

The Bible, the Creation, and the Inward Light: Tensions within Quaker Science

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1. Introduction

In the turmoil of mid-seventeenth England religious groups proliferated, many with messianic agendas. While these movements were often ephemeral, the band of visionaries that formed round the shoemaker George Fox proved to be more enduring; they – but particularly Fox – succeeded not only in attracting large numbers of followers but also in creating an organisation that has survived to the present day and is generally known as the Quakers or the Society of Friends. Despite this institutional continuity, Quaker thought has undergone several significant transformations. For example, the radicalism of the mid-seventeenth century Quakers had largely abated by the early decades of the eighteenth. Quaker attitudes towards the bible also changed: thus, in the nineteenth century Quakerism, like a number of other religious movements, underwent an evangelical phase during which the central position of the bible was reasserted. The main focus of this paper will be one such transformation which concerns Quaker attitudes towards nature. My central theme will be the recurrent conflict between Quaker spirituality and their increasing engagement with the material world. The Quakers are of particular interest to students of science and religion, because they emphasize the importance of personal religious experience, which led them to adopt rather idiosyncratic approaches to both the bible and to natural theology. In this paper I will focus initially on their views regarding the interpretation of the bible – especially the opening verses of Genesis – and will return briefly to the topic of natural theology towards the end of this paper.

Quaker attitudes to the bible need to be understood in relation to another and more direct source of religious insight and inspiration, what is generally called the “Inward Light,” or the “Light Within,” or the “Light of Christ.” Indeed, what demarcates Quakers from most other religious groups has been their commitment to this idea of a powerful source of religious illumination which resides within each individual. Throughout Quaker history there has been a complex interplay between these two sometimes dissonant sources of religious understanding; for example, during certain periods Quakers have emphasized one over the other. Moreover, many of their opponents have considered the doctrine of the Inward Light to be unchristian and have even charged Quakers with heresy.¹

My initial focus will be on the *early* Quakers – those who shared Fox’s radical vision during the period from the late 1640s to the early 1660s. Here we encounter a specifically Quaker view about the relationship between the bible – which early Quakers usually referred to as the scriptures – and the Inward Light, in which the latter is taken as primary. We see this in a number of Fox’s writings in which he criticized contemporaries who latched onto the bible as the foundation of their religion and viewed it as containing a fixed set of doctrines that had to be slavishly followed. For example, in his journal Fox described an encounter with a priest who

¹ See numerous entries listed in Joseph Smith, *Bibliotheca Anti-Quakeriana; or, a Catalogue of Books Adverse to the Society of Friends* (London: Joseph Smith, 1873).

informed his listeners that “the Scriptures ... [are] the touchstone and judge by which ... [people are] to try all doctrines, religions, and opinions, and to end all controversy.”² In responding to the priest Fox chastised those who are blind to the bible’s proper significance because they view it rather simplistically as the repository of truth. He therefore turned on the priest: “Oh, no,” he asserted, “it is not the Scriptures”; he then warned the assembled crowd that God “does not dwell in temples made with hands” – in the pages of a printed book called the bible (or indeed in churches). As a later seventeenth-century Quaker (Robert Barclay) argued, the printed bible could not be the word of God, since “the Word of God is like unto himself, Spiritual ... and therefore cannot be heard or read with the Natural External Senses, as the *Scriptures* can.”³ Instead, the word of God as written in the bible can only be appreciated through the inward sense: that is by the Inward Light.

Returning to his confrontation with the priest, Fox proceeded to urge his audience to turn to the “*Holy Spirit*, by which the holy men of God gave forth the Scriptures, whereby opinions, religions, and judgement were to be tried;” In other words, it is this “Holy Spirit” (and not the scriptures themselves) that can help a person make right moral judgements.⁴ Thus, in order to grasp its essence, the bible should not be used as a touchstone for religious opinion. Instead, for its true meaning to be revealed it has to be illuminated by the spirit – the Inward Light. Although Quakers like Fox did not view the bible as a crutch, they were repeatedly inspired by the biblical narrative and drew heavily on specific biblical texts. Indeed, one historian has claimed that “In many [early] Quaker tracts, letters, and even journals, 70 per cent of the phrases are biblical quotations or paraphrases.”⁵ It might be inferred that by refusing to take the bible as their proof text Quakers would have encourage diversity of interpretation. However, the Quaker antipathy to intellectualizing religion often resulted in fairly unsophisticated readings of specific biblical passages but ones that accorded with their deeply-felt religious intuitions.

While the bible needed to be read with the torch of the Inward Light, the notion of the Inward Light was itself rooted in biblical sources, principally the New Testament, and especially John’s gospel. For example, in John 8:12 Jesus says “I am the light of the world: he that followeth me shall not walk in darkness, but shall have the light of life.”⁶ Likewise in many of their writings Fox and other early Quakers portrayed their mission as bringing Jesus to the world and thereby turning darkness into light. Thus early in his ministry Fox received divine illumination directing him to enlighten every man “by the divine light of Christ;” adding that he (Fox) had been

² John L. Nickalls, ed., *The Journal of George Fox* (Cambridge: Cambridge University Press, 1948; reprinted 1997), 40. This entry relates to early 1649.

³ Robert Barclay, *Truth Cleared of Calumnies* [1670], 14; reprinted in *Truth Triumphant through the Spiritual Warfare, Christian Labours, and Writings of that Able and Faithful Servant of Jesus Christ* (London: 1692). See also Richard Bauman, *Let Our Words be Few: Symbolism of Speaking and Silence among Seventeenth-Century Quakers* (London: Quaker Home Service, 1998), 26.

⁴ *Journal of George Fox*, 40. My emphasis.

⁵ Hugh Barbour, *The Quakers in Puritan England* ([Richmond, Indiana]: Friends United Press, 1985), 157.

⁶ Quakers used the King James version of the bible.

“sent to turn people from darkness to the light that they might receive Christ Jesus.”⁷ During his travels Fox also frequently addressed groups of listeners whom he directed “to the light of Christ, the heavenly man, and to the spirit of God in their own hearts and where they might find God and Christ and his kingdom and know him [to be] their teacher.”⁸ Since each individual possesses such a light, Quakers maintain the socially radical doctrine that no distinctions should be acknowledged in terms of social rank, title or gender. This doctrine challenged the contemporary social order and resulted in large numbers of Quakers being imprisoned for such misdemeanours as refusing to take off their hats when summoned to appear before a magistrate. The doctrine of the Inward Light also denies the need for any intermediary between the individual and God; in this sense Quakerism was an extreme Protestant reaction to Catholicism. But the individualism at the heart of Quakerism created its own problems and one of George Fox’s main legacies was the creation of a strong centralized organisational structure that was largely successful in preventing schisms.⁹

The role of the Inward Light is to provide communication with God and to guide Quakers in all aspects of their lives. Thus Edward Burrough, one of the early Quaker propagandists, wrote that through this light “we come to know good from evil, right from wrong, and whatever is of God, and according to him, from what is of the devil, and what was contrary to God in motion, word, and works.”¹⁰ As Richard Bauman has argued in his lucid analysis of Quaker thought, the Inward Light was generally discussed in auditory – rather than visual – terms, as a channel by which God spoke to those who were prepared to listen.¹¹ Thus, in contrast to the view that God only communicated with humankind through the bible, Quakers adhere to a doctrine of continuous revelation: to quote Robert Barclay, “this immediate speaking never ceased in any age.”¹² Most importantly, a properly attuned Inward Light can determine *Truth* (with a capital “T”) – a word that plays a central role in Quaker epistemology. Indeed, Quakers have often portrayed themselves primarily as seekers after Truth.

The question that this paper addresses is how Quakers understood the physical world – God’s creation. Did this religious community, with its idiosyncratic doctrine of the Inward Light, adopt a specific understanding of the natural world? What attitudes did Friends adopt towards it? In answering these questions I shall first examine the views of creation articulated by early Quakers. Having considered their accounts of creation we shall be in a better position to appreciate how attitudes towards the natural world changed over later generations of Quakers – ending around

⁷ *Journal of George Fox*, 33-34; See also such works as Robinson, *Light Prevailing, and Expelling Darkness: or, a Vindication of that Most Noble Principle, the Light of Christ in Men* (London: 1709) and Francis Howgill, *The Invisible Things of God Brought to Light by the Revelation of the Eternal Spirit who was an Ey-Witness of the Wonders of the Lord in the Beginning* (London: 1659).

⁸ *Journal of George Fox*, 120.

⁹ William C. Braithwaite, *The Second Period of Quakerism* (London: Macmillan, 1921), 251-348.

¹⁰ Edward Burrough, quoted in Bauman, *Let Our Words be Few*, 24.

¹¹ Bauman, *Let Our Words be Few*, 7-8, 20-31.

¹² Robert Barclay, *An Apology for the True Christian Divinity: Being an Explanation and Vindication of the Principles and Doctrines of the People called Quakers*, 8th edn. (London: James Phillips, 1780), 32.

the time of the French Revolution.¹³ Section 3 will focus on the contexts in which these later Quakers encountered the natural world. In the fourth section we see how a new appreciation of the Creation emerged during the late seventeenth and early eighteenth centuries and its problematic relation to the sect's traditional beliefs.

2. Early Quaker Understandings of Genesis

In his influential *Apology for the True Christian Divinity* (1676) Robert Barclay cited the first chapter of Genesis on only one occasion: He used the text of verse 2 – “the Spirit of God moved upon the face of the waters” – in support of the argument that God manifests himself immediately through the spirit.¹⁴ In one sense Barclay was a typical Quaker in demonstrating concern for the operation of the spirit and paying no attention to the physical processes – such as the role of “the waters” – that many non-Quaker commentators highlighted when discussing the opening verses of Genesis. For example, in his *A New Theory of the Earth* (1696) the liberal Anglican cleric William Whiston drew on Newton's natural philosophy to flesh out the account of creation given in Genesis (which he believed was written in a non-philosophical idiom). By contrast, in the early eighteenth century John Hutchinson sought to derive the true system of the world by interpreting the meanings hidden in the Hebrew text.¹⁵ Such physicalist interpretations of Genesis were antipathetic to the Quaker spiritual perspective on the bible in general and Genesis in particular.

Although Barclay's *Apology* is typical of Quaker hermeneutics in the above respect, it should not be privileged since in systematizing Quaker beliefs in the mid 1670s he tended to expunge the more radical illuminist views of many earlier Quakers (and some later ones), especially on such issues as creation. It is to these early Quaker writers that we now turn. As Anne Adams has noted, the first generation of Quakers often articulated a three-stage historical narrative of creation.¹⁶ First, God created a paradisaical world in which all creatures, man included, participated in an harmonious unity. Then man turned to evil and poisoned all that God had created. With the Fall, nature became a scene of conflict. Finally, through the new covenant with Christ, humankind was redeemed, thus opening the prospect of paradise regained – what was often termed the “new Creation”. These familiar images drew on traditional views of creation, the fall and redemption based on the texts of Genesis and the New Testament. However, the glosses to this account help us to appreciate specifically Quaker attitudes to creation.

Not only did early Quaker writers pay scant attention to the physical processes described in Genesis, but they structured their accounts of creation within a rhetoric of exhortation. Their appeal to Genesis formed part of an argument which urged readers to live the true Christian life by heeding the Inward Light, thereby bringing about the new creation. Thus discussion of the (initial) creation was structured within a

¹³ Nineteenth century Quaker views are discussed more fully in Geoffrey Cantor, *Quakers, Jews, and Science* (Oxford: Oxford University Press, 2005).

¹⁴ Barclay, *Apology*, 32.

¹⁵ On Whiston see James E. Force, *William Whiston: Honest Newtonian* (Cambridge: Cambridge University Press, 1985). On Hutchinson see G.N. Cantor, “Revelation and the Cyclical Cosmos of John Hutchinson,” in Ludi Jordanova and Roy Porter, eds., *Images of the Earth* (Chalfont St. Giles: British Society for the History of Science, 1979), 3-22.

¹⁶ Anne Adams, “Early Friends and Their Witness to Creation,” *The Friends Quarterly*, 31 (1998) 145-52.

biblically-justified narrative leading to the Fall and, ultimately, redemption through Christ, but with a distinctly Quaker interpretation.

As in Barclay's *Apology*, these early Quaker narratives interpreted the first creation as a spiritual event, although one that impacted on the material world. This can be seen in their use of terminology. For example, in his *A Discovery of Divine Mysteries wherein Is Unfolded Secret Things of the Kingdom of God* (1661) Edward Burrough conceived two controlling forces, which he calls "Life" and "Death." They act in opposition, with "Death" wresting control from "Life" at the Fall, and "Life" slowly reasserting its supremacy following the advent of Christ's message. For Burrough "God is *Life* in himself, without *beginning* or *ending* of *time*, *place*, or *matter*." In the beginning "*Life* put forth it self out of its invisible being, into *work* and *action* ... and appeared in visible *operations* and *works*, and brought forth *all Creatures*, and *all things*, into visible appearances; and *Life* was the Author of all, the Beginning and Foundation of all".¹⁷ Thus life is a non-material force that suffuses the material world. A number of Quaker writers also portrayed the Creation in terms of "Power" – an active force under God's direction that forms the physical world. Thus in 1659 Francis Howgill described this power as "Gods Son" that created "all things both in the Heaven and In the Earth ... every Beast of the field, every fowl of the Heaven, and the decreed place for the Sea was broken up, and all things that moveth therein were created by the word and by the *Power*, and man was made by the *Power*, and in the *Power*."¹⁸

In line with the Quaker doctrine of the Inward Light, these accounts of creation were centred on the inner state of humankind. For example, the first three chapter headings in William Smith's *New Creation Brought Forth* (1661) begin with the words: "The State of Man ..." – the first chapter being an account of "The State of Man in the Creation." The theme of the "Inward Light" appeared at many points. Thus, when discussing the state of man after the Fall Smith wrote that "the Seed ... kept its purity, though Man went from it, and did not abide in it, and the *pure Light* in its own quality did shine in Mans Conscience, and was made manifest in the Eternal Love, to convince Man of all his evil wayes." Gradually, the "*pure Light [that] shines forth in his Conscience*" enabled him to recognize how immersed he is in evil and how far from God. A continual struggle ensued, in which the Inward Light tried to assert itself against the darkness, leading inexorably to man's conviction and ultimately conversion, thus inaugurating the new creation.¹⁹

While man is the subject of this creation narrative, other parts of creation undergo a parallel series of changes. The account of God's creatures given in one of Burrough's works makes clear that the state of the "creatures" – a term that would certainly encompass the "brutes" but probably also other parts of the creation – depends on the spiritual state of man. Thus while "no creature was evill or defiled in its [original] creation," after the Fall man infects the other creatures with his evil and corruption: "he makes all creatures evill in his exercise of them, and he corrupts them

¹⁷ Edward Burrough, *A Discovery of Divine Mysteries wherein Is Unfolded Secret Things of the Kingdom of God* (London: 1661), 7-8. Interestingly too, in the light of the Quaker truth testimony, Burrough's account of the Fall draws on John 8:44 (cited too by Fox and other Quakers) in claiming that "*the Devil abode not in the Truth*."

¹⁸ Howgill, *Invisible Things of God*, 2.

¹⁹ William Smith, *The New Creation Brought forth, in the Holy Order of Life* (London: 1661), 20, 28.

and perverts them to another end than wherefore they were created, and by the creatures, dishonours the Creator.” With the new covenant, the creatures are also restored, “and all creatures are seen to be the Lords, and the whole earth is his and the fulness thereof, and the abuse of all creatures is ceased, and they are enjoyed in their pure vertue to feed and to cloth the creature, and not to be destroyed upon the lust.” So their purity and harmony is restored to its pre-lapsarian state.²⁰ Many variants can be found on this theme. For example, for Smith the Fall involved the dissolution of the harmonious natural order, such that “the Serpent hath weakned him [man], and set the Creatures over him, and then leads him to commit evil in the use of the Creatures”. With the establishment of the new creation man again gains his rightful place and re-establishes his dominion over the rest of creation.²¹

The dominant theme in these early Quaker creation narratives is the complete harmony and unity that existed in the initial creation. This harmony is to be re-established – sometimes completely, sometimes incompletely – with the new creation. Although writers like Fox, Burrough, Howgill, and Smith were unconcerned with the physical process of creation, they articulated the necessary harmony that originally existed between humankind and the rest of creation, one that will be re-established through following faithfully the Quaker way. While it would be anachronistic to see here a form of environmentalism in these early Quaker writers, they maintained an idealized vision of harmony between man and nature. This vision had some practical implications; for example, they deplored the maltreatment of animals. Thus, among his advice to those taking their seats in the Rump Parliament in 1659 George Fox warned against idle pursuits that were contrary to the Quaker conception of moral Christian conduct. Not only was football, shovelboard, and “vain Musicks” to be avoided, but he also proscribed bull-baiting, cock-fighting, and horse-racing. Although his main concern was to direct the parliamentarians away from vice in order to create a Christian polity, he considered these last activities to be “destructive to the Creatures,” and therefore subversive to the harmony that Quakers sought to attain throughout creation.²² For Fox and many later Quakers the wonton destruction of animals for sport was akin to warfare. Not only did it fracture the unity of creation, but it was also sometimes recognized that cruelty to animals and their needless killing encouraged the mentality of warfare. As the abolitionist Thomas Clarkson wrote in his account of Quakerism at the end of our period, benevolence is a characteristic of Quakers and one that naturally includes not only their dealings with other men but also their stewardship of animals.²³

The above vision of unity and harmony in the creation stands in stark contrast to the perceived state of the post-lapsarian world. Following the Fall, not only has there been conflict between man and the rest of creation, but strife and disharmony have dominated. Not surprisingly, this view of the contemporary physical universe did not lead early Quakers to study the natural world. Indeed, most early Quakers repudiated the pursuit of science as practised in the fledgling Royal Society. As Isaac

²⁰ Edward Burrough, *A Standard Lifted up, and an Ensign Held forth, to all nations* (London: 1658), 17-18.

²¹ Smith, *New Creation*, 13.

²² George Fox, *To the Parliament of the Comon-Wealth of England* (London: 1659), 12. See also Keith Thomas, *Man and the Natural World. Changing Attitudes in England 1500-1800* (London: Allen Lane, 1983), 150-65.

²³ Thomas Clarkson, *A Portraiture of Quakerism*, 3 vols. (New York: Samuel Stansbury, 1806), III, 152-4.

Penington argued in his 1668 attack on the Royal Society, the study of physical nature does not lead to Truth, and those who pursue science are not merely wasting their time but by pursuing a false path they are damaging their opportunity to gain salvation.²⁴ Science has no place in the religious odyssey. The repeated emphasis on the ultimate importance of the spiritual path and the repeated repudiation of the physical and sensual would seem to make Quakers completely antipathetic to the physical world and its study. This, surely, is the only conclusion to be drawn from the early Quaker writings reviewed above. Yet, as we shall see in the next section, Quakerism also possessed some spaces for the study of nature and these were exploited particularly by William Penn and by certain later writers, thus enabling some Quakers to participate in science by the end of the eighteenth century and a far greater number to gain an appreciation of the natural world as a source of pious reflection. But a heavy price had to be paid as Quakers tried to straddle the spiritual and mundane realms.

3. Later Engagements with Nature

The historian William C. Braithwaite wrote two major works chronicling the development of Quakerism: *The Beginnings of Quakerism* (1912) and *The Second Period of Quakerism* (1919).²⁵ In the first he charted the rise of the movement led by Fox and an assorted band of enthusiasts who sought to lead a revival of religious ardour, based on the radical doctrine that each person possesses the Inward Light. Braithwaite's second volume opens with the Restoration and shows that over the ensuing decades Quakerism lost much of its creative energy and slowly took on the mantle of a structured organisation. In the process many of the more radical voices were silenced. Those who constituted this second phase of Quakerism were less prone to religious visions and Quaker thought became systemized in such works as Robert Barclay's *Apology*, which opens not with religious visions but with a set of fifteen theological theses addressed to the clergy.²⁶ Moreover, while Quakers continued to meditate on the role of the Inward Light in spiritual experience, they increasingly confronted a range of practical questions, such as how to support themselves and their families and how to educate their children in true Christian principles. In other words, they sought to be in this world, but not of this world.

The practical Quaker activities we shall be examining in this section stand in an awkward relation to the illuminist narratives discussed in the previous section. On the one hand, there was a continuity of belief between the early Quakers and the next few generations, especially in terms of the fundamental importance accorded to a religious understanding of the world through the operation of the Inward Light. On the other hand, Quakers had not only lost much of their messianic zeal and become increasingly prosperous and respectable (if slightly idiosyncratic) members of British society but they also participated effectively in such worldly activities as trade and commerce while trying to maintain their distinctive religious and moral stance on a range of issues. For example, many Quakers became bankers: however, they tried to

²⁴ For example, Isaac Penington, *Some Things Relating to Religion, Proposed in the Consideration of the Royal Society (so Termed) to Wit, Concerning the Right Ground of Certainty Therein ...* (London: 1668).

²⁵ William C. Braithwaite, *The Beginnings of Quakerism* (London: Macmillan, 1923); Braithwaite, *Second Period of Quakerism*.

²⁶ Barclay, *Apology*, 1-14. These theses subsequently form the chapter headings of the *Apology*.

pursue policies that accorded with their conscience and the Society of Friends laid down guidelines for the ethical pursuit of business.²⁷ The situation in science was similar. As Quakerism moved away from its illuminist roots, Quakers engaged the physical world – God’s creation – but tried to do so in ways that retained the propriety of Quaker forms of thought and action.

At this point it may be helpful to try to articulate the main questions underlying this paper. As we have seen early Quakers were primarily concerned with otherworldly, spiritual matters, and generally considered that, after the Fall (but before the new creation), the mundane realm was sensual and evil and had to be kept at arms’ length. Yet, in their day-to-day lives Quakers had to engage that world. Indeed, far from turning their backs on the natural world, some eighteenth century Quakers revelled in beautiful gardens, planted exotic species, and stared at the stars through expensive telescopes. How did Quaker attitudes to nature change in the late seventeenth and eighteenth centuries in such a way as to enable Quakers to be “in this world,” while remaining in the spiritual world? Which Quaker beliefs and practices allowed for this partial and judicious participation in the physical world? What provisos were adopted in order to prevent Quakers from becoming too immersed in non-religious activities, such as their encounters with physical nature? More pertinently, we should ask whether this tightrope act created impossible dissonances within Quakerism.

I shall shortly address this family of questions but first I want to recount a very revealing episode that occurred in 1705. A Quaker Meeting in Ireland discovered that some Irish Quakers had been paying too much attention to their gardens. These (unnamed) Quakers had clearly strayed beyond the acceptable degrees of attention to their gardens and had invested gardening with unQuakerly values. The precise nature of their backsliding is not clear. They perhaps experimented so enthusiastically in developing new varieties of plants that they lost sight of their spiritual odyssey. Perhaps, too, they became covetous of each other’s turnips and tulips. The minutes of the Meeting advised “that all Friends in planting seeds do it in a lowly mind and keep to plainness and the serviceable part, rather admiring the wonderful hand of Providence in causing such variety of unnecessary things to grow for the use of man than [in seeking] to please a curious mind.”²⁸ As this quotation makes clear, there are acceptable ways of gardening, such as producing the necessary food crops and maintaining a humble demeanour while doing so. But there are wrong ways too. Whatever the precise misdemeanours of these Irish gardeners, the fact that they were admonished by the Meeting illustrates the tensions and dangers of engaging the mundane world.

In the period to the end of the eighteenth century, there are three main areas where Quakers’ practical concerns led them to engage with nature and the sciences. The first is education and careers; second, medicine; third, recreation (which may

²⁷ James Walvin, *The Quakers. Money & Morals* (London: John Murray, 1997); *Extracts from the Minutes and Advices of the Yearly Meeting of Friends Held in London, from Its First Institution*, 2nd edn. (London: W. Phillips, 1802), 195-200.

²⁸ Minutes of the Leinster Province Meeting, October 1705, in Braithwaite, *Second Period of Quakerism*, 510. See also B. Henrey, *British Botanical and Horticultural Literature before 1800* (Oxford: Oxford University Press, 1975), 311.

seem a somewhat surprising topic, given the Quaker deep antipathy towards idleness). These three areas are discussed briefly in the following subsections.

3A. Educational Contexts

While the first generation of Quakers expressed little concern with education, this subsequently became a major issue for Quakers, with regular epistles being sent by the Yearly Meeting and numerous pamphlets urging parents and schoolteachers to bring up their children in a godly manner and prevent them from slipping into vice and sin.²⁹ While this literature principally contained admonitory advice, some Quakers perceived the study of nature to be a moral, innocent and godly subject for the young. Indeed, George Fox famously instructed one of his followers to establish a school for teaching languages, “together with the nature of herbs, roots, plants and trees.”³⁰ On another occasion he “ordered a women’s school to be set up at Shacklewell [in order to] to instruct young lasses and maidens in whatsoever things are civil and useful in the creation.”³¹ Here Fox emphasized utility and the value to the community of learning about nature. A far more sustained concern with using nature in education is to be found in William Penn’s writings, particularly his *Some Fruits of Solitude* (1693), which he described as an enchiridion. Several of his reflections, especially on educational subjects, advocated the view that Quakers – especially young Quakers – should study nature. He urged that “the *World* is certainly a great and stately *Volume* of natural Things ... [and it] ought to be the *Subject* of the Education of our *Youth*, who, at Twenty, when they should be fit for Business, know little or nothing of it.” Penn urged study of the book of nature as far more worthwhile educationally than studying grammar, rhetoric, or foreign languages. Studying the natural world was also religiously uplifting, since it displays “an *eternal Wisdom, Power, Majesty and Goodness*” – a theme we shall return to below. Moreover, he argued that if we possess the appropriate scientific knowledge we will not misuse the physical universe since “this noble Creation ... has the Stamp and Voice of a Deity every where, and in every thing to the observing”.³² Unlike many seventeenth-century Quakers, who considered the physical world to be corrupt and the external senses to be channels that admitted evil, Penn insisted that the student should use his senses to appreciate the physical world and also to acknowledge it as God’s creation. In his concern with utility Penn was rather atypical among contemporary Quakers and his views were doubtless coloured by his unusual background and experience: he was university-educated, moved in high political circles, set up the Quaker colony in Pennsylvania, and was even admitted to the Royal Society.

An increasing number of Quakers in the late seventeenth century and throughout the eighteenth made similar points to Penn’s about the religious significance of observing the natural world (to which we return in the next section). They also stressed the utility of studying nature. For example, in a work published in

²⁹ E.g. John Field, *Friendly Advice in the Spirit of Love unto Believing Parents and Their Tender Off-spring in Relation to Their Christian Education* (London, 1695).

³⁰ Minute of Six Weeks’ Meeting, 11th day, 5th mo., 1675, quoted in Braithwaite, *Second Period of Quakerism*, 528.

³¹ *Journal of George Fox*, 520.

³² William Penn, *Some Fruits of Solitude: in Reflections and Maxims Relating to the Conduct of Human Life*, 5th edn. (London, 1799). I have used this 5th edition, which contains some additional material.

1680 the schoolmaster and botanist Thomas Lawson (who was also university educated) provided a long list of “Useful and Necessary” topics about which young people should become familiar, such as “Trees, Birds, ... the Rules of Gardening, Agriculture, ... Medicine, ... [the] Improvement of Lands, ... [and the] Propagation of Plants.” In typical Quaker fashion these serious and valuable activities were contrasted with such frivolous and ungodly pursuits as reading “Lascivious Poems” and studying “Pagan [i.e. Aristotelian] Philosophy.”³³ While Lawson insisted that knowledge of the creation was secondary in importance to experiential knowledge of God, he accepted that the natural world provided a training in skills that would be of use to Quakers in maintaining themselves, their families, and their community.³⁴

In line with the advice of Penn, Lawson and others, a number of Quakers turned to horticulture as a career. It was deemed to be an innocent trade, whereas many occupations were closed to Quakers either because they promoted evil or because an oath was required (which Quakers deemed unacceptable). For example, nineteen Scottish Friends – many of whom were members of the influential Miller family – are recorded in the minutes of the Edinburgh Yearly Meeting as gardeners or seedsmen in the period up to 1790.³⁵ Likewise, in seeking to apply their knowledge of the natural world for humanitarian purposes, a number of eighteenth-century Quakers became pharmacists; one example is Thomas Corbyn who traded extensively in medicines, using Quaker networks in Britain and America for distributing his wares.³⁶

3B. Medicine.

Quaker involvement in pharmacy leads to a consideration of Quaker views about medicine – a major topic that can only be dealt with here in a very superficial manner. Again, we see a shift in attitude occurring in the late seventeenth century. In accord with their focus on the spiritual realm of existence, early Quakers often considered illness to be spiritual; physical ailments therefore had a spiritual cause. Fox, among others, therefore practised faith healing. He frequently visited the sick and claimed that through the power of the spirit he was able to produce cures of physical symptoms. To take one example among many, on a visit to Arnside, Westmorland, Fox encountered Richard Myers, whose arm was lame. Fox recounted that he “was moved of the Lord to say to Richard Myers amongst all the people, ‘Prophet Myers,

³³ Thomas Lawson, *A Mite into the Treasury, being a Word to Artists, Especially to Heptatechnists, the Professors of the Seven Liberal Arts, so called, Grammar, Logick, Rhetorick, Musick, Arithmetick, Geometry, Astronomy* (London: 1680), 41.

³⁴ Ibid; Thomas Lawson, *Dagon’s Fall before the Ark. Or the Smoak of the Bottomless Pit Scoured Away, by the Breath of the Lords Mouth, and by the Brightness of his Coming* (London: 1679), 71-72.

³⁵ See Cantor, *Quakers, Jews and Science*, 97; W. F. Miller, “A Dictionary of All Names of Persons Mentioned in the Meeting Books Belonging to Edinburgh Yearly Meeting of the Society of Friends (Commonly Called Quakers) from the First Recorded Date 1656 to about 1790”: Friends House Library, London, vol. 27.

³⁶ Roy Porter and Dorothy Porter, “The Rise of the English Drugs Industry: the Role of Thomas Corbyn,” *Medical History*, 33 (1989), 277-95; Richard Palmer, “Illustrations from the Wellcome Institute Library: Thomas Corbyn, Quaker Merchant,” Ibid, 371-6.

stand up upon thy legs,' ... and he stood up and stretched out his arm ... and said, 'Be it known unto you all people and to all nations that this day I am healed.'"³⁷

As Peter Elmer has pointed out, a number of early Quakers were also attracted to hermetic ideas, especially those of Johannes Baptista van Helmont and his son Francis Mercury van Helmont, who may have converted to Quakerism. Like writers in the Quaker tradition, the two van Helmonts opposed Aristotelianism and the medical philosophy of Galen, and instead offered a spiritually-based understanding of the world. Like the Quakers they stressed the essential goodness and unity of creation. Moreover, a number of Quaker medical men encompassed iatrochemical ideas similar to those of the van Helmontians.³⁸ The Bristol apothecary Charles Marshall provides an example of a Quaker medical practitioner who used iatrochemical medicines. Marshall's medical views were expounded in a small tract published in 1670 in which he criticized Galenic medical practices and advocated the use of several iatrochemical preparations including *spiritus mundus*, *spiritus sedativus*, *aqua ruba*, solar tincture, and expulsive cordial. Yet, as he pointed out, such substances did not only cure physical bodily ailments, but operated simultaneously on both the physical and the spiritual aspects of the sick patient.³⁹ A wider significance can be given to Marshall's arguments since a dozen leading Quakers signed a testimonial endorsing the value of his medicines.⁴⁰

While it is clear that faith-healing was extensively practised by many early Quakers, apothecaries like Marshall subsequently used iatrochemical preparations that were viewed as curing both the body and the soul. Yet by the middle decades of the eighteenth century Quakers were receiving their medical education at secular medical schools including those at the Universities of Leiden and increasingly Edinburgh. While some of these Quakers continued to appreciate the spiritual dimension of medicine (including John Ritty who will be discussed below), in many cases there is no evidence of Quaker physicians and apothecaries paying particular attention to the spiritual. Instead, they appear to have treated the body as a physical entity for which physical (often chemical) treatments were required. This transition deserves further study especially as it pertains to changing views about the physical world.

3C. Quaker Receptions

Despite the repeated emphasis on the primacy of the spiritual life, Quakers often accepted that even sober, spiritually-aware Quakers could not live permanently in a state of religious intoxication. Thus some writers allowed for certain forms of recreation and permitted, even positively encouraged, certain types of scientific activity.

A prominent example occurs towards the end of Barclay's *Apology* where he discussed how Quakers should deport themselves. In contrast to the lists of activities to avoid – such as taking off one's hat when meeting a self-styled superior, wearing

³⁷ Henry J. Cadbury, *George Fox's 'Book of Miracles'* (Cambridge: Cambridge University Press, 1948), 115.

³⁸ Peter Elmer, "Medicine, Science and the Quakers: The "Puritanism-Science" debate reconsidered," *Journal of the Friends Historical Society*, 54 (1976-82), 265-86

³⁹ Charles Marshall, *A Plain and Candid Relation of the Nature, Use, and Dose of Several Approved Medicines* (London: 1670).

⁴⁰ "Dear Friends, all unto whom this may come ...," 1681: Friends House Library, London, vol. N/28b.

fashionable clothing, or taking oaths – Barclay also prescribed certain activities that were commensurate with the ideal of the Christian walking in continual awareness of God. Most importantly, the Christian should always tell the Truth. He also admitted, by way of concession to human weakness, that some form of recreation is needed since even devout Quakers experience difficulty in constantly sustaining an “intentiveness of mind,” especially when responding to their physical needs. Yet, he quickly reminded his readers that when “*eating, drinking, sleeping, [and] working*” one should do so in a state of spiritual awareness. Then he added, somewhat reluctantly: “there may be a liberty allowed beyond these things, which are of absolute need for the sustenance of the outward man, I shall not contend against it; provided these things be not such as are wholly superfluous, or in their proper nature and tendency lead the mind into *lust, vanity, and wantonness ...*” He passed as acceptable “other innocent divertissements which may sufficiently serve for relaxation of the mind, such as for *friends to visit one another; to hear and read history; to speak soberly of the present or past transactions; to follow after gardening; to use geometrical and mathematical experiments, and such other things of this nature.*” Aware that he might be allowing too much leeway he quickly added: “In all such things we are not so to forget God”.⁴¹ Yet, despite his numerous equivocations, he did allow gardening and making “experiments” in geometry and mathematics.⁴²

A few years earlier Penn had addressed the subject of recreation in his *No Cross, No Crown* (1669), arguing that “the best *Recreation is To do good*”, but he proceeded to list several beneficial activities, adding: “Also, *Study moderately such commendable and profitable Arts, as Navigation, Arithmetic, Husbandry, Gardening, Handicraft, Medicine, &c.*”⁴³ As we have seen he considered these subjects to be useful, but here he also acknowledged that they were suitable forms of recreation. Note particularly his use of the word “moderately.” As I have argued elsewhere, Quakers were often concerned that to pursue mundane activities (such as science) with too much enthusiasm could compromise a person’s religious fidelity.⁴⁴ Although gardening and astronomy were acceptable activities, a Quaker must keep them in check and must avoid the excesses that brought into disrepute the Irish Quakers cited above.

Like members of many other religious groups, throughout the eighteenth century Quakers turned to nature and nature study as an acceptable recreation. For

⁴¹ Barclay, *Apology*, 540-41. It is important to note that Barclay is here discussing “innocent divertissements,” the word innocent being frequently used by Quakers in a positive sense to mean free from wrongdoing and sin. Quakers were encouraged to pursue the “innocent trades” being those that are not morally corrupt – unlike manufacturing weapons.

⁴² The phrase “to use geometrical and mathematical experiments” is interesting and would appear to refer to making calculations and possibly using such instruments as the Jacob’s staff. In another work Barclay argued that men differed from animals in their knowledge of numbers and in being able to do “*Mathematical and Mechanical Demonstrations.*” See Barclay, *Truth Triumphant* (London: 1692), 764.

⁴³ William Penn, *No Cross, no Crown. A Discourse Shewing the Nature and Discipline of the Holy Cross of Christ, and that the Denial of Self, and Daily Bearing of Christ’s Cross, Is the Alone Way to the Rest and Kingdom of God*, 6th edn. (London, 1702), 239-40.

⁴⁴ Cantor, *Quakers, Jews, and Science*, 242-7.

example, Peter Collinson informed Thomas Story (who had recently retired to Carlisle to tend his gardens after travelling in the Quaker cause) that he had “retreated from the Hurrys of the Town” to his home in Peckham in order “to Breath the Air of Content & Quiet ... [in his] Little Cottage, [with] a pretty Garden, well fill’d [with plants].”⁴⁵ (Collinson was a cloth merchant with a business in London – hence the reference to “Town” – who also traded in exotic plants from America.) Likewise, towards the end of the century fourteen year old William Allen enjoyed viewing the moons of Jupiter through a telescope he had constructed and later in life he often retired to his observatory after a working in his chemical manufactory.⁴⁶ Subjects like botany and astronomy had by that time become perfectly acceptable pastimes for Quakers. However, because Allen was enthusiastic about science his mentor (the pharmacist Joseph Gurney Bevan) “was ever watchful lest the allurements of science should beguile his heart from love to God, or adherence to the simple truths of the gospel.”⁴⁷ Science could too easily become a snare.

4. The Inward Light and the Outward Senses

We now turn to the central issue of this paper. As we have seen, early Quakers often contrasted a true Christian understanding, based on the Inward Light’s insight into biblical truths, with the false or shallow knowledge gained by the senses and by the operation of human reason. While this contrast was taken as involving polar opposites, later Quakers increasingly interpreted it as a matter of degree. Thus, in his *Apology* Barclay contrasted listening to the Spirit of God with other forms of religious knowledge – “whether it be the letter of scripture, the traditions of the churches, or the works of creation and providence, whence they are able to deduce strong and undeniable arguments ... [However, they] are not yet to be esteemed *Christians*” since they are not touched by the Spirit.⁴⁸ Thus, while relegating knowledge of the works of creation and of providence to a far inferior category than direct communication with the Spirit, he admitted that such activities providing legitimate religious knowledge, albeit of a very inferior and limited form. Only when illuminated by the Inner Light do they provide real insight and understanding.

We should also consider a journal entry dating from 1732 in which Thomas Story sought to distinguish our natural from our spiritual state. Natural man – who seems to be a Lockean construct – obtains all his ideas from his five external senses and then uses the power of reason to operate on these ideas and draw conclusions. Story also argued that man possesses a “Mind Spiritual or Mental Senses” – the Inward Light – which enables him to form the idea of God and to imbibe true knowledge of the spiritual realm. This comparison works in three ways. First, the external senses are limited in their application. They, together with the power of reason, enable man to gain a partial understanding of “the Existence of the Almighty, from his work of the Creation”. By itself this method does not allow man to “form any proper idea of the Enjoyment of GOD, from the Works of Creation”. Second, not only are the physical senses limited but they are different in kind from the Inward Light. Just as the nose cannot detect light, the external senses are not attuned to

⁴⁵ Peter Collinson to Thomas Story, April 1731: Friends House Library, London, MS340.

⁴⁶ *Life of William Allen, with Selections from His Correspondence*, 3 vols. (London: Gilpin, 1846-7), I, 2 and 115-116.

⁴⁷ *Ibid.*, 3.

⁴⁸ Barclay, *Apology*, 25.

receive spiritual truths. Third, despite these manifest differences Story evoked a similarity between the internal and external senses: “the essential Truth, by the Emanation of its own divine Light, exhibiting in the Mind every [spiritual] idea, by divine Intuition, even as the Sun in the Firmament of Heaven exhibits himself to the Natural Man by his own Light, by a natural Intuition, immediately, [and] without Reasoning.”⁴⁹ Sensations received through the physical senses can therefore be a valuable source of inspiration and an aid to Truth. Notice however that Story, like many other Quakers, praised intuition but denigrated reason.

Quakers increasingly accepted the natural world – God’s creation – as a legitimate realm of experience and one from which at least some degree of spiritual insight can be obtained (although of a far lesser degree than the unfettered meditations of the Inward Light). It was, however, not a subject often discussed explicitly in eighteenth century religious tracts, but appears most often in diaries and letters, and also in poetry. It is to these sources that we now turn. One example occurs in a letter of 1772 from the physician-botanist John Fothergill to William Bartram (in America) about collecting botanical specimens. Fothergill requested that he be sent “All fragrant shrubs or plants, or such as are remarkable for the beauty or singularity of their flowers and foliage.” (The early Quaker illuminists would have dismissed physical beauty as a snare of the devil.) He then lectured Bartram: “But in the midst of all this attention [to botany], forget not the one thing needful. In studying nature forget not its author.”⁵⁰ Fothergill was saying that it is permissible to enjoy the physical world, but one must not revel in sensory experience to the detriment of religion.

My next example takes us slightly beyond the time frame of this conference. In a letter dating from 1806 the Quaker apothecary Joseph Gurney Bevan expressed the hope that “the approaching, lengthening, autumnal evenings, may be favourable for the exercise of that kind of meditation which carries beyond earthly things. A walk by the harvest-moon may also be employed to the same purpose. A mind does not stop at Creation, without being led by it to the Creator, [and] often finds cause of reverence in his works.”⁵¹ This quotation effectively indicates Quaker recognition that the creation is to be revered and is a worthy subject on which to meditate. The physical world is not to be spurned as mundane and sensual (as in the tradition of the early Quakers). Instead, Gurney viewed “earthly things” as a source of religious inspiration enabling the Inward Light to see beyond the creation and gain a flickering sense of its Creator. Notice that unlike many who utilized the argument from design in a rationalist mode, Gurney does not appeal to reason but to the (properly trained) mind’s ability to see beyond the physical realm. In the light of these concerns it is understandable that a number of eighteenth-century Quakers pursued botany, astronomy and other observational sciences. Conversely, the flourishing of interest in these sciences provides evidence of the growing appreciation of the natural world by eighteenth-century Quakers.

⁴⁹ *A Journal of the Life of Thomas Story* (Newcastle upon Tyne: Isaac Thompson, 1747), 685-6.

⁵⁰ John Fothergill to William Bartram, 22 October 1772: in Betsy C. Corner and Christopher C. Booth, eds., *Chain of Friendship. Selected Letters of Dr John Fothergill of London, 1735-1780* (Cambridge: Harvard University Press, 1971), 391-3.

⁵¹ Joseph Gurney Bevan to ?, 21 August 1806: *Extracts from the Letters and other Writings of the Late Joseph Gurney Bevan* (London: 1821), 93-94.

Appreciation of the natural world can also be seen in the eighteenth-century Quaker enthusiasm for nature poetry. Consider, for example, Rachel Barclay's collected *Poems Intended to Promote Piety and Virtue in the Minds of Young People* (1797). Barclay (née Lloyd), who grew up in a prosperous Birmingham banking family, is described as having been "conversant in the useful parts of the mathematicks, natural philosophy, and astronomy.... The study of botany was one of her favourite amusements; she collected specimens of a great number of English plants, and placed them, when dried, in systematic order."⁵² The published poems, which were found among her effects after her death in 1792, contain a number of reflections on nature, such as Richard Jago's "The goldfinches" and "The swallows", Hester Chapone's "To a robin redbreast," and Richard Graves's "Invitation to the feathered race." Many of these poems dwelt on the beauty of nature as a source of moral insight: for example, in John Gay's "The shepherd and the philosopher" it is the shepherd, and not the book-bound philosopher, who is able to attain Truth:

*But he [the shepherd] who studies nature's laws
From certain truth his maxims draws.*

Perceiving God through nature was a recurrent theme in the poems chosen by Barclay, which included the following lines from another of Gay's poems:

*Still nature's various face informs my sense,
Of an all-wise, all-powerful, Providence.*⁵³

For Barclay, nature was to be perceived and enjoyed as a source of pious reflection.

In contrast to the simple piety conveyed in Rachel Barclay's book, the spiritual diary kept by the Dublin pharmacist John Rutty from 1753 to 1774 provides remarkable insights into the internal conflicts of a Quaker naturalist. Not only did he attend to the maladies of his patients but he also pursued and published several scientific and medical investigations on such subjects as mineral waters, the cure of the stone, and the relationship between the weather and certain diseases. Like Collinson, Bevan and Rachel Barclay, the Leiden-educated Rutty could appreciate the hand of God in the creation: "Look about thee: in nature love abounds, not only among mankind, but even in the brute creation, manifested particularly in a tender care of their young; but this is no more than the work of God in nature."⁵⁴ Although the true Christian's love of God is of a much higher order than the love perceived to operate in the animal realm, Rutty nevertheless saw sermons in stones and even in the pages of the *Philosophical Transactions of the Royal Society of London*: "O the wonders of God's creation, in insects, polypi, corals, and madrepores!" he exclaimed after reading a copy in December 1754.⁵⁵

⁵² Rachel Barclay, *Poems Intended to Promote Piety and Virtue in the Minds of Young People* (London: Phillips, 1797), iii-iv. Geoffrey Morries is examining the Quaker interest in nature poetry.

⁵³ *Ibid.*, 40-3, 126.

⁵⁴ John Rutty, *A Spiritual Dairy and Soliloquies*, 2nd edn. (London: J. Phillips, 1796), 380.

⁵⁵ *Ibid.*, 18; see also 68.

Yet a number of Rutty's diary entries also expose the tensions and conflicts underlying his scientific and medical pursuits. While he was strongly attracted towards the observable universe and was committed to making a close and sober study of God's creation, he was also pulled by the Quaker otherworldliness that, as we have seen, deprecated interest in the mundane and the sensual. In his diary entries he repeatedly questioned whether he could be both a Quaker, committed to spiritual seeking, and also a serious student of the physical world. His inner conflicts, which some other Quakers sought to ignore, are plain to see. For example, at one Quaker meeting of worship he reflected: "Lord, remember not the sin of my youth and age, even that of idolizing nature. O give me now to redeem the time, the precious time." Yet, far from ceasing to pursue his science, the very next entry for that day reads: "Proceeded, however, on [writing?] the Natural History of the city of Dublin, with satisfaction." On another occasion he declared, "Now is the snare laid in natural science: Lord, grant that it may be in vain!"⁵⁶ Repeatedly he was pulled between these two poles, never satisfied that he had adequately achieved a state of grace and yet never able to relinquish his abiding interest in scientific investigations. He still had one foot in the world of Fox, Burrough, Smith and the other early Quakers who sought religious Truth, but his other foot was in the world of Enlightenment Dublin;⁵⁷ one in the seedbed of Quaker spirituality, the other in its emerging worldliness. Far from holding these two together they created an inner conflict and dissonance. Rutty's predicament in trying to live in these two incompatible universes captures the theme of this paper.

5. Coda

At an historically important meeting held in Manchester in 1895 a number of forward-looking, liberal Quakers addressed the need for the Society of Friends to engage the modern world. Neither the introspective and conservative quietists nor the bible-centred evangelicals within the Quaker movement had achieved this synthesis. These liberals meeting in 1895 considered that Quakerism would be doomed if it could not confront the challenge of modernity. One of the speakers, the Cambridge palaeographer James Rendel Harris, offered the following prescription for change:

unless we are prepared to regard our spiritual and mental faculties as a part of the same Divine life within us, and entitled to an equally free expansion, we shall presently find one of them becoming the victim of the other. This theory of the detachment of science and religion from one another never has been a

⁵⁶ Ibid., 149-50, 151. The work referred to was published as Rutty, *An Essay towards a Natural History of the County of Dublin, Accommodated to the Noble Designs of the Dublin Society*, 2 vols. (Dublin, 1772).

⁵⁷ In Dublin Rutty was an active member of both the Physico-Historical Society and the Medico-Philosophical Society. See Eoin Magennis, "'A Land of Milk and Honey': The Physico-Historical Society, Improvement and the Surveys of Mid-Eighteenth-Century Ireland," *Proceedings of the Royal Irish Academy*, section C, 102 (2002), 199-217; Siobhan Fitzpatrick, "Science: 1550-1800," in Andrew Hadfield and Raymond Gillespie, eds., *The Irish Book in English 1550-1800* (...), My thanks to Sean Connolly for these references.

*working theory of the universe; the two areas must overlap and blend, or we are lost.*⁵⁸

For Harris and many other progressives at that meeting the inner and the outer life could no longer be kept separate. Quakers had to engage modern thought – especially the theory of evolution – but to do so with an awareness of the divine. The Inward Light and the creation could no longer be assigned to different spheres of existence. However, my argument in this paper has been that, in contrast to the denigration of the material world by the early Quakers, a number of seventeenth and eighteenth century Friends had begun to engage the physical world, to reflect on it and even to pursue scientific studies. Although the issues they faced were different from those confronting their late-Victorian descendants, these earlier Quakers did make the attempt to “regard our spiritual and mental faculties as a part of the same Divine life within us”. Although some may appear to have achieved this resolution, the example of Ruddy forcefully demonstrates there could also be immense and unresolvable tensions between the Quaker spiritual odyssey and the pursuit of science. Conflicts run deep in the science-religion relationship.

⁵⁸ J. Rendel Harris. “The Attitudes of the Society of Friends towards Modern Thought,” in *Report of the Proceedings of the Conference of Members of the Society of Friends, Held, by Direction of the Yearly Meeting, in Manchester from Eleventh to the Fifteenth of Eleventh Month, 1895* (London: Headley Bros., 1896), 219.

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