Our Academic Tasks and the Cosmic Gospel Economy: What Difference Does Being a Christian Make in the Study of the Krebs Cycle?

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Therefore, prepare your minds for action. Be self controlled: set your hope fully on the grace to be given to you when Jesus Christ is revealed” (1 Peter 1.13).

Those of us involved in Christian higher education frequently ask ourselves, and are often asked by others, some version of the following question: “What difference does being a Christian make in the study of X?” The question is asked for different reasons: as a starting point for a potentially interesting exploration, as part of a faculty member’s soul-searching struggle with the ideas of his or her discipline, by a constituency looking for the Christian payoff for resources given to Christian education, or even in a cynically rhetorical mode by those who are deeply skeptical of the project of Christian education itself.

The answers to the question vary. Sometimes the answer is easy, for example when the value of human beings as image-bearers is directly in view, or when a particularly obvious ethical question is being considered for which biblical teaching provides a straightforward answer. In the case of biology, my own discipline, a Christian view of living organisms would be the conviction that they are created and purposely sustained by God rather than merely the material products of impersonal forces, time, and chance. Another set of valid answers can be provided by explaining distinctive Christian attitudes toward the process and objects of study: that as God’s children studying His works for His glory, we are in a frame of mind that is different from that of those attempting to study without acknowledging God’s presence. However, when it comes to judgments made in the disciplines or in the study of straight-forward observational, technical facts of science, Christian scholars become frustrated or even defensive with the whole “difference” game.

Some strange ironies appear when we pursue the difference game. On the one hand, we sometimes covet difference to justify ourselves as bone fide Christian scholars in our own minds and in the minds of our Christian constituencies.
For example, in the sciences we might really like a revelation of something like the Krebs cycle in the Scriptures, or we might like a specifically Christian insight that led all Christians to support scientific-theory A, which turned out to be correct, over against scientific-theory B, which was supported by all non-Christians but which turned out to be wrong. These, we think, would be real differences.

On the other hand, we sometimes fear “difference” because it might put us at odds with our non-Christian colleagues in our academic disciplines. We prefer a high-profile Christian difference that passes muster in our disciplines. Some of the attraction of the intelligent-design theory in biology might come from its promise in this capacity. But then some of us worry: If it can pass muster in the discipline, maybe it doesn’t qualify as a specifically Christian difference. And if Christianity isn’t making a specific difference in our work, we are right back where we started, feeling guilty about what we do and trying to find a difference to exploit.

I’d like to explore this difference question in the context of the Krebs cycle and I Peter 1:13. To do so, I’ll consider the series of biochemical reactions known as the Krebs cycle—but any straightforward “fact” or technical process that is a part of any other academic discipline could stand in for the Krebs cycle here.

I’ll begin with a little background in the Krebs cycle. In 1937, a German biochemist named Hans Krebs proposed a novel solution to puzzling experimental data that had built up over several decades as biochemists explored the cellular reactions of energy metabolism. Before Krebs’ proposal, most of those working on the problem were stuck in a linear frame of mind, instinctively picturing metabolism as a series of reactions operating one after another in a straight-line fashion. Krebs’ insight was to realize that this particular series of reactions was operating in a cyclical rather than a linear fashion, and for this insight he won a Nobel Prize in 1953. There are eight major reactions in the cycle. In each round of the cycle, two carbon atoms’ worth of food molecules are processed, and some of the food’s energy is captured for the cell’s use—energy which ultimately allows you to maintain an orderly configuration of molecules in your body. These reactions take place in sub-cellar organelles known as mitochondria, of which there are 50 or so in almost every one of the roughly 50 trillion cells that make up your body. In fact, right now (unless you are crash dieting), complex, highly ordered, carbon-containing molecules from a recent meal are being broken down via the Krebs cycle to simpler, less-ordered molecules of carbon dioxide, which you are exhaling by the millions in each breath.

Now, what difference might being a Christian make in the study of these reactions? The difference is not very obvious, given the common way of thinking about features of biology—simply as facts to be memorized or techniques to be mastered. The same set of reactions is accepted as a “fact of nature” by Christian and non-Christian alike. Christian students in my classes learn the same details as students in similar classes taught by professors who don’t claim to be Christians.

Any human activity that loses its rootedness in the gospel, its sense of benefit from the gospel, and even its sense of participation in the gospel will eventually become a narrow, dry excercise fraught with idolatry.
are Christian and leave it at that? (Anyone that has actually taught the Krebs Cycle in introductory biology knows that attitudes toward the study are a struggle for Christian and non-Christian students alike.) Should I feel defensive that the words and figures I use in the lectures are commonly used by Christians and non-Christians alike? Should I admit that there is no real difference here and focus more on topics where difference may be more obvious so that I can justify the course as being taught Christianly?

**Big Gospel**

I certainly don’t pretend to have all the answers to these challenges, but in my struggle with these issues in the sciences, I have found myself slapping my forehead and exclaiming, “It’s the gospel, stupid.” I want to discuss several of my ideas from these head-slapping sessions and explain how they relate to difference and to “setting our hope fully on the grace to be given … when Jesus Christ is revealed” (1 Peter 1.13).

Any human activity that loses its rootedness in the gospel, its sense of benefit from the gospel, and even its sense of participation in the gospel will eventually become a narrow, dry exercise fraught with idolatry. What I have in mind when I say gospel here is what we could call Big Gospel, the expansive vision of the gospel expressed in the Creation, Fall, Redemption, Consummation belief. Big Gospel is the good news that God in Christ creates, sustains, rules, judges, reconciles, and completes “all things” in the created realm. This is the gospel expressed in that familiar passage from Colossians:

He is the image of the invisible God, the firstborn over all creation. For by him all things were created: things in heaven and on earth, visible and invisible, whether thrones or powers or rulers or authorities; all things were created by him and for him. He is before all things, and in him all things hold together. And he is the head of the body, the church; he is the beginning and the firstborn from among the dead, so that in everything he might have the supremacy. For God was pleased to have all his fullness dwell in him, and through him to reconcile to himself all things, whether things on earth or things in heaven, by making peace through his blood, shed on the cross. (1.15-20)

I will draw out several points concerning Big Gospel and relate them to the Krebs-cycle-difference question.

**Big Gospel is radically Christocentric.**

God’s work in his created realm is Christocentric from beginning to end. It is the pre-eminence of God in Christ that is literally “fleshed” out in “all things: Christ is the “Alpha and the Omega,” the Creator and Finisher of all that is, the focal point of all aspects of creation and of every moment of its history. He is the only “mediator” of creation, of redemption and of consummation. There is nothing good in created reality that is good on its own; all that is good is good only “in Christ” (Genesis 1.31a, John 1.1-3, Eph 2.10). Nothing that is ruined by sin will be redeemed except “in Christ” (Ephesians 1.10, 1Cor 1.30, Romans 8.19-23). And nothing known by humans will be known except it be known in Christ, “in whom are hidden all the treasures of wisdom and knowledge” (Col 2.3).

**Big Gospel tells a comprehensive story that involves literally all things.**

Even though human redemption and completion in Christ is center stage, God’s gospel purposes go far beyond. John Calvin frequently likened all creation to a theater that displays God’s glory;² the idea here is not that creation is a theater but that creation is theater. Created reality is not simply the stage or an incredibly complex prop for a story that God is telling; rather, created reality is the gospel story he is telling in time and space. All of creation and its history are integral to this cosmic gospel economy. Furthermore, God’s gospel promise is not just to repair the sin and evil problem in creation, to move things back to time zero. Instead, his promise is that through judgment and grace he will remake all creation, to bring into being a new heavens and a new earth, populated by humans who are themselves new creations in Christ. He is recreating a total reality that supersedes the present reality in all respects yet is relationally connected to the present reality as its completion and perfection.³
Big Gospel asks us to be triumphant without being triumphalist.

The gospel story of Christ’s redemptive rule unfolds and develops over created time in such a way that history is neither just a time delay until King Jesus swoops in on the clouds of heaven, nor simply a matter of an obvious and telegraphed kingdom crescendo leading into consummation. There are demonstrations of the coming kingdom in history, but there are also what we could call gestational elements. Gestation in biology commonly refers to the period of time a developing organism is carried inside its mother before its birth. The extensive development taking place doesn’t become obvious to outside observers until birth, when suddenly the months of behind-the-scenes activity becomes evident to all. Likewise, in Christ’s rule, in addition to kingdom demonstration there is also kingdom gestation, a quiet, more hidden, yet nonetheless real unfolding of Christ’s pre-eminence, in preparation for the day it will burst forth in all its fullness.

Not only are we looking toward the triumph of the kingdom, but all creation with us is longing for it. That familiar passage from Romans 8 explains this gestation aspect:

The creation waits in eager expectation for the sons of God to be revealed. For the creation was subjected to frustration, not by its own choice, but by the will of the one who subjected it, in hope that the creation itself will be liberated from its bondage to decay and brought into the glorious freedom of the children of God. We know that the whole creation has been groaning as in the pains of childbirth right up to the present time. Not only so, but we ourselves, who have the first-fruits of the Spirit, groan inwardly as we wait eagerly for our adoption as sons, the redemption of our bodies. (Romans 8.19-24)

While redeemed image bearers “have the first-fruits” of Christ’s redemptive work from among the created things, there is also the sense that we (humans) are a demonstration to the rest of creation as to what God will ultimately do for it. The rest of creation is waiting for us to be revealed fully as recreated children, and even now we are demonstrating to the rest of creation what it is like to be “in Christ.” In fact, it seems that human regeneration is linked in some sense to creational regeneration and that we should be motivated in part by both a sense of solidarity with creation and a sense of special responsibility among the creatures to lead the way, to demonstrate how redemption looks, acts, and thinks. The way we treat the rest of creation matters in both the gestation and demonstration of the coming kingdom. How exactly is a “demonstration” received by non-personal creatures and inanimate things? I haven’t a clue, but there it is in Romans 8.

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Big Gospel gives us the “Weight of Glory.”

Finally, it is only in light of Big Gospel that humans can feel the full measure of humility that comes from absolute dependence on God and yet experience the full weight of glory in the gospel vision of human empowerment. We are absolutely dependent on regeneration for newness of life. Yet this regeneration gives humans a new nature that is fully empowered to respond to God as true sons and daughters. Regeneration does more than reset the clock, giving us a fresh start. The perishable and corruptible mode of being is replaced with a new mode that is incorruptible and imperishable. As new creations, redeemed humans are not only established as new persons but also called to work at “being” new persons. We are to “put on the new self, which is being renewed in the image of its Creator” (Col. 3.10).

This new self is not to be just a beautiful, isolated, put-on-the-heavenly-shelf museum piece. Our reconciliation to God creates an entirely new and comprehensive web of relationships, with
new connections to self, to others, and to the rest of creation. These new relationships center around a “new” aspect of image bearing, that of restoration, redemption, and bearing witness to the present and coming transformation of all things in Christ. The regeneration of human beings in Christ sets in motion a transformation wave, a ripple effect of our transformation that emanates from us and that, by the Spirit, we assist in propagating. We regenerated humans become centers of redemptive activity, not in the sense of generating redemption under our own power but in the sense of resonating the redemption we have received through our restored relationship to God. We are to resonate our redemption in all our relationships within creation until the reverberations of his transforming power bring down the curtain on the present age.

Seen in that light, human recreation involves more than simply restoring image-bearing. It expands and transforms image-bearing and image-bearing tasks in a variety of ways. As New Creatures in Christ, we reflect deity in new and better ways than before the Fall. The task of ruling and caring for creation, given before the Fall, is given a new and better form, based on human reconstitution in Christ. Thus, our creational “unfolding” task now should not only explore and develop the potentials of creation but (in and through doing so) bear witness to God’s redeeming work in the “now,” as well as pointing to and gestationally building up to the “not yet” of consummation.

**Now We Return to Krebs.**

Having briefly sketched some of the features of Big Gospel, I return to the Krebs cycle and the difference a Christian perspective makes in our studies of Krebs-cycle types of things. The fact is that when new creatures in Christ hold things like the Krebs cycle in their hands and minds, those things do become different, and that difference is not dependant on our intelligence and our cleverness. That difference is dependant on Christ and is rooted in who he is, what he has done, and what he is doing and will do in us and in all of creation. Because we are in Christ, every feature of creation that we grasp and puzzle over, every process that we learn and apply, is transformed, is made different by the Spirit through our work with it. By God’s grace, faithful work by true sons and daughters always moves His kingdom forward. The Krebs cycle, in a highly personal way, is transformed when you and I as a unique sons or daughters of the King establish a relationship with it through our study. In fact, the natural sciences as a whole offer a wide variety of means to establish this specialized kind of relationship to the natural world around us. The question, then, is not whether our being in Christ makes a difference in a particular area of our studies per se; it is more a question of the kind of difference it makes.

Let me bring back the gestation and demonstration terminology mentioned earlier. Part of working faithfully is to consider whether the difference that God makes in his world in and through us is more gestational of the kingdom—more part of the quiet building of the kingdom behind the scenes—or whether faithfulness in a particular case demands that the difference be a more explicit, more public, and more directly demonstrative of the coming kingdom.

As we establish and nurture the specialized relationships with creation that our studies enable, some differences should and will be obvious to all, and we dare not minimize or apologize for those differences so that we can better fit into our disciplinary guilds. We should always keep pressing to understand the difference our redemption makes and should always be asking whether there are explicit differences to be owned and pointed to before our Lord and before a watching world.

At the same time, we should be wary of equating explicit difference with difference per se, especially such that we only pay attention to and put a premium on elements of our work that bring out explicit differences. To do this would seem to dispute with God concerning the gestational aspects of his prosecution of history according to his purposes and plans. The temptation to overvalue or manufacture explicit difference is akin to the temptation toward legalism in our approach to specifying Christian righteousness. In legalism, we are not satisfied with Christ’s righteousness, so we seek to manufacture a righteousness of our own, using human-generated rules. In our Krebs-cycle-like cases, we are tempted to be dissatisfied.
with the kind of difference we find in Christ and to construct difference that is “in us” rather than “in Christ.”

Let us neither underestimate nor overestimate the impact of our work before God as individuals and a community involved in the project of Christian education in our own small corners of the Kingdom. God is bringing out his purposes in Christ in and through created things, even in things like the Krebs cycle and our interactions with it. The wonder is that in Christ, our work in our disciplines and our work together in Christian higher education are somehow integral, not just incidental, to the gestation and demonstration of Christ’s kingdom. As we renew our work together, let us prepare our minds for action and be self-controlled in setting our hopes for our work fully on the grace to be given us when Jesus Christ is revealed.

Endnotes
1. All scripture references are taken from the New International Version of the Bible (Grand Rapids, MI: Zondervan, 1978).
3. See the longer discussion of this issue in Tim Morris and Don Petcher, Science and Grace: God’s Reign in the Natural Sciences (Wheaton: Crossway Books, 2006), 193-202. The talk on science and grace, given in 2004 (this paper) informed, in a variety of ways, the material that ended up later in chapter 7 (159-206) of Science and Grace, titled “New Creatures at Work in the King’s Realm.”

Bibliography