can also be understood as a battle cry, or as a call to defend God's territory from those who want to take it from Him. For this you imagine a sharply drawn boundary that separates the bulk of the world's population and its achievements from the people of God, who by virtue of our their commitment to serve God and because of the indwelling of the Holy Spirit possess the key necessary to rightly interpret the world and to engage in cultural activity that unfolds the creation properly. This line is the “anthesis”. It divides the world between "us" and "them".

The beauty of this position is that it legitimizes, and even values, cultural and intellectual activity as Christian service. It does not allow you to view the world as a lost cause, or as something you shield yourself from as much as possible while you wait for your release into the perfection of heaven, or for the world's renewal at Christ's return.

Not all Christians think this way. So often Christians seem to dismiss the culture around us as of no value, without any sense that God calls them to engage in it. Culture itself is seen as something to be feared, and learning as well as art are treated with suspicion. You see this especially in what I think of as North American Evangelicalism, but also increasingly in supposedly Reformed churches. This second way of understanding Kuyper's dictum does not allow that. It does not let you dismiss culture and learning in that way, for they too belong to God.

This second way of understanding Kuyper's vision led to the creation of distinctly Christian engagement in various areas of life. In Canada this was expressed in the establishment of distinct Christian organizations such as Christian elementary and high schools, Christian universities, the Christian Farmers Federation, and the Christian Labour Association of Canada.

Unfortunately, it seems to me that too often, to the extent that these distinctively Christian organizations have had any uptake in the wider Christian community, they have done so by letting go of Kuyper's culture - shaping vision. I see this especially in some of the Christian elementary and high schools. Some of the ones I am familiar with seem to value the Christian school mainly as a place to shield children from exposure to non-Christian people and ideas, rather than a place where they would learn how to struggle with those ideas.

3. "Every square inch belongs to God" can also be understood as a way of saying that the Kingdom of God is already here. We see this expressed in Luke 17:20-21 where Jesus tells the Pharisees that the Kingdom of God is within them. These words were spoken to the Pharisees of all people. They were the experts in the law who were most keen to keep the Jewish people pure and separate from the outside world! They were the ones who gave Jesus such a rough time because they felt that he was much too liberal with the wideness of God's grace. This is not to deny that there is an aspect "here but not yet" in many of the Kingdom texts in Matthew and Luke, but it does bring the eschatological horizon of God's coming Kingdom into the present. This understanding emphasizes that the work of realizing the Kingdom of God is God's work by the Holy Spirit, and that it is our work to discern where and how God is already at work, how we are called to participate in it, and what needs to be changed in us so that we can do that well.

I believe that this third way of understanding (or unfolding) Kuyperian thought is the more Biblically correct and is supported by what the Holy Spirit is already doing in the world. It does justice to the concept of common grace. It also does justice to the Belgic Confession's understanding of the creation as God's self-revelation.

It also allows a Christian scholar to engage in scholarship without first having to have a well-constructed and distinctly Christian philosophy of that area of research and scholarship before she can begin.